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Final Report

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of Transportation
**National Highway
Traffic Safety
Administration**

Development of Safety Helmet Education Materials

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16. Abstract

This report describes the development of attitude/behavioral change strategies and educational materials designed to encourage the voluntary use of motorcycle safety helmets. The project involved three major phases: Problem Analysis, Materials Selection and Development, and Field Test of Materials. Phase I consisted of a thorough analysis of the reasons for non-usage of helmets, a critical examination of past attempts to change safety related behaviors, and development of new concept approaches for modifying attitudes and behavior. Phase II--Materials Selection and Development involved the development of a comprehensive set of helmet education materials including television and radio public service announcements (PSAs), poster, and brochures. Phase III--Field Test of Materials specified a plan to subject each of the campaign materials to review/critique by a representative cross section of the intended target audiences.

17. Key Words	18. Distribution Statement
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SECTION 1

INTRODUCTION

Background and Objectives

In 1977 the national fatality rate due to motorcycle crashes was 7.7 fatalities per 10,000 registered motorcycles.

Despite a multitude of studies demonstrating the benefits that accrue to crash victims wearing helmets, many riders energetically resist wearing protective headgear. Also, helmet use legislation is not acceptable to a vehemently vocal segment of the motorcycling public. Yet new studies continue to add support to earlier findings that, properly used, helmets reduce head injuries and fatalities in motorcycle crashes without adding any dangers or hazards to helmet users.

Although anti-helmet-law forces maintain that their major concern is the right to choose whether or not to wear protective helmets, an overwhelming number of court tests have demonstrated that helmet-use laws are not unconstitutional and do not exceed the police powers of the states (with the single exception of the State of Illinois). The titles of publications opposed to helmet laws reflect the emotional nature of the anti-helmet appeal: "Your Government is Trying to Kill You," and "Twisting Statistics" are two of the more inflamatory. Each new piece of information concerning helmet effectiveness has been dissected, criticized, and rejected by anti-helmet groups. Clearly, information transfer alone is insufficient to satisfy the opponents of helmet laws. Because the constitutionality argument has been defeated, opponents must resort to attacking the validity of helmet effectiveness studies. It would appear that, as long as there is opposition to helmet laws, there will be extreme efforts to discredit helmet research.

It should be noted that there are differences between individuals involved in active opposition to helmet-use legislation and individuals who simply don't wear helmets. However, many non-users give reasons for not wearing a helmet that closely parallel the anti-helmet law attacks on helmet effectiveness data (e.g., unproven effectiveness, unsafe, impair vision and hearing, etc.). It would appear that many riders are strongly influenced by faulty arguments, not because of poor logic, but because the arguments are compatible with the rider's attitude against wearing a helmet. Thus, any major educational effort must begin with a consideration of riders' attitude and belief systems rather than strictly with their "lack of knowledge."

In response to the growing opposition to helmet laws and the possible increase in non-use, the National Highway Traffic Safety Administration (NHTSA) contracted with Applied Science Associates, Inc. (ASA) to identify the issues that keep riders from using helmets, develop educational materials directed toward these issues, and field test the materials to determine their effectiveness.

Conduct of the Project

Conduct of the project involved three major phases:

1. Problem Identification and Analysis

2. Materials Selection and Development

3. Field Test of Materials

Each of these phases is described in detail in subsequent sections of this report. Figure 1-1 provides a schedule of major project activities.

Report Organization

The remainder of this report is organized as follows:

Section 2, Problem Identification and Analysis, reviews the activities which were conducted to evaluate existing materials and identify major target groups and educational needs.

Section 3, Materials Selection and Development, describes the development of educational materials to address the target population.

Section 4, Field Test of Materials, examines the plan to determine the effectiveness of the materials in delivering the intended message.

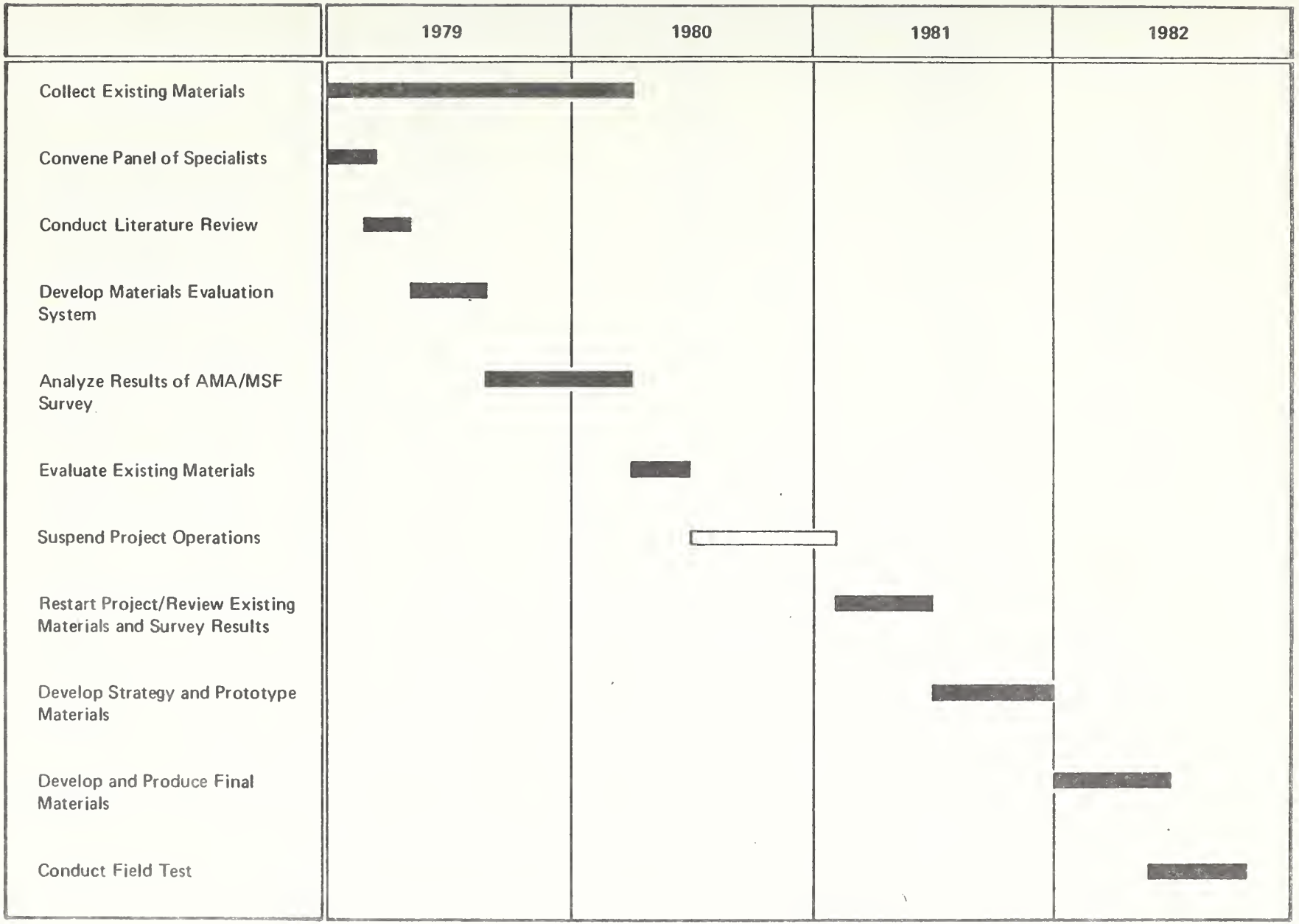


Figure 1-1. Schedule of Major Project Activities

SECTION 2

PROBLEM IDENTIFICATION AND ANALYSIS

The first phase of this study to develop safety helmet educational materials involved a thorough analysis of the problem of motorcycle helmet non-use and the identification of major target groups. This Problem Identification and Analysis Phase of the project consisted of three major activities:

1. Develop Informational and Theoretical Foundations

2. Collect and Evaluate Existing Materials

3. Identify Major Target Groups and Educational Needs

The subsections which follow provide a summary of the conduct and results of these activities.

Develop Informational and Theoretical Foundations

In order to develop effective safety helmet educational materials it was necessary to conduct a thorough review of existing literature in the areas of traffic safety education and attitude/behavioral change.

Approximately 175 documents were obtained from various sources (e.g., Safety Helmet Council of America, Motorcycle Safety Foundation, NHTSA, local libraries, etc.). These documents were reviewed, abstracted, and classified into the following areas:

1. Studies or reports related to the efficacy of changing attitudes and behavior through educational programs.

2. Materials, studies or reports related to safety helmets and/or head injury.

3. Materials and programs related to safety education programs that have a direct relationship to a helmet safety campaign.

Identify and Review Attitude/Behavior Change Literature

The purpose of the review of the attitude/behavior change literature was to identify educational programs which have successfully produced changes in attitudes and/or behavior. Literature in two major disciplines was examined:

1. Social Science -- psychology, sociology

2. Advertising -- TV, radio, magazine, billboard, handbill

Relevant articles were studied for variations in educational approach, message content, dissemination route, and effectiveness in changing behavior. A review of this literature is presented in Appendix A.

This literature review confirmed ASA's belief that safety helmet education materials must be built on a foundation of knowledge of the attitudes and constraints on behavior of the target audience. In addition, safety education programs must use a multitude of approaches. Programs that have not worked typically have used a single psychological approach (based solely on attitude change techniques) or a single advertising approach (based on inappropriate reliance on television). A multi-theoretical approach holds the potential to deal directly and indirectly with many aspects of behavior change that have been ignored by most previous programs.

Identify and Review Helmet/Head Injury Literature

Literature pertaining to helmets and head injury was reviewed:

1. To identify sources of research evidence on head injury, helmet effectiveness, and riders' knowledge and attitudes related to helmet use in order that new educational materials will be factually correct.

2. To identify existing materials/programs for evaluation/ critique in regard to potential or actual effectiveness.

Identify and Review Safety Educational Programs/Literature

A search for relevant traffic safety educational programs/literature was conducted to identify educational programs which could be evaluated to identify their strengths and weaknesses. Specifically, ASA examined materials/programs in the following areas:

- Drinking and Driving

- Seat Belt Campaign

- Helmet Educational Materials/Programs (e.g., Tennessee, Texas, Iowa, MSF, Canada).

Collect and Evaluate Existing Materials

The process of reviewing and critiquing existing highway safety educational materials/programs involved forming an advisory panel, assembling relevant educational materials, soliciting panel opinions/recommendations, developing a methodology for the review of the materials, and evaluating the effectiveness of the materials.

Form Advisory Panel

Individuals recognized for their work in the areas of traffic/helmet safety, advertising/mass-communication, and behavior/attitude change were identified and asked to serve on an "Advisory Panel."

Panel members/organizations included:

- Mr. Lewis Buchanan, NHTSA
- Dr. James Newman, Biokinetics and Associates, Ltd.
- Dr. Roger Quane, Motorcycle Safety Foundation
- Mr. Ed Youngblood, American Motorcyclist Association
- Mr. James Smith, California Dept. of Education
- Mr. Ivan Wagar, Safety Helmet Council of America
- Mr. Bill Prescott, Prescott, Purcell, Karsh & Hagan
- Members of the Mutual Advertising Agency Network (MAAN)
- Mr. John P. Allegrante, University of Illinois

Assemble Materials for Panel Review

Selected materials/programs identified in the literature review described previously were assembled for review by advisory panel members.

In addition, the project staff sent letters to the Governor's representatives for highway safety and to regional NHTSA offices requesting information about motorcycle safety programs and materials used in each state. Responses were received from 25 states and three territories. Thirteen respondents indicated that they used NHTSA or MSF materials. Approximately thirty of the individual educational materials identified were appropriate for evaluation. These materials included films, PSAs for both radio and television, pamphlets, reports, and posters.

In most cases entire programs/campaigns were selected rather than single items in recognition of the importance of the integration of educational philosophy, message content, and delivery systems. In general, programs were selected based on the following criteria:

1. The program must be educational in nature (as opposed to simply informational).

2. The major message content must be oriented to persuading the audience to perform a specific behavior (e.g., "use seat belts").

3. Programs must be safety related.

4. Preference was given to programs that had been subjected to some form of effectiveness evaluation or for which estimates of effectiveness could be made easily from existing statistics.

Solicit Panel Opinions/Recommendations

Representatives from the three different areas of specialization (i.e., traffic safety, mass communication, behavior change) were each asked to provide input/feedback from their area of expertise.

With respect to the review of materials, respondents were asked to provide the following types of information.

1. Materials Quality. How does each material compare to other similar materials previously experienced by the respondents in terms of general quality, i.e., format, page layout, text, graphics, photographic/video technique, sound quality, video/audio imagery, general creativeness, novelty of approach, etc.

2. Suitability. How suitable is the material as compared to other similar materials:

   a. to the intended audience

   b. for the types of dissemination routes considered.

3. Impact. Is the material attention-getting, i.e., is it likely to be noticed in the setting(s) in which it will typically be presented? If noticed, is it likely to be attended to, i.e., read, listened to, or viewed? Are there aspects of the message which might offend the audience or otherwise cause a negative reaction? Alternatively, does the material have a distinctly positive first impression?

4. Clarity. Is the intended message correctly and completely conveyed to the audience? If not, in what ways is it misunderstood or ambigious?

5. Persuasiveness. Does the message adequately convey the intended safety concept? If not, what aspects of the material detract from its persuasiveness, and/or what must be added to increase its persuasiveness?

6. Knowledge. What potential does the material have for increasing the knowledge of the target group regarding the safety concept presented?

7. Attitudes. Does the material have the capacity to change the target member's attitudes?

8. Preference. Which of the materials (e.g., flyer or PSA) is most preferred? What are the reasons for this preference order?

9. Behavior Change. What is the likelihood that this material will cause target group members to change their behavior in the desired direction.

With respect to an overall assessment of particular programs/campaigns, respondents were asked to provde the following information:

. Adequacy/appropriateness of the dissemination route(s) employed.

. Adequacy of the level of exposure achieved for each route.

. Rationale for why the program succeeded/failed.

For new materials (e.g., Visucom) that had not yet been employed in a campaign, respondents were asked to provide the following program related information:

. General campaign strategy.

. Recommendations for effective dissemination.

. Potential problems in dissemination.

In addition to the types of information outlined above, selected panel members were asked to provide guidance (from their area of specialization) regarding:

1. Why riders do not wear helmets.

2. New helmet education approaches/materials that should be considered.

3. Potential campaign strategies for encouraging helmet use.

Structured forms/procedures for soliciting the above types of input/feedback were developed. Examples of these forms are contained in Appendix B.

The following methods were employed to solicit input/feedback from panel members.

1. Mutual Advertising Agency Network (MAAN) conferences.

2. Meetings in Washington (i.e., NHTSA, MSF, NPSRI personnel).

3. Small group conferences (e.g., with Denver based panel members).

4. Site visits by project staff (e.g., Wagar, Smith, and Hurt in Los Angeles).

5. Written/telephone correspondence.

Develop Methodology for the Review of Safety Materials/Programs

In the early phases of this study traditional methods for reviewing safety materials/programs were tried (e.g., rating scales, evaluation of specific dimensions of effectiveness, etc.). In general, these methods did not produce consistent results even among individuals having the same specialty (e.g., advertising executives).

It became clear that a different method for the evaluation/development of safety materials/campaigns was needed. ASA developed a systematic worth assessment method to accomplish this purpose. ASA's worth assessment method is grounded in concepts and theories adapted from the following areas:

- Theories of attitude and behavior change
- Advertising practice
- Mass communication principles
- Systems analysis and value engineering

The development and testing of this system was described in detail in an interim report entitled, "Using Worth Assessment to Develop a Methodology for the Evaluation of Materials Intended to Change Attitudes and Behaviors." This report has been included as Appendix C.

ASA's system, called MED (Materials Evaluation and Development), provides a systematic and structured approach to materials development activities by specifying criteria in thirty-four areas of importance. The 34 criterion statements are contained in the rating form presented in Appendix D. This form provides for responses to each statement on a five point Likert scale, ranging from strongly disagree to strongly agree. Responses to these 34 criterion statements are quantified and then multiplied by the statement's computed weight of its contribution to the total worth score. The total worth score is obtained by summing products of each statement and its computed weight.

In short, this new system combines theory-based performance criteria with a quantitative assessment procedure to produce comprehensive, yet fine-grained, evaluation data concerning a given material.

The 34 evaluation criteria can be grouped under three major dimensions:

1. How the message is conveyed.
2. How the message is stated.
3. What the message contains.

The first dimension evaluates a subject material (e.g., TV PSA) in terms of procedures generally employed within the advertising industry and contains elements of consideration such as "product personality appropriateness" and "media choice-reach." These elements were primarily derived from the literature review of advertising practices discussed previously.

The second dimension evaluates how the message is stated in terms of its adherence to the principles of attitude/behavior change as applied to mass communications. The criterion statements within this dimension are grounded on the research findings that, other things being equal, there will be more attitude change if the conditions set forth in these statements are met.

The third dimension is designed to determine if the message adequately accounts for concepts such as congruency of attitudes, relevant constraints, and situational cues which have been shown to impact on the ability to predict behavior from attitudes. Additioally, two of the 10 statements also assess adequacy of attention to social and intrinsic reinforcement principles associated with successful behavior modification programs.

The MED system was found to have many advantages over less sophisticated techniques for materials evaluation/development:

- It focuses attention on a variety of specific qualities of the material which might otherwise be overlooked.
- It produces the same overall preference ordering as expressed by experts (e.g., advertising executives); however, it is much more reliable than expert opinion.
- It quantifies the difference between materials (using a ratio scale rather than an ordinal or interval scale).
- It specifies qualitative differences in materials.

The interim report concluded with a discussion of possible refinements of the MED system. Specifically, it listed three areas in which the MED system might be improved:

- Increasing Predictive Accuracy
  - Insuring completeness the list of performance criteria
  - Adjusting weights assigned to each criterion;
- Augmenting Interjudge Agreement
  - Developing uniform criterion formats
  - Producing uniform response scales; and
- Enhancing Discriminatory Power
  - Employing different worth functions.

Each of these points was addressed during subsequent work with the ASA MED system.

Staff deleted one "useless" performance criterion ("presence of the object") and added another that was discovered in discussing the system with members of the advisory committee ("message repeated over time"). Limitations of project funds made it impossible to seek and process additional input from the advisory committee on the weights assigned to each of the criteria.

To improve interjudge agreement, staff rephrased performance criteria in "statement" format and developed Likert-scale response categories. (These are the criteria provided in Appendix D.)

Finally, non-linear worth functions were tested for their ability to expand the differences between scores found using linear worth functions. However, since non-linear worth functions make interpretation of scores more difficult, staff used (and recommends) the linear form in subsequent applications of the MED system.

Review/Critique Highway Safety Educational Materials/Programs

The process of reviewing and critiquing existing highway safety educational materials/programs occurred in several fashions during Phase I.

In one case, the Mutual Advertising Agency Network (MAAN), a group of advertising agency owners, was asked to provide information on selected safety education public safety announcements (PSAs). Information was solicited at a MAAN conference held in San Diego on 19 and 20 February 1979.

Following the MAAN review, ASA staff members conducted a review of additional traffic safety programs intended to change attitudes/behavior (i.e., seat belt campaigns, DWI efforts, existing helmet educational materials, etc.).

In general, many of these safety messages/compaigns were judged to be relatively ineffective. Using a multidisciplinary perspective to evaluating these materials/programs, the following factors were identified that individually or in combination appear to reduce the potential effectiveness of a given material/program:

- The message ran counter to common experience in that it predicted dire consequences for not wearing a helmet--since most riders have not been in crashes (yet), their own experience has been that nothing happens if they don't wear a helmet.

- The underlying philosophy of the program is negative (e.g., "You'll get zapped if you don't watch out!") and, because of these aversive qualities, the message may be ignored or "blocked out" by the target audience.

- While programs have been developed by individuals with technical expertise in traffic safety, theory and practice from other critical disciplines have been ignored--for example, theories of attitude and behavior change are not widely or correctly employed to guide program development.

- Basic principles of advertising practice and mass communication strategy are often not employed in materials design or dissemination.

- The specific audiences for particular safety messages are not defined in the message and not targeted in the campaign.

- Programs frequently rely on only one medium to convey the message (e.g., the overused and largely ineffective TV PSA) and/or fail to coordinate (e.g., a common "theme") efforts across media.

While of reasonable technical quality and accuracy, most materials did little more than present information. Their potential to change attitudes or behavior is, in most cases, limited.

During the course of the project, materials were reviewed by NHTSA and ASA personnel and the methodology was refined accordingly. Materials directly related to motorcycle helmet safety were evaluated with the Materials Evaluation/Development (MED) instrument. Materials of a more general nature that addressed motorcycle issues other than helmet safety were simply catalogued and reviewed.

Prior to each materials's evaluation, the team of raters agreed upon proposed use and distribution assumptions. The films and recordings were presented to the evaluators as a group while the written materials were considered separately by the individuals. Table 2-1 summarizes the evaluation of the helmet-related materials.

This evaluation revealed that, in general, most materials were not well-targeted. Campaign themes were weak or nonexistent and talent were often ineffective or inappropriate for the target group. Often the message source lacked credibility (e.g., pretty girls, police chiefs, government officials). In other cases, the message contained too much information, covering too many topics in too great detail. Attempts at humorous approaches were not always funny and tended to get stale fast. Almost always, there was poor exposure to the target audience (i.e., PSAs were aired infrequently and at inappropriate times, brochures were a one-shot treatment, etc.).

Identify Major Target Groups and Educational Needs

One of the most fundamental aspects of ASA's approach to selecting/developing educational materials for safety helmet use was the collection and analysis of data concerning rider attitudes. Noting the scarcity of this kind of information in current literature, ASA worked with the American Motorcycle Association (AMA) and the Motorcycle Safety Foundation (MSF) to expand their attitude survey efforts. The pattern of attitudes revealed by such surveys, taken together with information on other rider variables, provided the foundations on which ASA's materials selection/development efforts were built.

Rider variables were assessed in the following subtasks:

1. Overview of Survey Plans
2. Specification of Plan/Conduct of AMA Survey
3. Specification of Plan/Conduct of MSF Survey
4. Analysis of Survey Results

These subtasks are described in detail in the following subsections.

Table 2-1

Quantitative Evaluations of Selected
Helmet Educational Materials

Source	Title/Description	MED Score
PA	Helmet Law (10 min. film)	23.5
PA	Helmet Law (30 sec TV PSA)	43.5
PA	Helmet Law (20 sec. TV PSA)	43.5
PA	Helmet Law (10 sec. TV PSA)	36.5
OH	Be a Pro (60 sec. TV PSA)	43.5
SD	Wear Your Helmets (30 sec. radio PSA)	46.7
SD	Wear Your Helmets (30 sec. TV PSA)	49.3
SD	Helmets (30 sec. radio PSA)	49.4
SD	Helmets (10 sec. radio PSA)	44.4
SD	Pit Pass (10 min. film)	70.7
ME	PSA Script	40.8
ME	Slug	43.7
NY	Leaflet	41.2
NY	Poster	43.6
IL	Safety Tips Column	55.8
WY	Pamphlet	54.0
WI	2 Pg. Flyer	64.6
WI	Horace (60 sec. radio PSA)	34.6
WI	Horace (30 sec. radio PSA)	33.5
WI	Seymour (60 sec. radio PSA)	37.7
WI	Seymour (30 sec. radio PSA)	36.1
WI	Ant Ranch (60 sec. radio PSA)	37.5
WI	Ant Ranch (30 sec. radio PSA)	35.0
MSF	Did You Know That . . .	50.0
MSF	What You Should Know About Motorcycle Helmets	44.8
MSF	The Motorcyclist & Protective Gear	46.0
MSF	All the Kings Horses (Poster)	53.0
NHTSA	Motorcycle Helmets Claims & Facts	54.9
NHTSA	Motorcycle Safety (19 pg. pamphlet)	56.2
Tr CN*	Conspicuity (8 pg booklet)	54.2
TR CN*	Motorcycle Helmets--Who Needs Them?	84.6

* Transport Canada

Overview Survey Plans

The surveys conducted by the AMA and the MSF had different purposes but were complimentary efforts which, in combination, offered advantages over either one taken alone.

Both surveys obtained information on the following rider variables:

. Demographic factors

. Type of riding

. Information/knowledge factors that relate to helmet usage

. Beliefs, attitudes, values regarding helmet usage

The AMA surveyed by mail a national probability sample of registered motorcycle owners in states not currently having helmet-use laws in effect. The AMA survey tapped many rider variables in addition to a number of attitudinal factors and specific information items. The attitude-related questions were based on a dynamic theory of psychology.

The MSF survey was conducted through in-person interviews with Colorado motorcyclists in motorcycle shops, schools, and at Department of Motor Vehicle licensing stations. This survey also tapped a variety of rider variables, attitudes, and beliefs. Attitude related questions in the MSF survey were based on a "behavioral intention" model of attitude[1], similar to that used by Allegrante.[2] The management of this survey was under the direction of J. P. Allegrante.

The AMA survey provided a national assessment of rider variables related to helmet usage, while the MSF survey provided more local detail.

[1]Fishbein, M. and Ajzen, I. Belief, Attitude, Intention and Behavior: An Intro to Theory and Research. Reading, Massachusetts: Addison-Wesley, 1975.

[2]Allegrante, J. P. Explaining Safety Helmet Use by Motorcycle Operators Using a Behavioral Intention Model. University of Illinois at Urbana-Champaign: Doctoral Dissertation, 1979.

The opportunity for cross validation of the two surveys also provided a rationale for determining the effectiveness of educational materials. Knowing the comparison between Colorado riders for both the AMA and MSF surveys would enable a better prediction of the effectiveness of educational materials at a national level.

Specify Plan/Conduct AMA Survey

The AMA survey was conducted under the direction of Mr. Edward Youngblood, Director of Government Relations, AMA. The AMA survey instrument is provided as Exhibit 1.

In addition to the requirement that the sample be drawn from states not having helmet-use laws in effect, states were chosen as a joint function of:

- availability of motorcycle registration lists (from R. L. Polk, Co.)
- geographical area of the country
- level of involvement in motorcycle crashes and fatalities
- population density

The following states were selected: Delaware, Maine, New Hampshire, Ohio, Illinois, Iowa, Colorado, Nebraska, Texas, Arizona, California, and Oregon.

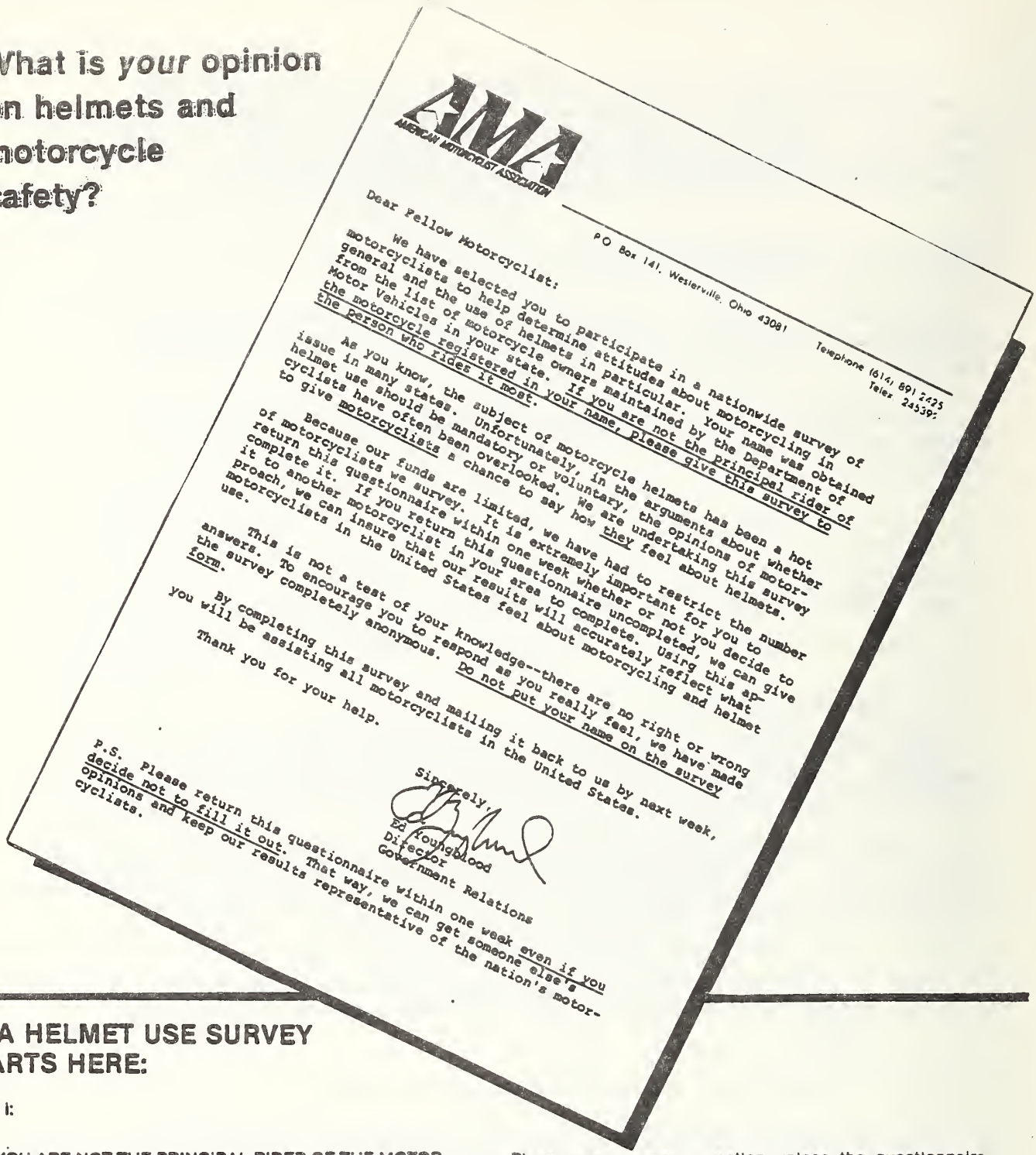
A sampling plan, presented in Table 2-2, was developed. As can be seen from this plan, the percentage of owners to be surveyed in a given state varied as a function of the state's size. This was done for two reasons:

1. In order to ensure reasonable representation from small states, and to guard against over-representation from large states.
2. To balance the distribution across sections of the country.

Registration lists from each state were used as the population from which every "Nth name" was chosen for inclusion in the survey. This procedure was used to assure a random sample of motorcyclists across each state with demographic factors of the sample proportional to the distribution of those factors in the national population.

Prior to full scale conduct of the survey, a small sample of approximately 30 riders was surveyed in person for the purpose of pilot testing the survey instrument. Riders that participated in this survey were recruited from local motorcycle shops. Each respondent was questioned to identify possible difficulties in understanding instructions, ambiguous items, etc. The survey was revised accordingly.

What is *your* opinion on helmets and motorcycle safety?



AMA
AMERICAN MOTORCYCLIST ASSOCIATION

P O Box 141, Westerville, Ohio 43081 Telephone (614) 891 2425
Telex 24539

Dear Fellow Motorcyclist:

We have selected you to participate in a nationwide survey of motorcyclists to help determine attitudes about motorcycling in general and the use of helmets in particular. Your name was obtained from the list of motorcycle owners maintained by the Department of Motor Vehicles in your state. If you are not the principal rider of the motorcycle registered in your name, please give this survey to the person who rides it most.

As you know, the subject of motorcycle helmets has been a hot issue in many states. Unfortunately, in the arguments about whether helmet use should be mandatory or voluntary, the opinions of motorcyclists have often been overlooked. We are undertaking this survey to give motorcyclists a chance to say how they feel about helmets.

Because our funds are limited, we have had to restrict the number of motorcyclists we survey. It is extremely important for you to return this questionnaire within one week whether or not you decide to complete it. If you return this questionnaire uncompleted, we can give it to another motorcyclist in your area to complete. Using this approach, we can insure that our results will accurately reflect what motorcyclists in the United States feel about motorcycling and helmet use.

This is not a test of your knowledge--there are no right or wrong answers. To encourage you to respond as you really feel, we have made the survey completely anonymous. Do not put your name on the survey form.

By completing this survey and mailing it back to us by next week, you will be assisting all motorcyclists in the United States.

Thank you for your help.

Sincerely,

Ed Youngblood
Director
Government Relations

P.S. Please return this questionnaire within one week even if you decide not to fill it out. That way, we can get someone else's opinions and keep our results representative of the nation's motorcyclists.

AMA HELMET USE SURVEY STARTS HERE:

PART I:

IF YOU ARE NOT THE PRINCIPAL RIDER OF THE MOTORCYCLE REGISTERED IN YOUR NAME, PLEASE GIVE THIS SURVEY TO THE PERSON WHO RIDES IT MOST.

The first group of questions below asks for background information about you as a motorcyclist, your riding habits, and when you use a safety helmet. We are also interested in learning how widespread motorcycling is in our society. We have, therefore, included questions on your education, employment, income level, etc.

Please answer every question unless the questionnaire specifically instructs you to skip one. Unless otherwise noted, please check only one box for each question. Ignore the numbers printed in small type. They are for data processing purposes only.

1. What is the zip code for your place of residence?

1-1 1-2 1-3 1-4 1-5

2. What was your age at your last birthday?

2-1 2-2

TURN TO PAGE TWO

Exhibit 1. AMA Survey Instrument

3. *What is your sex?*
Male ☐3-1 Female ☐3-2

4. *How many years have you been riding a motorcycle?*
0-1 ☐4-1 1-2 ☐4-2 2-4 ☐4-3 4-8 ☐4-4 8-16 ☐4-5
16 + ☐4-6

5. *What is your best estimate of the number of miles you traveled on a motorcycle in the last twelve months?*
No miles ☐5-1 Up to 500 ☐5-2 500-1000 ☐5-3
1000-2000 ☐5-4 2000-4000 ☐5-5 4000-8000 ☐5-6
8000-16,000 ☐5-7 16,000 + ☐5-8

6. *What percentage of your riding is on the street or highway as opposed to off-road and trail riding or racing?*
All street/highway ☐6-1 Mostly street/highway ☐6-2
About 50-50 ☐6-3 Mostly off-road ☐6-4
All off-road ☐6-5

7. *What percentage of your riding is recreational as opposed to necessary transportation?*
All transportation ☐7-1 Mostly transportation ☐7-2
About 50-50 ☐7-3 Mostly recreation ☐7-4
All recreation ☐7-5

8. *What make of motorcycle do you ride? (Check only ONE, your primary motorcycle.)*
BMW ☐8-1 Harley-Davidson ☐8-2 Honda ☐8-3
Kawasaki ☐8-4 Moto Guzzi ☐8-5 Suzuki ☐8-6
Triumph or BSA ☐8-7 Yamaha ☐8-8 Other ☐8-9

9. *What size engine does it have?*
Under 125cc ☐9-1 125 to 349cc ☐9-2
350 to 449cc ☐9-3 450 to 749cc ☐9-4
750 to 999cc ☐9-5 1000 to 1199cc ☐9-6
1200cc + ☐9-7

10. *What size motorcycle would you like to ride in the future? (Check only ONE.)*
Under 125cc ☐10-1 125 to 349cc ☐10-2
350 to 449cc ☐10-3 450 to 749cc ☐10-4
750 to 999cc ☐10-5 1000 to 1199cc ☐10-6
1200cc + ☐10-7

11. *How many helmets do you own or have access to?*
None ☐11-1 1 ☐11-2 2 ☐11-3 3 ☐11-4
4 or more ☐11-5
If you answered "None" to the above question, skip to question No. 19.

12. *What type of helmet is the one that you use most often during warm weather?*
None ☐12-1 Half-shell ☐12-2
Three-quarter shell ☐12-3 Full-face shell ☐12-4

13. *What type of helmet is the one that you use most often during cold weather?*
None ☐13-1 Half-shell ☐13-2
Three-quarter shell ☐13-3 Full-face shell ☐13-4

14. *What is the BASIC color of the helmet you use most often? (Check only ONE.)*
Black ☐14-1 Blue ☐14-2 Gold ☐14-3
Green ☐14-4 Orange ☐14-5 Red ☐14-6
Silver ☐14-7 White ☐14-8 Yellow ☐14-9
Other ☐14-10

15. *On the helmet you wear most often, where is the reflectorized material located? (Check only ONE.)*
No reflectorized material ☐15-1 Only on back ☐15-2
Only on sides ☐15-3 On both back and sides ☐15-4

16. *What safety standards does your helmet meet? (Check all that apply.)*
SHCA ☐16-1 US DOT ☐16-2 ANSI Z90.1 ☐16-3
Snell Memorial Foundation ☐16-4 Don't know ☐16-5

17. *In general, how often do you wear a helmet while riding?*
Never ☐17-1 Seldom ☐17-2
Some of the time ☐17-3 Most of the time ☐17-4
Always ☐17-5

18. *If you answered question No. 17 with "always" or "never," go to question No. 19; otherwise, please be more specific about the conditions under which you wear a helmet.*
Please indicate your helmet use for each condition listed below. (Check only ONE for each condition.)

	Never	Seldom	Sometimes	Most of the time	Always
a. On short trips under 10 miles	☐a-1	☐a-2	☐a-3	☐a-4	☐a-5
b. On long trips	☐b-1	☐b-2	☐b-3	☐b-4	☐b-5
c. During dry weather	☐c-1	☐c-2	☐c-3	☐c-4	☐c-5
d. During wet weather	☐d-1	☐d-2	☐d-3	☐d-4	☐d-5
e. During hot weather	☐e-1	☐e-2	☐e-3	☐e-4	☐e-5
f. During cold weather	☐f-1	☐f-2	☐f-3	☐f-4	☐f-5
g. During the day	☐g-1	☐g-2	☐g-3	☐g-4	☐g-5
h. At night	☐h-1	☐h-2	☐h-3	☐h-4	☐h-5
i. On city/suburban streets	☐i-1	☐i-2	☐i-3	☐i-4	☐i-5
j. On country roads	☐j-1	☐j-2	☐j-3	☐j-4	☐j-5
k. On the highway	☐k-1	☐k-2	☐k-3	☐k-4	☐k-5
l. Off-road/trail	☐l-1	☐l-2	☐l-3	☐l-4	☐l-5

19. *Do you think helmet use should be required by law for individuals 18 and over?*
Yes ☐19-1 No ☐19-2

20. *Do you think helmet use should be required by law for individuals under 18?*
Yes ☐20-1 No ☐20-2

21. *How often do you require your passenger to wear a safety helmet? (Check only ONE.)*
Never ☐21-1 Seldom ☐21-2 Sometimes ☐21-3
Most of the time ☐21-4 Always ☐21-5
Don't carry passengers ☐21-6

22. *Are you a member of the American Motorcyclist Association?*
Yes ☐22-1 No ☐22-2

23. *Are you a member of another motorcycle organization or club?*
Yes ☐23-1 No ☐23-2

24. *Which, if any, of the following magazines do you read on a regular basis? (Check all that apply.)*
American Motorcyclist ☐24-1 Cycle ☐24-2
Cycle Guide ☐24-3 Cycle News ☐24-4
Cycle World ☐24-5 Dirt Bike ☐24-6
Easyriders ☐24-7 Motocross Action ☐24-8
Motorcyclist ☐24-9 Rider ☐24-10
Road Rider ☐24-11 Supercycle ☐24-12
None of the above ☐24-13

25. *How many times during the past year have you visited a motorcycle dealer or shop?*
0 ☐25-1 1 ☐25-2 2-3 ☐25-3 4-7 ☐25-4
8-15 ☐25-5 16 + ☐25-6

26. *During what hours of the day do you regularly watch TV or listen to the radio? (Check all time intervals that apply).*

	AM				PM			
	Midnight-3	3-6	6-9	9-Noon	Noon-3	3-6	6-9	9-Midnight
AM radio								
FM radio								
Watch TV								

Exhibit 1 (Continued)

27. *If you watch TV more than four hours a week, what kind of programs do you prefer? (Check all that apply.)*

Watch less than 4 hours per week ☐27-1
Situation comedies ☐27-2 Sports ☐27-3
Action/Adventure ☐27-4 News/Commentary ☐27-5
Talk Shows ☐27-6 Variety Shows ☐27-7
Comedy/Satire ☐27-8 Movies ☐27-9
Soap Operas ☐27-10 Game Shows ☐27-11
Educational (PBS) ☐27-12

28. *If you listen to the radio more than four hours per week, what type of programs do you prefer to listen to most often (Check all that apply.)*

Listen less than 4 hours per week ☐28-1 Rock ☐28-2
Disco ☐28-3 Jazz ☐28-4 Top 40 ☐28-5
Easy Listening ☐28-6 Classical ☐28-7
Country & Western ☐28-8 Talk shows ☐28-9
News ☐28-10 Religious Music/Discussion ☐28-11

29. *What is your occupation? (If retired, what was your occupation before retirement?) (Check only ONE.)*

Professional ☐29-1 Managerial/Administrative ☐29-2
Sales ☐29-3 Secretarial/Clerical/Cashier ☐29-4
Skilled Operator ☐29-5 Service Provider ☐29-6
Laborer ☐29-7 Farm Laborer ☐29-8
Student ☐29-9 Other ☐29-10

30. *What is the highest level of formal education you have completed? (Check only ONE.)*

Graduate/Professional Degree ☐30-1
College Graduate ☐30-2
2 or more years of college ☐30-3
Less than 2 years of college ☐30-4
Trade/Technical school ☐30-5
High School Graduate ☐30-6 Other ☐30-7

31. *What was your personal total income (before taxes) last year?*

$0-4,999 ☐31-1 $5,000-9,999 ☐31-2
$10,000-14,999 ☐31-3 $15,000-19,999 ☐31-4
$20,000-24,999 ☐31-5 $25,000-29,999 ☐31-6
$30,000-39,999 ☐31-7 $40,000 + ☐31-8

PART II:

Attitude Information

To what extent do you agree with the following statements? Please indicate your agreement or disagreement by putting a checkmark in the box which best describes your feeling. For example, if you "strongly disagree" with a statement, put a checkmark in the left-most box. If you "strongly agree," place the check in the right-most box. Check only ONE box for each statement.

	Strongly Disagree	Moderately Disagree	Neither Agree nor Disagree	Moderately Agree	Strongly Agree
32. *Motorcycle helmets are primarily effective in reducing head injuries in high-speed crashes (35 mph and over).*	☐32-1	☐32-2	☐32-3	☐32-4	☐32-5
33. *Motorcycle helmets are only effective in crashes at speeds below 15 mph.*	☐33-1	☐33-2	☐33-3	☐33-4	☐33-5
34. *What I enjoy about riding the most is being totally surrounded by the out-of-doors.*	☐34-1	☐34-2	☐34-3	☐34-4	☐34-5
35. *For me, a motorcycle is primarily a convenient and economical means of transportation.*	☐35-1	☐35-2	☐35-3	☐35-4	☐35-5
36. *Helmets dangerously restrict a motorcycle rider's field of vision.*	☐36-1	☐36-2	☐36-3	☐36-4	☐36-5
37. *Putting on and taking off a helmet and carrying it around is too much trouble for short trips around town.*	☐37-1	☐37-2	☐37-3	☐37-4	☐37-5
38. *Rapid acceleration, high speeds, and quick maneuverability are the most enjoyable parts of riding my motorcycle.*	☐38-1	☐38-2	☐38-3	☐38-4	☐38-5
39. *I enjoy riding more if I never think about the dangerous aspects of motorcycling.*	☐39-1	☐39-2	☐39-3	☐39-4	☐39-5
40. *Wearing a helmet is a drag because it keeps the wind from blowing through my hair.*	☐40-1	☐40-2	☐40-3	☐40-4	☐40-5

	Strongly Disagree	Moderately Disagree	Neither Agree nor Disagree	Moderately Agree	Strongly Agree
41. *A motorcycle rider with good riding skills can usually keep from hitting his/her head in a crash.*	☐41-1	☐41-2	☐41-3	☐41-4	☐41-5
42. *People who make the laws for motorcyclists don't know what it's like to ride a motorcycle.*	☐42-1	☐42-2	☐42-3	☐42-4	☐42-5
43. *A motorcycle operator wearing a helmet is less likely to hear sirens and horns than one not wearing a helmet.*	☐43-1	☐43-2	☐43-3	☐43-4	☐43-5
44. *I think motorcyclists express a dislike for helmets when they really mean helmet laws.*	☐44-1	☐44-2	☐44-3	☐44-4	☐44-5
45. *Motorcycle helmets are reasonably comfortable.*	☐45-1	☐45-2	☐45-3	☐45-4	☐45-5
46. *Helmet price is the only indication a rider has of helmet quality. The more they cost, the better they are.*	☐46-1	☐46-2	☐46-3	☐46-4	☐46-5
47. *Most motorcycle safety experts tend to be self-serving, more interested in keeping their jobs than in finding out the truth.*	☐47-1	☐47-2	☐47-3	☐47-4	☐47-5
48. *Helmets are responsible for increased neck injuries.*	☐48-1	☐48-2	☐48-3	☐48-4	☐48-5
49. *Wearing a helmet makes me feel that people can't see the real me.*	☐49-1	☐49-2	☐49-3	☐49-4	☐49-5
50. *I would feel self-conscious around my riding buddies if I wore a helmet and they didn't.*	☐50-1	☐50-2	☐50-3	☐50-4	☐50-5

Exhibit 1 (Continued)

	Strongly Disagree	Moderately Disagree	Neither Agree nor Disagree	Moderately Agree	Strongly Agree
51. The more someone tells me I should wear a helmet, the less I feel like wearing one.	☐51-1	☐51-2	☐51-3	☐51-4	☐51-5
52. A properly fitted protective helmet will prevent fatal head injuries in any conceivable crash.	☐52-1	☐52-2	☐52-3	☐52-4	☐52-5
53. Wearing a motorcycle helmet is a sign of cowardice—brave motorcyclists don't need one.	☐53-1	☐53-2	☐53-3	☐53-4	☐53-5
54. People wearing helmets definitely do not look "cool."	☐54-1	☐54-2	☐54-3	☐54-4	☐54-5
55. Wearing a helmet interferes with the feeling of freedom gained from riding a motorcycle.	☐55-1	☐55-2	☐55-3	☐55-4	☐55-5
56. Most motorcycle crashes are caused by the operator losing control of his/her bike at high speeds.	☐56-1	☐56-2	☐56-3	☐56-4	☐56-5

	Strongly Disagree	Moderately Disagree	Neither Agree nor Disagree	Moderately Agree	Strongly Agree
57. Current data is sufficient to prove that using a helmet substantially reduces head injuries in motorcycle accidents.	☐57-1	☐57-2	☐57-3	☐57-4	☐57-5
58. Government experts on motorcycle safety are probably highly experienced motorcycle riders themselves.	☐58-1	☐58-2	☐58-3	☐58-4	☐58-5
59. Most motorcycle accidents causing injuries to the rider occur in town, close to home, and at relatively low speeds.	☐59-1	☐59-2	☐59-3	☐59-4	☐59-5
60. Motorcycling is practically as safe as driving a car.	☐60-1	☐60-2	☐60-3	☐60-4	☐60-5
61. Helmets cost too much for the benefits that they offer.	☐61-1	☐61-2	☐61-3	☐61-4	☐61-5

PART III:

If you don't always wear a helmet, the following questions are related to situations which might convince you to wear a helmet on a regular basis. Please indicate the extent to which you would be convinced by putting a checkmark in the box which best describes your feeling. If you **always** wear a helmet, go to question No. 69.

	Definitely Not	Probably Not	Not Sure	Probably Yes	Definitely Yes
62. Do you think it is possible, with the right approach, to convince motorcyclists they should wear helmets voluntarily?	☐62-1	☐62-2	☐62-3	☐62-4	☐62-5
63. If a friend of yours who was not wearing a helmet received a serious head injury in a motorcycle crash, would this convince you to wear a helmet more regularly?	☐63-1	☐63-2	☐63-3	☐63-4	☐63-5
64. If a friend of yours was in a motorcycle crash and avoided serious head injuries because he was wearing a helmet, would this convince you to wear a helmet more regularly?	☐64-1	☐64-2	☐64-3	☐64-4	☐64-5
65. If a safety expert who is with the **government** produced facts and figures showing the benefits of helmet usage, would this convince you to wear a helmet regularly?	☐65-1	☐65-2	☐65-3	☐65-4	☐65-5
66. If a safety expert who is with a **motorcycle enthusiasts group** produced facts and figures showing the benefits of helmet usage, would this convince you to wear a helmet regularly?	☐66-1	☐66-2	☐66-3	☐66-4	☐66-5
67. If a safety expert who is with a **motorcycle manufacturer** produced facts and figures showing the benefits of helmet usage, would this convince you to wear a helmet regularly?	☐67-1	☐67-2	☐67-3	☐67-4	☐67-5
68. If a safety expert who is with an **independent safety organization** produced facts and figures showing the benefits of helmet usage, would this convince you to wear a helmet regularly?	☐68-1	☐68-2	☐68-3	☐68-4	☐68-5

69. *Have you taken an automobile driver education course?*
- No ☐69-1
- Yes, in high school ☐69-2
- Yes, through a commercial school ☐69-3
- Yes, other ☐69-4

70. *Have you taken a motorcycle rider education course?*
- No ☐70-1
- Yes, less than five hours of training ☐70-2
- Yes, five to 10 hours of training ☐70-3
- Yes, 10 to 20 hours of training ☐70-4
- Yes, over 20 hours of training ☐70-5

Exhibit 1 (Continued)

Table 2-2

Sampling Plan for
AMA/MSF Survey

States	Number of Motorcycles Registered	% of owners to be surveyed*	Expected Return**
Section 1			
Delaware	6,573	1.16	15
Maine	31,590	1.16	73
New Hampshire	34,002	1.16	78
Ohio	262,127	0.58	304
			470
Section 2			
Illinois	236,376	0.58	274
Iowa	159,503	0.58	185
			459
Section 3			
Colorado	108,559	0.58	126
Nebraska	50,362	0.58	58
Texas	283,000	0.29	164
			348
Section 4			
Arizona	65,141	0.58	75
California	671,644	0.29	389
Oregon	92,340	0.58	107
			571
		TOTAL RETURN:	1,848

*See text

**Based upon 20% return rate

Following the sampling plan, the AMA mailed survey questionnaires to approximately 10,000 riders in July, 1979.

Completed questionnaires received by AMA were readied for computer input (punched cards, magnetic disc, etc.) and basic descriptive data calculated. These data included:

1. Frequency counts for each response item
2. Percentage of population responding to each item
3. Mean and standard deviation for all appropriate items
4. Zero order correlation matrix: each item by each other item.

Specify Plan/Conduct MSF Surveys

The MSF survey was conducted by Community Responses, Inc., a Denver market research firm, under the direction of J. P. Allegrante, consultant to the MSF.

At MSF's request, ASA made the arrangements necessary for conduct of these interviews at selected motorcycle shops in the Denver metropolitan area. Specifically, ASA contacted the following dealerships to arrange for interviewers from Community Response to solicit information from customers:

1. BMW of Denver, Inc.
2. Fay Myers Honda
3. Sun Honda
4. J&B Honda
5. Kawasaki West
6. Harley-Davidson Sales, Inc.
7. South Side Suzuki
8. Yamaha South
9. Yamaha Denver
10. Honda of Denver

A brief information sheet (see Exhibit 2) was given to each dealer and ASA staff elaborated on what procedures would be used in collecting survey information. The cooperation of the dealerships was easily obtained because (1) having an interviewer ask customers a few questions does not usually create much of a problem and does not cost the dealer any money, and (2) ASA had worked previously with many of the dealerships in relation to the Motorcycle Rider Course.

Once participating dealerships had been arranged, an interviewer training session was held at Community Response.

Motorcycle Safety Foundation
780 Elkridge Landing Road
Linthicum, MD 21090

NATIONAL HELMET SURVEY

In May and June of 1979, the Motorcycle Safety Foundation will be interviewing motorcycle riders in the Denver area concerning their attitudes towards helmet use. These interviews will be used to determine the proper educational materials and target market for a *voluntary* helmet usage campaign.

Specifically, we are requesting your permission to allow a trained interviewer to ask a few questions of two or three people an hour on May 24, 25, 26, 31, and June 1 and 2. This interviewer will be present for three hours or less on the six days noted above. We are quite confident that the interviewing will be an unobtrusive, low-key activity which will not interfere with normal business. Customers will be under no obligation to answer the interviewer's questions.

Your cooperation is sincerely appreciated. We look forward to finding out how people truly feel about helmet use.

Exhibit 2. MSF Survey Information Sheet

After the training session, dealerships were again contacted to finalize arrangements concerning dates and physical locations for the interviewers. Riders were chosen to be interviewed on a predetermined random basis as they entered or exited the selected locations. The purpose of the interview was briefly explained by the interviewer. The interviewer then proceeded to ask questions from the survey form, probing for responses whenever necessary to eliminate null responses. Probe questions were non-directive. To complete the survey form, the interviewer asked open-ended questions designed to elicit comments/discussion from the interviewee, which the interviewer attempted to record in summary form.

Prior to full scale conduct of the survey, a small sample (approximately 10) of riders were selected for the purpose of pilot testing the survey instrument and survey plan. Respondents were queried for difficulties in understanding instructions, ambiguous items, etc. The instrument and plan were adjusted based on the results of this pilot test.

Following completion of the interview forms, the data were readied for computer input and basic descriptive data was calculated. These data included:

1. Frequency counts for each item

2. Percentage of population responding to each item

3. Mean and standard deviation for all appropriate items

4. Zero order correlation matrix; each item by each other item

Raw data and data in computer-input format was turned over to ASA for further analysis.

Analyze Survey Results

Data from both surveys were analyzed beyond the basic descriptive statistical level to reveal significant attitudes, beliefs and knowledge factors and to relate these factors to other rider attributes. To the extent possible, both surveys were analyzed in comparable ways.

An overall response rate of 26.9% was obtained. A summary of the major survey highlights follows:

o Overall helmet use (percent of riders):

-- Never	7.0
-- Seldom	13.6
-- Sometimes	14.4
-- Most of the time	26.6
-- Always	38.3

o Helmet use by environmental factors (percent "always"):

-- Short Trip	10.4
-- Long Trip	59.8
-- Dry Weather	16.0
-- Wet Weather	59.7
-- Hot Weather	13.3
-- Cold Weather	55.9
-- Daytime	14.1
-- Nighttime	32.3
-- City Street	18.7
Country Road	20.9
Highway	44.2
Off Road	40.0

o Belief in the "myths" about motorcycle helmets.

	disagree	agree
-- Helmets restrict vision.	63%	37%
-- Helmets impair hearing.	42%	58%
-- Helmets cause neck injuries.	39%	61%
-- Helmets are not proven effective	71%	29%

-- If a rider rejects the myth, the odds are about 4:1 that he usually wears a helmet.

-- If a rider accepts the myth, the odds are about 50:50 that he usually wears a helmet.

Summary of Cross-Tabulation Data

Specific data collected through the AMA/MSF surveys are presented in Appendix E and summarized in this subsection.

1. As illustrated in Table 1 (Appendix E), helmet use varies according to state. For example, only 2.1% of the motorcyclists in Maine and New Hampshire report never wearing a helmet, while 12.8% of the respondents from Iowa state that they never wear a helmet. In Maine, 56.2% of the riders report always wearing a helmet, while Iowa shows only 17.4% of the riders reporting that they always wear a safety helmet.

2. While nearly all the motorcyclists surveyed were male (2,102 males vs. 129 females), the males appear to be less likely to wear a safety helmet--51.2% of females "always" wear a helmet vs. 37.6% "always" for males (see Table 2).

3. The data presented in Table 3 reveals that, in general, helmet use appears to increase as a function of age. For example, 34.2% of the respondents aged 21-25 reported always wearing a helmet, while 53.8% of the riders 41-50 said they always use a helmet.

4. Compared to other occupational categories, blue collar workers reported a lower rate of helmet usage (note Farm Laborer and Laborer in Table 4).

5. There is a general trend toward increased income being associated with greater helmet use (see Table 5).

6. Table 6 indicates an increasing rate of helmet use as a function of educational level attained.

7. With the exception of new riders, helmet use does not seem to vary significantly as a function of riding experience (see Table 7).

8. Individuals riding Harley-Davidson motorcycles report a considerably lower helmet use rate than do riders of any other type of motorcycle. Alternately, BMW riders show a very high rate of helmet usage (see Table 8).

9. Riders of large engine motorcycles (750cc and above) report a lower rate of helmet usage than do riders of mid-size or small motorcycles (see Table 9).

10. Tables 10a and 10b indicate that riders who frequently wear a helmet favor a helmet law for riders under 18 years of age. On the other hand, riders who make infrequent use of a helmet are not as strong in their support for an under-18 helmet law.

11. Tables 11a and 11b reveal that the majority (71.5%) of the riders surveyed oppose a helmet law for riders 18 and over. However, these data do show that support for such a law is much greater among riders who frequently use a helmet.

12. Table 12 presents the indicated helmet use of individuals according to various environmental contexts. The data indicate a substantially higher use rate for short vs. long trips, highway vs. street driving, wet vs. dry weather, cold vs. hot weather, and night vs. day driving. It is important to note the shift in helmet use rates as a function of environment. This suggests that helmet use rate can be influenced and thus changed.

13. Table 13 reveals that an overwhelming majority of riders surveyed (97%) own or have access to at least one helmet.

14. Table 14 indicates that 63.5% of all respondents (42.7% plus 20.8%) reject the idea that helmets restrict a rider's vision. Of those individuals agreeing with the visual limitation question, a disproporionate number report their overall use rate as "seldom" or "never."

15. Table 15 demonstrates a fairly even split as to whether safety helmets limit the hearing ability of the rider. A total of 41.7% "disagree" (20.0 plus 21.7) while 48.4% (30.3 plus 18.1) agree with the statement that helmets reduce the auditory capacity of the rider. As was the case with Table 14, strength of agreement to the hearing limiting qualities of safety helmets is inversely related to overall helmet use rate. Those individuals who use helmets least tend to agree more that helmets impair hearing.

16. The involvement of helmets in neck injuries does not seem to have been firmly decided in the minds of the respondents. A total of 44.3% of the respondents (see Table 16) were "neutral" on this matter. Those individuals disagreeing with the statement that "helmets are responsible for increased neck injuries" reported a substantially higher rate of helmet usage.

17. Table 17 reveals that high overall helmet use is reliably associated with a tendency to reject the notion that using a helmet for short trips is too much trouble. Conversely, the lower the overall helmet use rate, the more likely one is to accept the view that a helmet is a hassle on short trips.

18. Table 18 demonstrates that 53.5% (35.9 plus 17.6) disagree that helmet use interferes with the freedom gained by riding a motorcycle. Agreement with this statement is associated with a lower overall helmet use rate.

19. Table 19 clearly demonstrates a wholesale rejection of the idea that helmet use is a cowardly act--94.3% (88.4 plus 6.9) of the participants in this survey reject this statement. The extremely low agreement rate of 1.2% (1.0 plus 0.2) precludes any interpretation of trend for those endorsing this view.

20. As shown in Table 20, the majority of those responding to this survey reject the statement that helmets hide the "real me"--65.9% (47.8 plus 18.1) disagree with this statement while only 9.7% (7.7 plus 2.0) agree. There is a tendency for high use rate to be associated with disagreement and low use rate to go along with agreement to this statement.

21. Table 21 indicates that 51.0% (34.9 plus 16.1) reject the notion that continuing demands to use a helmet are met by increasing resistance to comply. Of the 26.6% (16.3 plus 10.3) agreeing with this statement, a disproportionately large percentage are in the "never" and "seldom" categories of overall helmet use.

22. Table 22 represents an important finding. Of the total participants in this survey, 70.9% (31.2 plus 39.7) are in agreement that the current data is sufficiently conclusive as to the head injury reduction capacity of safety helmets. While only 13.2% (6.7 plus 6.5) disagree with this statement, it is important to note that individuals who are neutral or disagree with the statement show a substantially lower usage rate.

23. Table 23 indicates that 57.1% (22.6 plus 34.5) of the respondents recognize that riding a motorcycle is not as safe as driving a car. Those who disagree with the safety as a car statement show a higher rate of helmet usage.

24. Concerning the belief that most motorcycle accidents are the result of loss of rider control at high speed, Table 24 indicates that 60.3% (35.7 plus 24.6) of the participants in this survey reject this as the major cause of accidents. For the 22.4% (15.1 plus 7.3) who agree with this statement, there is a trend for somewhat greater helmet usage.

25. Table 25 indicates that a majority of the respondents agree that motorcyclists are more opposed to helmet laws than the use of helmets themselves. Fully 69.2% (33.7 plus 35.5) agree to this statement, while only 11.6% (5.2 plus 6.4) are in disagreement. There does not, however, appear to be any readily discernible trends in the agreement or disagreement with this statement and overall helmet use.

Summary of Regression Analysis

Responses to the AMA survey were subjected to factor analysis. The results of the factor analysis revealed the existence of four separate clusters of attitudes within the thirty attitude statements contained in the

survey questionnaire. Each of these clusters or factors contain a varying number of items which appear to measure different aspects of the same dimension. The four factors have been tentatively labeled as follows:

I. "Restrictive Aspects of Helmet Use"

II. "Resistance to Regulation"

III. "Evaluation of Helmet Utility"

IV. "Self-Image Aspects of Helmet Use"

The relationship between these factors and reported helmet use was examined through a step-wise regression analysis. The results of the regression analysis indicate that the attitude elements included in Factors II, III and IV are definitely predictive of helmet usage rate. In particular, rider attitudes concerning "resistance to regulation," and "self-image" were found to have the greatest impact on the reported rate of helmet usage.

The overall results of the analyses are presented in Table 2-3.

Table 2-3

Factor Analysis of AMA Survey

	correlation	amt. of var.
o Resistance to Regulation	-.525	+27.5%
o Self Image	-.466	+6.5%
o Helmet Utility	-.213	+4.4%
o Helmet Restrictiveness	-.045	+3.4%
TOTAL		41.8%

In summary, analyses of the AMA survey data reveals that although helmet use does vary to some extent as a function of demographic variables the non-usage of helmets is primary under the influence of certain attitude factors. The data suggests that the two most important elements in non-use are the attitudinal factors of "resistance to regulation" and "self-image."

The "resistance to regulation" factor shows that the majority of riders surveyed took a dim view of laws and lawmakers. Psychologically, this factor can be interpreted as revealing a tendency towards "counter-dependency" among non-wearers of helmets--a tendency for rebelliousness or wanting to do the opposite of what some authority wishes. The data show a clear rejection of helmet laws as a method of ensuring helmet use among riders aged 18 and over. This resistance does not, however, transfer directly to the use of helmet laws to ensure the use of helmets by riders under the age of 18. The endorsement of helmet laws for riders under 18 seems to indicate that the riders surveyed regard the need to wear a helmet at all times as something which can be overcome through riding experience.

The "self image" factor of helmet use centers on the perceived negative impact of helmet use on the rider. For many riders, the use of a motorcycle represents a certain image of adventure which is apparently negated by the use of a safety device such as a helmet.

Specify Target Groups

The analysis of the AMA/MSF survey data revealed beliefs common to infrequent helmet users. The most significant predictor of non-use of helmets is the attitude factor labeled "Resistance to Regulation." The technical term for the attitude underlying this factor is "counterdependency," which may be loosely translated into common terms as "rebelliousness." In most cases, the infrequent helmet user strongly opposes helmet legislation.

Helmet use tends to increase with increasing responsibility (e.g., age, income, education, job status).

A profile of the "typical" infrequent helmet user includes the following factors:

- Male.
- Between 21 and 30 years of age.
- Graduated from high school or a trade or technical school.
- Blue-collar worker.
- Earns less than $20,000 annually.
- Has not had formal rider training.
- Primarily rides on streets and highways (not off-road).
- Rides primarily for recreation, not transportation.
- Rides a 450 cc or larger bike and aspires to a 1000 cc or larger bike.

Accordingly, materials should be targeted to appeal to this rather broad audience.

Specify Educational Approaches

Most cyclists acknowledge that wearing a helmet can reduce the severity of head injuries sustained in an accident. Furthermore, even though cyclists frequently offer one or more of the helmet "myths" as a reason for not wearing a helmet, the survey showed that the riders who indicated a belief in a myth were just about as likely to wear a helmet regularly as not. This indicates that the riders are unaware of the real motives underlying their own non-use of helmets but rely instead on formula-type answers. To be most effective, approaches should address the operative attitudes (e.g., counter-dependency), rather than the surface excuses (e.g., myths).

Because of attitudes and beliefs held by most infrequent helmet users, it was determined that educational efforts would be most effective if focused on increasing the independence of cyclists' judgments. Materials should provide accurate information on the risks and consequences of helmet non-use. The rider needs to be encouraged to evaluate the consequences of his actions without regard to what someone else wants.

Specifically, the educational strategy should attempt to encourage true choice or employ counter-dependency to increase use. Approaches include:

. Spotlighting reactions to pressure (both for and against use)

. Increasing perception of "risk"

. Decreasing perception of "hassle"

It is evident that messages no longer need to address helmet myths or injury-reduction data.

Because of their "resistance to regulation," motorcyclists are least likely to pay attention to a message sponsored by government or a police agency. They are more likely to attend to a message sponsored by an established national motorcycling organization (e.g., American Motorcyclist Association, Motorcycle Safty Foundation) than medical organizations, manufacturers or local motorcycling groups.

The events most likely to convince non-wearers to wear helmets are: a friend suffering severe injury because he was not wearing a helmet, or a friend escaping severe injury because he was wearing a helmet.

To have the most impact and validity, messages should be carried by spokesmen similar to the target audience and recognizable as genuine motorcylists. The content of the messages should follow either of the "convincing" events, keeping within the overall strategy. In the same manner, sponsors sounding like government or police agencies should be avoided. National cycling organizations should be encouraged to sponsor safety messages.

Two factors interact in determining the most desirable mix of media: (1) exposure to the message at or near a point that a cyclist chooses to wear or not wear his helmet, and (2) the number of times a cyclist is likely to see or hear the message. In order to maximize both of these factors, the approach should use, to the fullest possible extent, print media (e.g., billboards, posters, and brochures in dealerships, magazine ads) rather than PSAs.

Billboards reach the rider while he is on the road, and thus at a point that can directly affect his behavior. Messages presented via posters and brochures in motorcycle shops similarly reach the cyclist in close proximity to cycling activity. PSAs are typically far removed from the act of riding.

Messages presented in print media generally enjoy multiple exposure. For example, a rider passes a billboard every day on his way to work; he visits the motorcycle dealer three or four times during the riding season. In general, PSAs have little chance of reaching the target audience with sufficient frequency to be effective. They are typically aired only late at night, and then must share the available time with a large number of other PSAs.

Based on the radio and TV habits reported by the cyclists, however, PSAs might have some impact if stations could give some assurance of frequent airing in conjunction with late-night FM Rock or Country-and-Western radio programs or TV movies.

Distribution of flyers through Departments of Motor Vehicle is not a very effective means to reach large numbers of cyclists. Cyclists are only likely to be in the DMV when they obtain or renew their operator's or vehicle license--an infrequent occurrence, at best.

SECTION 3

MATERIALS SELECTION AND DEVELOPMENT

Safety helmet educational materials were selected and developed during Phase II of the project. This process was accomplished by developing a campaign strategy based on the results of Phase I, selecting and modifying existing materials, and developing new materials to fill the remaining needs. Each of these tasks is described in this section.

Develop Campaign Strategy

Planning an attitude-change campaign requires knowing what you want to accomplish, who comprises the target group, and how, when, and where you will deliver your messages. Given thorough knowledge of the what and the who, a campaign strategy is the how, when, and where of message delivery.

We know from the results of the AMA/MSF survey that the typical non-wearers of helmets are young, male, blue-collar workers, without college educations, who don't like to be told what to do. Our stated goal was to increase the likelihood that these riders will wear their helmets voluntarily.

In order to coordinate between the various routes of dissemination, a campaign needs a "theme" that encapsulates the essential message of the campaign and can be used with each presentation of the message, regardless of communications medium.

Determine Campaign Theme

Based on the results of the AMA/MSF survey, ASA determined that the appropriate strategy should address non-helmet wearer's tendency towards "counter-dependency" -- specifically, to encourage motorcyclists to make independent decisions about helmets rather than to react reflexively against authority. This approach has the built-in benefit of also addressing some cyclists tendency to submit to peer pressure not to wear a helmet. Accordingly, project staff developed the following three alternative statements of potential themes for the campaign, varying on a continuum of "strength of statement":

1. You already know that wearing your helmet could save your life...

   So how did you let yourself get bullied into not wearing it?

   IT'S YOUR HIDE — YOU DECIDE!

2. You already know that wearing your helmet could save your life...

So how did you talk yourself into not wearing it?

IT'S YOUR HIDE -- YOU DECIDE!

These headlines were then pilot tested (each headline was rated by 20 different individuals) by attendees at a Motorcycle Rider Course in Denver and at two motorcycle shops in Maryland.

Results of the pilot test showed that more riders "got the point" of the first alternative (43%) than of either the second (20%) or third (25%). Therefore, it was chosen for further refinement.

During the pilot test, it became apparent that many riders confused the final tag line ("It's your hide -- you decide!") with a similar refrain used by anti-helmet forces in the past. Accordingly, that statement was dropped from the theme statement.

Since the theme should be as succinct as possible, the first alternative needed to be shorter. Working with MSF and their public relations firm, staff further pared down the theme to its final form: "Helmets work! Don't let yourself be bullied out of wearing yours!"

Determine Message Content

Results of the AMA/MSF survey indicated that materials should deal with accident facts not helmet facts. In addition, case studies portraying individuals who were involved in an accident or who had a close friend involved in an accident were believed to be effective.

Recommend Dissemination Routes

Given the typical low-frequency broadcasting of PSAs, staff recommended that the campaign depend primarily on print media to convey its message. Magazine ads, carried in several motorcycling magazines over a period of several issues, would be an ideal dissemination route. The AMA/MSF survey had indicated that riders typically visit a motorcycle dealer at least twice a year, and many visit four or more times. Thus, posters, counter displays, and leaflets in motorcycle shops provide a prime channel for reaching the target audience. Billboards along major roadways would be in an outstanding "point of choice" medium, reaching cyclists while they are actually on their cycles. Paid broadcast ads would be preferable to public service spots to insure proper timing and frequency. But PSAs could provide a valuable "back-up" and reminder function, supporting the printed messages.

Select/Modify Existing Materials

The nationwide survey of motorcyclists revealed that government agencies are not believable sponsors of safety messages. This attitude was confirmed during ASA's trial of campaign headlines. However, survey respondents indicated that the Motorcycle Safety Foundation (MSF) would be an acceptable source.

A review of safety materials assembled during the course of the project was conducted to identify any materials/programs which could be used or modified for inclusion in the campaign. No such materials were found to adequately convey the anti-counter-dependency theme of the campaign.

Develop New Materials

The original intent of the project was to develop prototype materials for a variety of media: text appropriate for print media and scripts and story-boards for radio and TV media, and sketches of posters and artwork. Production of final materials was outside of the scope of the project.

However, towards the end of the project, thanks to the cooperation of the Motorcycle Safety Foundation (MSF), it became possible to develop a limited set of high-quality materials for use in an actual field test (described in the next section).

ASA, MSF, and MSF's public relations firm, Carl Byoir and Associates (CBA), worked together to develop materials for a pilot campaign. Specifically, we developed a flyer, a poster, two TV PSAs and six radio PSAs, based on the anti-counter-dependency strategy and incorporating the theme "Don't let yourself be bullied. . ." Samples of these materials are contained in Appendix F.

Development of these materials was specifically guided by ASA's MED system (described in Section 2 of this report). MSF contracted with Learning Services, Inc., a film-production company in Austin, Texas, to produce the TV and radio materials. After reading several project documents and extensive discussions with ASA project staff, the NHTSA CTM, and MSF personnel, Learning Services submitted draft story boards for evaluation.

Using specific feedback provided by ASA based on the MED system, Learning Services revised the story boards and re-submitted them. In their final form, the two TV spots, entitled "Tinkering II" and "Worker," earned scores of 73.4 and 69.7 respectively.[1] (Inherent limitations of the medium set a ceiling of 87.2 points.)

To maximize the coordination between radio and TV materials, scripts for radio spots were adapted from the TV scripts.

(Subsequently, "Worker" won a bronze "Cindy" award in a major national competition for such materials, sponsored by the Information Film Producers Association.)

The poster and flyer were developed jointly by ASA, MSF, NHTSA, and CBA staff, based on original text material prepared by ASA.

[1]The highest scoring PSA's reviewed earlier in this project were "Crash" and "Melon & Helmet," both produced by Visucom, which received 62.5 and 56.6 points, respectively.

MSF afforded project staff final approval of all materials. This worked very well for all materials except the poster. Somehow, communications seemed to break down, and the poster went to production before ASA reviewed the final artwork. As a result, the poster was not as strong as it might have been.

SECTION 4

FIELD TEST OF MATERIALS

When the project began, the plans for testing the materials called for obtaining reactions of motorcyclists, information disseminators, and safety specialists to the prototype materials. Early in the project, however, the emphasis on Problem Identification and Analysis was intensified, resulting in a scaling-down of the plan for materials testing.

Throughout the course of the conduct of the project, both the NHTSA and ASA project staff agreed that it would be desirable to test the effectiveness of the products of this project. Near the end of the project, two factors converged that made a preliminary evaluation of the educational materials possible.

First, as mentioned in the preceding Section, the Motorcycle Safety Foundation (MSF) expressed interest to the NHTSA Contract Technical Manager in sponsoring the development of materials following the guidelines established through the extensive research conducted in this project. Through the cooperation of the MSF, it would be possible to produce high quality educational materials for testing.

Second, NHTSA's "19 City Study" of seat-belt usage, conducted by Opinion Research Corporation (ORC), also included the observation of helmet use by motorcyclists. This study provided an ongoing source of data on helmet usage in a number of sites that were not affected by helmet-use laws. Of these cities, several "equivalent" sites could be matched for comparison purposes. Thus, existing data-collection efforts could provide both baseline and experimental data at no cost to the project.

Working with these two possibilities, ASA project staff developed an approach for evaluating finished materials produced by MSF according to project guidelines. This plan included the following components:

1. Choice of appropriate field test sites;

2. Determination of routes of information dissemination and implementation strategies;

3. Establishment of data analysis approaches; and

4. Field Test Implementation.

Details of these components of the evaluation plan are provided in this section.

Choose Field-Test Sites

The field-test site was to be chosen from among the nineteen cities in which helmet-use data are being collected for NHTSA by ORC under separate contract. These cities are listed below with the overall helmet use observed in each city over a six-month period (Phillips, 1980):

City	% Use	City	% Use
Boston*	91.8	Chicago	32.8
Providence***	78.3	Minneapolis/St. Paul**	48.2
New York*	91.9	Fargo/Moorhead**	49.9
Baltimore**	77.5	Pittsburgh*	99.7
Atlanta*	100.0	Seattle	73.7
Birmingham	99.1	San Francisco	44.5
New Orleans	45.0	Los Angeles	43.8
Miami*	99.4	San Diego	52.5
Dallas**	51.9	Phoenix**	47.4

*helmet use required for all riders and passengers
**helmet use required for riders under age 18
***helmet use required for all passengers

Project staff, along with NHTSA, MSF, and CBA personnel, considered the following characteristics of cities among the criteria for selection of a city for use as a test site:

1. It should be in a state not requiring all riders to wear helemets by law -- this is to be a test of voluntary helmet use.

2. It should have a record of moderate levels of helmet use -- high levels would make it impossible to see any effect; low levels might be a sign of an abnormal situation.

3. Its riding season should be six months or more -- changes in helemet use due to weather might obscure any results of the program; large changes in the numbers of riders could bias the results.

4. It should be roughly equivalent to another city on each of the three criteria listed above -- to make it possible to compare two sites: with and without helmet education programs.

In addition to these major criteria, the degree of access MSF had to the media in each of these cities was also taken into account.

Based on these considerations, Houston and Dallas were chosen as the test and comparison sites, respectively.

Determine Routes of Information Dissemination and Implementation Strategies

Working together, MSF and ASA project staff determined that the information campaign would employ the following dissemination routes, presented in decreasing order of importance:

1. A direct mailing of information to all registered motorcycle owners in the test city;

2. Distribution of pamphlets through motorcycle dealers;

3. Display of a poster in motorcycle dealer showrooms;

4. Public Service Announcements using both radio and television;

5. Press coverage of a "celebrity" interview and press releases focusing on accident causation; and

6. A "media event" at a local shopping center.

MSF accepted the coordination of this campaign, including the development and production of appropriate materials for each dissemination route as discussed in Section 3. ASA project staff were actively involved in materials development to insure that the final materials were in compliance with the guidelines of the research results.

Establish Data Analysis Approaches

The "bottom line" data of a field test of materials intended to persuade motorcyclists to wear their helmets more frequently is the increase in the number of cyclists wearing their helmets during and after the implementation of the information program. In research terms, the "independent variable" is the exposure to the information program and the "dependent variable" is the proportion of cyclists observed wearing their helemts.

The "19-City Study" produces an ongoing count of motorcyclists and the number of helmeted cyclists in both Houston and Dallas, the test and control sites, respectively.

The major problem in any field test is to determine appropriate approaches to analyzing data acquired in a real-world system. Such data are rarely as complete or as "clean" as necessary to draw unequivical conclusions from the test. For example, not only can data collection be affected by a host of environmental variables, it is also subject to the variations in observers' attention to the task. In this case, motorcycle data are obtained as a fourth-priority level of attention -- the observers count cyclists only during the times when they are not observing the usage of occupant restraints by automobile drivers and passengers.

In many cases, it is possible to "clean up" real-world data using any of a variety of statistical techniques that "average out" or "adjust for" variations in factors that are beyond experimental control. Accordingly, project staff considered a variety of alternate approaches to analyzing the field test data. The remaining paragraphs present a discussion of these approaches.

In most cases involving measurements repeated on a regular basis over a period of time, the analysis of choice would be time-series analysis (TSA). TSA provides the best insurance against threats to internal validity (Campbell and Stanley, 1963). However, two factors mitigate against using TSA in this particular situation:

1. The field test is short relative to the time required to accumulate the number of measurements needed for TSA and

2. The NHTSA-ORC data-collection schedule was changed from a monthly to a bi-monthly basis, thus reducing even further the number of observation points during the field test period.

Consequently, staff considered the use of multiple regression techniques (Cook & Campbell, 1979).

The reasoning underlying multiple regression is that the regression weights can be used to "adjust" the dependent variable for variations in a number of covariates. We know, for example, that helmet use (the dependent variable) is affected by weather and road type, among other variables. Without compensation, fluctuations in these variables could obscure changes in helmet use due to the educational campaign.

The strategy of multiple regression is to find a set of weighting factors for each covariate so that one can estimate, for example, the decrease in helmet usage that one would expect by increasing the temperature by ten degrees. These regression weights can then be used to calculate the expected level of helmet usage holding each of the covariates fixed at its average value. For example, since Houston, on the average, experiences higher temperatures and relative humidities than Dallas, one would expect to observe fewer riders wearing helemts in Houston. Multiple regression allows comparison of usage rates assuming that all observations at both sites were made at the same temperature and humidity.

After adjustment, any differences remaining in helmet-use rates between the experimental and control sites must be due to the presence of the education campaign and remaining uncontrolled variables. Thus it is vital to reduce the amount of uncontrolled variance as much as possible in order to discern the effects of the campaign.

In practice, the "analysis of covariance" technique, which is based on multiple regression, would be used to test for the significance of differences between the experimental and control sites.

Using the multiple-regression approach would require collection of data on a number of variables that were not part of the "19-City Study." Future data-collection efforts should probably include the following variables.

- temperature
- humidity
- precipitation
- wind conditions
- daylight/visibility
- time of day
- day of week
- road type

In addition to these environmental and situational variables, several other factors, specific to the individual rider and trip, may also influence helmet use. These include:

- trip length
- trip purpose
- familiarity with route

In general, the more variables controlled for, the less variation there will be in the adjusted helmet-use rates, thus permitting a more sensitive test of the effects of an education campaign.

Although the "19-City Study" did not collect data on these variables, it is possible to obtain approximate values for some of them. Knowing the dates and times of the observations, it is possible to estimate values for critical weather variables using the detailed local climatological data published by the National Oceanic and Atmospheric Administration (NOAA). Knowing the locations of the observation points, road type can be roughly determined by examining city street maps. Thus, it is possible to obtain a rough estimate of the utility of the multiple-regression approach.

To test the feasibility of this approach, project staff obtained daily observation reports of the "19-City Study" observations in Houston and Dalls from December, 1980 through March 1982 (prior to field-test implementation). These reports contained the date, time of day, street locations of observations, number of riders observed, and proportion of riders wearing helmets. Staff then performed a step-wise regression analysis of helmet use based on ten predictor variables, derived from NOAA summaries and local street maps. Table 4-1 lists the predictor variables in descending order of importance, along with their zero-order correlation with helmet use, the percentage of variance accounted for by adding that variable into the regression equation, and the total percentage of variance accounted for by the predictor variables included up to that step.

Table 4-1

Stepwise Multiple Regression of Helmet Use by Environmental/Situational Variables

VARIABLE	ZERO ORDER CORR	% VAR ADDED	TOTAL % VAR
Temperature-Humidity Index	-.424	18.0	18.0
Temperature	-.319	6.8	24.8
Weekend	-.060	3.0	27.8
Highway/Expressway	+.087	2.5	30.3
Number of Rider Observed	-.033	2.6	32.9
Fog, Drizzle, Rain	+.263	1.1	34.0
Wind Velocity	-.105	2.2	36.2
Relative Humidity	+.103	0.4	36.6
City	+.055	0.0	36.6
Cloud Cover	-.037	0.0	36.6

This analysis indicates that slightly over one third of the variance in the observed levels of helmet use can be accounted for by a limited set of environmental and situational variables. (Since these data were collected prior to the field test, it is reassuring that knowledge of the city in which the observations occurred has no effect on the predicted level of helmet use.) An explanation of the term, "percent of variance accounted for" requires a brief review of descriptive statistics.

In the real world, measurements of a particular phenomenon made at different times and places will usually be different from each other, even if the phenomenon being measured is assumed to be constant. However, the measurements tend to cluster about the "real" value. The average of the measurements provide a good estimate of what the real value is supposed to be. The amount that the measurements vary from the average is called the dispersion of the measurements.

This dispersion can be due to a number of factors. Some factors are errors inherent in the method of measurement -- talking while trying to take one's temperature with an oral thermometer gives a lower reading on the thermometer than true body temperature; viewing a bathroom scale from different angles can produce higher or lower readings. Dispersion may also be due to underlying differences in the phenomenon itself under different circumstances -- body temperatures taken rectally are higher than those obtainted orally because of differences in blood flow and evaporating cooling; the length of a railroad rail is longer in the summer than in the winter because of thermal expansion.

In the case at hand, known changes in environmental and situational factors affect the observed level of helmet use. As indicated above, other factors may also affect the observed level of helmet use -- e.g., other

site characteristics, presence of visual obstructions, observers' attention to the task, observers' motivation, ease of data recording, unknown local events at or near the time of observation, trip length, trip purpose.

"Variance" is a measure of dispersion of the observed values about the overall average value. The "percent of variance accounted for" indicates how much of the total variance -- the differences in levels of use observed at different times and sites -- is due to the factors included in the multiple-regression equation, and, by subtraction from 100%, how much is still uncontrolled. Thirty-six percent of the variance accounted for is not bad, considering that it was obtained using rough estimates of the true values of a limited set of variables known to affect helmet use. Greater control would result from using actual measurements of more variables.

Field Test Implementation

In the spring and summer of 1982 materials were disseminated in accordance with the field test plan. A sample of the letters sent to television and radio station Public Service Directors in the Houston area can be found in Appendix G. Brochures and posters were distributed as indicated. In addition press coverage was obtained by the conduct of celebrity interviews.

Data on helmet usage is currently being collected in Houston and Dallas.

Whatever the results of the field test, they must be interpreted in view of the following limitations:

1. The observation methods used in the 19-City Study result in a high level of variability in observed helmet usage.

2. The change in data-collection schedules from once a month to once every two months during the field test can only adversely affect the data analysis by cutting the number of observations in half.

3. Due to the limited scope of the field test, the campaign could not use the medium that theoretically would have the greatest impact on cyclists: magazine ads or other print-media approaches that reach motorcyclists on a frequent and regular basis.

4. The field test is of very limited duration, relative to the amount of time required for education campaigns to show a visible effect on the behavior of a large number of people (the Smokey the Bear campaign took eight years before showing positive results).

5. Finally, there is no way to know what proportion of the observed cyclists actually saw, read, or listened to the campaign materials.

Of these factors, only the first is amenable to some degree of statistical control. For example, on the average, one can expect from five to ten percent more cyclists to wear helmets in Dallas than in Houston, based solely on average temperature differences between the two sites. Any difference less than that during the field test may be limited evidence for the success of the campaign. It would certainly argue for a more thorough analysis of the data using the approaches outlined in the previous section.

Each of these limitations suggests the need for more rigorous field testing:

1. Develop observation procedures that eliminate, to the extent possible, variability due to observation techniques and procedures (e.g., higher priority, properly designed forms, observer training, site selection).

2. Collect data at more points within each site more frequently.

3. Exercise whatever local-advertising options exist in motorcycle publications to reach cyclists in the experimental site with print-media messages.

4. Conduct the campaign over a much longer period of time, and collect data on a regular and periodic basis throughout the entire campaign.

5. Conduct a follow-up survey of a sample of motorcyclists in each site to determine their exposure to the campaign materials.

Each of these recommendations would have an independent and additive effect on the ability of field test to detect significant differences between helmet-use rates in experimental and control sites.

Even with all its limitations, the present field-test approach is preferable to soliciting cyclists' and specialists' reactions to isolated prototype materials. Reactions do not translate easily into actual changes in helmet-use rates. The current approach, by measuring helmet use directly, can provide a much clearer picture of what can reasonably be expected from a public-information campaign designed to increase voluntary use of motorcycle helmets. Even if the field-test outcomes cannot be interpreted unequivocally, the study will have served as a necessary pilot test of field-test procedures, thus providing a firm foundation for increasing the validity of future field tests that would not have existed otherwise.

APPENDIX A

REVIEW OF ATTITUDE/BEHAVIOR CHANGE LITERATURE:

"CAN SAFETY BEHAVIORS BE CHANGED?"

MARCH, 1979

CAN SAFETY BEHAVIORS BE CHANGED?

The most serious question facing anyone undertaking development of a safety education program is: "But will it work?" There are, after all, good reasons to doubt that safety campaigns are effective. There have been many demonstrations showing that carefully planned programs and thoughtfully developed materials had little or no effect on people's subsequent behavior, especially in regard to seat belt usage (Fleisher, 1972; Robertson, Kelley, O'Neill, Wixom, Eiswirth & Haddan, 1972) and compliance with the 55 mph national speed limit (Matthias & Wortman, 1979). There have been relatively few such programs showing success. Notable successes have been driver improvements following the "National Driver's Test" (Mendelsohn, 1973), and a demonstrated increase in seat belt usage following a nine-week campaign using radio as the dominant medium supported by television, outdoor and bus cards, and small newspaper ads (Motorists Information, Inc., 1978). Why have there been so few successes? How are programs that work different from programs that don't work?

In order to answer these questions, we went beyond the safety-education campaigns themselves and examined the theories and research literature behind the campaigns. In so doing, we initially discovered more questions than answers, more chaos than order, and more confusion than enlightenment. It was like trying to assemble a jigsaw puzzle by candlelight and discovering that the pieces came from three or four different puzzles having similar colors. That discovery in itself was extremely useful. It provided an organizing principle with which to sort the pieces.

Not surprisingly, a lot of the pieces could be labeled as studies of attitudes and attitude change. But these studies didn't address the problem of behavior change. A second source of information was essentially non-theoretical, although both attitudes and behavior were central to the discussion--the literature on advertising effectiveness. These items, however, were more on the order of anecdotes than research reports. A third group addressed the problems encountered in relating behavior to attitude, but talked about *predicting* behavior from existing attitudes rather than *changing* behavior by changing attitudes. The last group could be classified as studies of behavior change, but these explicitly rejected any notions of attitudes underlying behavior.

Did the theories answer the question "But will it work?" Not exactly. But with guarded optimism we can say, "*It can* work"--with the right approaches, the right objectives, and the right messages.

In the following sections we will outline our findings, describe general principles derived from the research, and provide a suggestion for further reading in each of the four areas. Our review follows the organization implied above. Specifically, we will discuss the literature in the following categories:

1. Attitudes and Attitude change
2. Attitude/Behavior Change through Advertising
3. Prediction of Behavior from Attitudes
4. Behavior Modification

Finally, we will present our synthesis of these four areas, suggesting a way through which the significant aspects of each area can be combined to produce a strategy which will be more effective than strategies based on one area alone.

Attitudes and Attitude Change

There seem to be two kinds of psychologists: those who believe that a change in behavior reflects an underlying change of attitude; and those who don't. The first kind of psychologists have filled the literature with studies demonstrating changes in attitude as a result of exposure to some kind of message presented in a multitude of ways. Much of their research involves groups of persons receiving messages through one of the mass media. One conclusion that can be drawn from these numerous studies is that almost any attitude is amenable to change if only the appropriate circumstances are arranged (Zimbardo & Ebbesen, 1969).

Frustration comes with the realization that these psychologists seem not to have been concerned about showing a change in behavior brought about by the change in attitude. The relationship between attitude and behavior has been so fundamentally and completely accepted as to take on the quality of an *axiom* rather than a *theorem*. As a result of the axiomatic nature of the attitude-behavior connection, there are virtually no studies in the attitude-change literature showing a directly observed *behavior change*.[1] An extensive search through current texts uncovered only two such references--one in a trivial laboratory setting (Ajzen, 1971, cited in Fishbein & Ajzen, 1975), and one concerned with convincing alcoholics to sign up for an alcoholic treatment program (McArdle, 1972, cited in Fishbein & Ajzen, 1975). The presence of these studies in the literature shows, however, that the assumption of a connection between attitudes and behavior is not totally groundless.

Before something can be changed, it must first be measured, and "attitudes can be measured." Or so proclaimed the title of a landmark article in 1928 (Thurstone, 1928). Subsequently, a complex attitude measurement technology developed, using a number of different methods. Lemon (1973) provides historical, theoretical and methodological details of the major approaches to attitudes measurement.

The theory and research upon which the principles of attitude change are based are described in detail by Crawford (1976). The theories which have emerged in the last 10-15 years as most influential are collectively called "cognitive consistency" theories. They basically argue that people have a need for consistency or balance between their attitudes and beliefs.

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[1] In a way, the absence of directly observed behavioral data reflects a methodological problem. It is difficult to measure meaningful behavior in relation to the areas of major concern of attitude theorists: prejudice, self-concept, attitudes towards work, etc.

Researchers have identified several means through which people adjust to a cognitive imbalance:

- *attitude change*--changing the attitude to be consistent with beliefs or actions
- *source derogation*--negating the message because the source is perceived as unqualified or selfishly motivated
- *message misperception*--hearing in a message what one "wants" to hear; "tuning out" what one doesn't want to hear
- *bolstering*--remembering or developing beliefs that support an attitude that is otherwise out of balance, bringing it back into balance
- *differentiation*--subdividing a concept so that inconsistencies can be factored out and the imbalance dealt with by derogation
- *transcendence*--forming a superordinate concept which includes the unbalanced concepts

Except for attitude change, these processes are listed in order of their approximate relative "difficulty" (i.e., transcendence seems to require more cognitive effort than any other process and will therefore be employed only after all else fails). Most, if not all, of these processes occur unconsciously, i.e., without the person's awareness that these processes are going on.

When the object is to change a person's attitudes, the other possible alternatives for reducing inconsistencies must be minimized. The following textbook excerpt lists principles derived from research which summarize several effective techniques for changing attitudes.

> "In general, *other things being equal*, there will be more attitude change if:
>
> 1. the recipient inadvertently hears the message;
> 2. the person delivering the message (the source) is of high status and prestige;
> 3. the source begins the message by stating attitudes that are similar to the recipient's views;
> 4. the message gives both sides of the argument if the recipient is intelligent and gives only one side of the argument is the recipient is not very intelligent;
> 5. the recipient perceives that the source has nothing personal to gain by the attitude change the source is trying to produce;
> 6. the source clearly states the facts and the conclusions;
> 7. the source has a lot in common with the recipient;
> 8. the source is perceived as an expert on the issue;
> 9. the recipient does not feel compelled or forced to change but perceives that he is changing freely, as a matter of choice;

10. the source speaks last when two opposing messages are delivered (as in a debate);

11. the message is repeated on several occasions;

12. the recipient is induced to express the desired attitude publicly.

These statements are, of course, subject to qualification. They do not hold in every possible instance. They are simplified conclusions from a research literature that clearly shows that attitude change is the result of very complex interactions of many such factors."[2]

Psychologists have discovered another method for changing attitude which deserves special mention. If a person can be induced to act in a manner contrary to their expressed attitudes, their attitudes tend to change toward approval of the action of which they formerly disapproved. This is a somewhat embarrassing finding for those who believe that attitudes are a major determinant of behavior. As one psychologist has put it:

> "Instead of standing up for what they believe, people appeared to believe whatever they happened to stand up for. The behavioral tail was successfully wagging the attitudinal dog."[3]

It is manifestly clear that attitudes can be changed, but what--if anything--that has to do with changing behavior is not addressed in the literature on attitude change.

Suggested Reading

Crawford, T.J. Theories of Attitude Change, in B. Seidenberg & A. Snadowsky (Eds.), Social Psychology: An Introduction. New York: Free Press, 1976.

Behavior Change Through Advertising

"Advertising is a business of persuasion," assert the authors of a book titled "How to Advertise" (Roman and Maas, 1976, p. 144). The main purpose of advertising is to change consumers' behavior. Judging by the amount of advertising we encounter everyday, it must be a worthwhile commercial activity.

A particularly striking demonstration of the relationship between amount of advertising and sales volume is an historical analysis of the "January White Sale" (Simon, 1970). White Sales were first advertised in January 1900 by two New York City department stores. Today, nearly every department store in the country has a January (and August) White Sale. Spanning a 65-year

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[2]Bourne & Ekstrand (1976), p. 367.

[3]Brannon (1976), p. 147.

period, Simon's research shows a progressive increase in sales volume of white goods as a result of increasing advertising space. While his study was related to economic factors, it clearly demonstrates that advertising can alter behavior.

There have been many books written about advertising techniques (e.g., Dalbey, Gross & Wind, 1978; Kleppner, 1966; Lucas & Britt, 1963; Roman & Mass, 1976; Wademan, 1977), and virtually all of them strongly advocate using research to determine the effectiveness of advertising materials and campaigns. Yet, virtually none of them provide any real experimental evidence for the recommendations they make. Apparently, while most advertising firms do conduct research programs, the field is so competitive that specific details are kept confidential. As a result, there remains an arcane air surrounding the "art" of advertising, and there is a considerable variety of opinions about what constitutes good advertising.

Nonetheless, since advertising is so eminently successful in changing behavior, we should pay attention to what the experts say goes into effective advertising.

Effects of Advertising

Advertising can have a variety of effects on the attitudes and behavior of consumers. Dalbey, et al (1968), summarized the most significant potential effects of advertising as modifying:

"I. *Verbal Responses on*

1. The ways in which people answer questions about the ad, saying whether they:
   a. recall seeing or hearing the advertisement;
   b. liked or were influenced by the advertisement;
2. The ways in which people answer questions about the product, saying whether they:
   a. are familiar with the product;
   b. express favorable opinions about the product;
   c. express an intention to buy the product;
   d. have bought the product.

II. *Nonverbal Responses on*

1. The ways in which people actually behave (nonverbally) toward the product:
   a. the choices they make in a laboratory setting;
   b. whether or not they shopped for the product and inquired about it
   c. whether or not they purchased the product;
   d. how much of the product they purchased;
   e. the ways in which they use the product.
2. The physiological and physical responses of the people."[4]

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[4] Dalbey, et al (1968), p. 19.

Since advertising is only a partial determinant of sales, profit differential is neither the most manageable nor useful measure of advertising effectiveness. Invoking a "hierarchy of effects" (Dalbey, et al, 1968), advertisers accept a causal relationship between a consumer's attitude towards a product and his/her ultimate purchasing behavior. For example, an advertising campaign might cause a person to move through the following hierarchical steps from unawareness to purchase:

1. Unawareness
2. Awareness
3. Knowledge
4. Liking
5. Preference
6. Conviction
7. Purchase

According to this theory, movement through the hierarchy may occur step-wise, or may skip various stages. Much of the technology of measuring advertising effectiveness rests on the concept of a "hierarchy of effects." For example, advertisers may use measurements of people's preferences for products before and after exposure to a sample advertisement in order to choose between alternative forms of an advertisement (Lucas & Britt, 1963).

How Advertising Works

Advertising is not just information transfer. It serves different purposes than consumer information magazines and goes about it in a different way. One writer has said:

> "I think the main advantage of advertising is memorability. Advertising says little, says it often, and says it in the most memorable way possible. In contrast, *Consumer Reports* says a lot, says it only once, and substitutes a turgid style for a catchy jingle."[5]

Quoting James Young (a pioneer in modern advertising and the author of *How to Become an Advertising Man*), Treasure (1974) lists five ways in which advertising works:

> "1. By *familiarizing*--that is, as the dictionary says, by 'making something well-known; bringing into common use.' We will see that this is the absolutely basic value created by advertising, the one underlying all others.
>
> 2. By *reminding*--a function that may alone, in some cases, make advertising pay.
>
> 3. By *spreading news*--not only news in the newspaper sense, but a special kind of news that only advertising, in the commercial field, can most widely deal with.

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[5] Nelson (1974), p. 63.

4. By *overcoming inertia*--the great drag on all human progress, economic or non-economic, as represented in the sociological term, 'cultural lag.'

5. By *adding a value not in the product*--the most challenging field for creativeness in advertising."[6]

Familiarizing reduces the fear of the unknown, making things comfortable. *Reminding* works at various levels, from reminding of things to do, to reminding of beliefs and values. *Spreading news* includes news of recent product developments, as well as information about new uses for existing products. *Overcoming inertia* helps people to do things that they wanted to do but didn't quite get around to yet. *Adding a value not in the product* has to do with forming preferences for specific brands even though the various brands might be otherwise indistinguishable.

Since advertising seems to work "in the long run," short-term effects have been difficult to demonstrate. However, Treasure (1974) cited a 1971 study by the British Market Research Bureau which showed that brand switching was positively related to short-term exposure to advertising: people who switched brands were more likely to have seen two or more ads for the product than non-switchers.

Advertising's effectiveness in safety education has been somewhat mixed--ranging from the "Smokey the Bear" campaign against forest fires (very effective), to efforts to get motorists to wear seat belts (mostly ineffective). Kotler (1974) concluded that most seat belt advertising was not properly designed in regard to definition of target market and target effects, and not properly taking into consideration the different attitudes, awareness, knowledge and interest of different segments of the motoring public.

How to Advertise

Just about everyone involved in advertising has his or her own ideas about what makes good advertising. The most appealing guide we found was a short, concise, outline-format how-to book by Roman and Maas (1976), both executives in the firm of Ogilvy & Mather, Inc. Their hard-hitting advice is accompanied by examples from actual campaigns and excerpts from research data. Two illustrations of their examples show the anecdotal style typical of the advertising literature:

> "The car that hurtled through a paper barrier was for years a demonstration of Shell gasoline performance. This campaign helped move Shell from sixth place to second in gasoline sales."[7]

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[6] Treasure (1974), p. 150

[7] Roman & Maas (1976), p. 69

"For years, Save the Children Federation used reverse plate--white type on a black background. When they tested a black-on-white version, contributions increased 65 percent."[8]

Although their specific recommendations go well beyond the scope of this article, several of the concepts which they discuss are essential to understanding the relationship between advertising and sales (i.e., attitudes and behavior):

- *target audience*--that segment of the whole population toward whom you wish to direct your persuasive messages
- *positioning the product*--giving the product a "personality" that will appeal to the target audience
- *advertising strategy*--a statement of an overriding approach that will be carried by each message in the campaign
- *advertising objectives*--a realistic appraisal of what the campaign can accomplish

The *target audience* may be defined in a number of ways; e.g., income bracket, age grouping, attitudes, credit habits.

The product's *position* portrays a complex of qualities which are believed to be (or demonstrated to be) of particular interest to members of the target audience: e.g., masculine vs. feminine, elite vs. common.

The *strategy* reflects the particular approach to reaching the target audience: e.g., allaying fears of personal insecurities, strengthening identification with particular referent group. Strategy includes choosing the appropriate media mix for a particular target audience and coordinating the materials so that no matter which medium a person receives the message through, that message will reinforce and build on messages received through other media.

Objectives are the standards by which the effectiveness of the campaign is measured. They should therefore be reasonable: a 20% increase in profits might be unreasonable, while a 20% increase in the number of people who have heard of the product may be a reasonable objective.

Roman and Maas (1976) maintain that without proper attention to these major aspects of the advertising campaign, the campaign will be far less effective than it could be.

Suggested Reading

Roman, K. & Maas, J., How to Advertise. New York: St. Martin's Press, 1976.

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[8] Roman & Maas (1976), p. 36

Prediction of Behavior from Attitudes

When a psychologist uses the word "prediction", she/he almost always means "correlation and regression." One predicts the outcome on one sort of scale by measuring performance on a different scale. The prediction will be accurate to the extent that the scales are correlated. Increased accuracy may be gained by obtaining several performance measures and using a "multiple regression" technique. Although "correlation does not imply causation", if two events *are* causally related, they will be highly correlated and prediction should be very accurate.

If people's attitudes causally influence their behavior, then behavior and attitudes should be highly correlated. In study after study, however, that premise has suffered serious setbacks. A 1969 review of literature (Wicker, cited in Brannon, 1976) found that correlation coefficients between attitude measures and actual behavior rarely went above .30, and were often close to zero. But during the same time period, pollsters were making better and better predictions of election outcomes based on attitude surveys. For example, the New York Times predicted in 1962 that Nelson Rockefeller would get 54.2% of the vote in the New York gubernatorial election. After the votes were tallied (5,621,850 of them), Rockefeller had received 54.6%--the poll had predicted voting behavior with more than 99% accuracy (Brannon, 1976).

Clearly, attitudes can accurately predict behavior in some situations, although they don't fare so well in others. Behavior is governed by many factors: "norms, situational pressures, roles, referent groups, habits, socially mediated rewards, economic realities, and a thousand other realistic pressures."[9] What role, then, do attitudes play? Under what circumstances can attitudes be used to predict behavior? In addition to giving a complete, well-written, and often humorous accounting of the history and systems of attitude research in general, Brannon (1976) provides a theoretical structure for using attitude measures to predict behavior.

A slightly different theoretical position is taken in the work of Fishbein (Fishbein & Ajzen, 1975). While Brannon does not specifically outline steps to change behavior, Fishbein does suggest means whereby behavior can be changed by persuasion. Accordingly, both models of behavior prediction will be presented.

Brannon's Model of Behavior Prediction

Brannon (1976) suggests that there are three major categories of factors that determine whether or not a person's behavior will be correlated with his/her attitude: congruence, constraints, and situational cues.

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[9] Brannon (1976), p. 148.

Congruence. Brannon calls the "apparent fit" between attitude and behavior "congruence" and hypothesizes that an attitude enhances the probability of behavior in proportion to the degree of congruence between them. For example, if you believe that Bill is a good mechanic, you may refer your friends to him when they have automobile problems, but you probably would not consult with him in regard to making financial investments. Congruence may vary in several aspects:

- Implicit facts - How much a manager of a baseball team likes each player probably will not have as much influence as the player's batting average when he makes up the batting order.
- Level of generality - Specific attitudes are likely to influence only a few specific behaviors. More general attitudes are likely to influence more general behavior. Highly congruent attitudes and behaviors will probably occur at about the same level of generality.
- Indices vs. single measure - Multi-item attitude scales should be better predictors of multi-act behavioral indices than would single items.

Constraints. Constraints are the factors the influence of which may outweigh the influence of attitudes, even if the attitudes and behaviors are highly congruent. Major constraints on behavior are:

- Absence of the object toward which the behavior must be directed
- Physical restraints
- Gains and losses contingent on performing the behavior
- Knowledge of the behaviors that would normally follow from an attitude
- Ability to perform the behavior
- Habitual nature of the behavior
- Competing attitudes
- Gains and losses contingent on the response of other people
- Social norms

Situational Cues. Congruent attitudes and relevant constraints may be counteracted by the action of certain situational factors. The situational demands of sitting on a jury, for example, are very different from participating in an encounter group in regard to expressing one's own "true feelings." In general, factors which increase the contribution of situational cues reduce the role of purely individual factors. Although most researchers fail to keep track of this factor, it may be responsible for the often-noted difficulty in obtaining cross-situational consistency.

The action of situational cues on behavior may be to change the person's focus of consciousness or relevance from one set of attitudes to another, leaving underlying attitudes unchanged.

Review of Main Points. Brannon summarized his major points for predicting behavior from attitudes as follows:

> "In order to successfully predict future behavior on the basis of current verbal expressions:
>
> 1. The respondent must have an attitude reasonably congruent to the behavior to be predicted.
> 2. An attitude-expression must be elicited which fairly represents that attitude.
> 3. The attitude must not be substantially altered by the process of measurement.
> 4. The attitudes must not have changed substantially by the time the behavior is performed.
> 5. The respondent must not be subject to overwhelmingly strong situational constraints at the time the behavior is performed.
> 6. There must not be conflicting attitudes which are also congruent to the behavior in question; or more realistically, if there are such competing attitudes, they must be taken into consideration.
> 7. There must be no powerful cues in the behavioral situation which render the measured attitude irrelevant.
> 8. Respondents should not be aware that their attitude expressions and behavior are being compared."[10]

Fishbein's Model of Behavioral Prediction

Fishbein (Fishbein & Ajzen, 1975) has mathematicized a combination of expectancy-value theory and social-norms theory to produce what he calls a "behavioral intention model." He suggests that behavior is related to a person's "intention" to perform the behavior, which is in turn related to attitudes and social norms. This relationship is represented by the equation:

$$B \sim I = (A_B)w_1 + (SN)w_2.$$

Where B is the behavior, I the intention to perform behavior B, A_B is the attitude towards performing B, S_N the subjective norm, and w_1 and w_2 are empirically determined weighting factors.

The attitude factor, A_B is further reduced to a function of beliefs and evaluations.

$$A_B = \sum_{i=1}^{n} b_i e_i,$$

Where b_i represents the belief that performing B leads to consequences of outcome i, e_i is the person's evaluation of outcome i and n is the number of outcome beliefs the person holds about performing B.

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[10] Brannon (1976), p. 186.

The social normative factor, SN is reduced to a function of beliefs and motivation.

$$SN = \sum_{i=1}^{n} b_i m_i,$$

Where b_i represents the belief that a specific referent group expects the person to (or not to) perform B, m_i is the person's motivation to comply with those expectations, and n is the number of relevant social referents.

The interpretation given to these relationships is that an intention to perform a behavior is jointly determined by a person's attitudes and his or her susceptibility to social influence. The degree to which each factor contributes to that particular intention is determined by experiment. Attitude is believed to be a joint function of beliefs about the outcome of performing the behavior and how the person evaluates the outcome. Thus, if a given outcome is evaluated as having a null outcome, that belief cannot affect the overall attitude factor. Positively evaluated outcomes will increase, and negative outcomes decrease, the behavioral intention. The social influence factor is believed to be a joint function of belief about the person's social referent's approval or disapproval of the behavior, and how much the person wishes to comply with the referent group. Thus, if a person believes that his peer group approves of a given behavior, and simultaneously doesn't care to comply with his peer group, that particular social influence will have no effect on his behavioral intention. Positive motivation will increase, and negative motivation will decrease, the person's behavioral intention.

Perhaps the most attractive feature of this model is that it specifies four theoretical points of vulnerability to change behavior:

- beliefs about the consequences of a behavior
- the evaluation of that outcome
- beliefs about the social referents' approval
- motivation to comply with the social referents

In practice, however, the first two can be relatively easily manipulated while the second two factors are much more difficult to vary, thus limiting the utility of the model.

Another feature is that Fishbein's model focuses attempts at change on highly specific behaviors. For example, in an alcoholic rehabilitation program, McArdle (1972, cited in Fishbein & Ajzen, 1975, pp. 503-508) showed an increase in the number of alcoholics signing up for the treatment program by linking undesirable consequences of drinking (e.g., ruined physical and mental health) with not signing up for the program. Fewer alcoholics signed up when the same consequences were linked with a more general behavior, "continued drinking." Thus, by focusing on "signing up" behavior rather than "continued drinking" behavior, she was able to change "signing up" behavior. One might argue that "signing up" may or may not have anything to do with whether the alcoholic continues to drink. However, an ongoing program with personal contact would seem to have more of a chance to change actual drinking behavior than would posters and public service announcements.

Although Fisbein's approach provides a focus on how behaviors might be changed, it does have several shortcomings:

- The use of mathematical formulas implies a level of precision rarely met in psychological research. The precision of the equations is only as good as the scaling techniques used to obtain the numbers.
- The scaling techniques present somewhat complex and subtle discriminations to the respondents. For example, a given factor must be judged as both good or bad and likely or unlikely to have a given consequence.
- The model can deal only with conscious processes. If there are underlying dynamics to people's attitudes (as many believe) then this model has less utility.

Suggested Reading

Brannon, R. Attitudes and the prediction of behavior, in B. Seidenberg & A. Snadowsky (Eds.), Social Psychology: An Introduction. New York: Free Press, 1976.

Behavior Modification

The point of view that behavior need not be attributed to "internal" processes in order to be understood is most articulately stated by those psychologists whose doctrine has been loosely labeled "behavior modification." These psychologists have literally produced volumes on changing behavior. A good "behavior-mod" program can change just about any behavior imaginable (Whaley & Malott, 1971). For our purposes, it is somewhat frustrating to note that the changes are almost exclusively demonstrated in one individual at a time (not a group), and require a high level of involvement by the behavior modifier. The use of mass media in behavior-modification programs is nil, although some psychologists venture some theoretical interpretations of, say, social reinforcement methods through advertising. Mehrabian (1970) provides a concise accounting of how a behaviorally inclined psychologist looks at social problems.

The major concepts employed in behavior modification are reinforcement and punishment. Reinforcement is a process of strengthening a behavior by following it with something the person "likes", or taking away something the person "dislikes."[11] Punishment is a process of weakening a behavior by following it with something a person "dislikes", or taking away something a person "likes." (Note the symmetry of these two processes.)

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[11] The quotes are important because a strict behaviorist would never use such mentalistic words as "like" and "dislike" since they can't be quantified by an outside observer. Furthermore, it is possible to find reinforcers that don't have those emotional consequences. However, no damage will be done by using those terms, except to make theoretical sticklers a little squeamish.

Behavior theory maintains that a society administers reinforcement and punishment according to what behaviors are accepted or rejected in that society. For a young child, the most influential agents acting for the society are, of course, the child's parents. As people grow older they are not only subject to other people who administer reinforcement and punishment, they themselves administer reinforcement and punishment to those around them. For example, a child reinforces his parents for giving him attention when he cries by stopping crying.

Thus, behavior is believed to be governed by its *consequences*--not by some unseeable, unknowable, internal state labeled "attitude."

The rules of behavior modification are simple: People do those things for which they are reinforced, and don't do those things for which they are punished or receive no reinforcement. (Would you go to work if you didn't get a paycheck every so often?) If a behavior modifier wishes to change a person's behavior he assumes that there is some reinforcement for doing that behavior. To decrease or eliminate the behavior he may try to determine what the reinforcement is and eliminate it; or he may add punishment to the situation. Conversely, to get someone to increase a behavior or to do something new, the behavior modifier would either search out and eliminate punishments or add reinforcements to the situation. In either case, the attention is on the consequences of the behavior in question.

Behavior modification is usually directed at single individuals because each person has his or her own reinforcement history; that is, what reinforces me may not reinforce you, and vice versa. But people living in the same society have a lot of common influences and, as a result, are frequently subject to similar reinforcements and punishments.

Much of today's advertising presumably acts through the implied punishments (usually interpersonal rejection) for not using a particular product versus the implied reinforcements (usually gaining someone's approval) for using it.

Suggested Reading

Mehrabian, A., Tactics of Social Influence, Englewood Cliffs, N.J.: Prentice-Hall, 1970.

Discussions and Conclusions

The major concern of this review has been to uncover direct evidence for the proposition that changing attitudes can produce changes in behavior. In all honesty, we haven't been able to do that. However, we have found indirect evidence and a collection of studies which, taken together, strongly support that proposition. We found that:

- Attitudes can be changed by messages conveyed through print, TV, personal contact, etc.

- Advertising is largely based on an attitude change model (hierarchy of effects).
- Studies on the correlation between attitudes and behavior have documented the circumstances in which behavior is expressed in congruence with attitude.
- Environmental factors which strongly constrain or facilitate behavior have been thoroughly examined by behavior-modification psychologists.

Each of these areas addresses the problem of behavior change from a different perspective, and, alone, each is insufficient for our purposes. In combination, however, they provide what appears to be a very promising approach.

Combinations and Permutations

Because each of the areas described above is highly complex and multi-faceted, a nearly infinite variety of combinations of principles would seem to be possible. A certain amount of creativity and common sense is required to produce a coherent and useful mix of ideas. We have presented a sample of how these ideas might be combined.

The most important contribution from advertising seems to be the "how-to's" of reaching selected audiences with effective messages. Targeting the audience, determining the "positioning" of the "product", developing a well-focused campaign, choosing the most appropriate media mix, determining the most effective format and message--all are tasks with a well-defined technology.

Much of that technology interweaves with the technology of attitude change. For example, knowledge of "baseline" attitudes (the attitudes which we desire to change) is a primary determinant of the type of campaign we ultimately choose to implement, especially when we believe that baseline attitudes are impediments to the desired target behaviors. Furthermore, the attitude-change literature illuminates the process of developing effective messages. Combining knowledge of existing attitudes and mechanisms of attitude change leads us to a variety of potential messages addressing the various motives involved. These messages can then be sifted for those consistent with the campaign. In some cases, the diversity of attitudes which need addressing may suggest the necessity for more than one campaign. Certainly, baseline attitude research can help to specify target audiences within a campaign.

Since the whole point of any campaign is to influence behavior, we must pay particular attention to the factors which constrain people from acting in congruence with their attitudes. Toward this end we may be able to identify attitudinal constraints which can also serve as targets for attitude change. We can also address social-normative factors if they appear to be significant constraints on behavior. The use of respected models in advertising is an attempt to get the target audience to perform a specific behavior because of its implied social value. But an even greater advantage of the constraints approach is in the identification of environmental factors such as rewards and punishments. This conceptual framework provides the necessary interface

between attitude research and behavior-modification research.

Behavior modification is almost always implemented on a person-to-person basis, i.e., one behavior modifier changes the behavior of a single person through very close scheduling of reinforcements and punishments. According to behavior theory, all of our behavior is constantly being selectively reinforced or punished by people around us. Getting members of the target population to change how they administer reinforcements and punishments to their peers appears to be a possible outcome of an attitude change approach. Using this approach, the message would not be directed at performing the ultimate target behavior, but at performing behaviors which would produce a reinforcing climate for the ultimate target behavior. This objective is probably easier to achieve than changing the target behavior directly (more congruence and fewer constraints) and has the added advantage of being self-sustaining (reinforcement from the person's peer group).

The "prediction" and "production" of behavior are obverse sides of the same coin. That is, if we have a good theory and know the antecedent conditions, we can predict the outcome. On the other hand, if we wish to produce a given outcome we can use the theory to derive the necessary antecedent conditions that would lead to that outcome. By creating those antecedent conditions, then, we automatically produce the desired outcome.

Conclusion

While there is ample evidence for reliably producing changes in people's attitudes, there is little direct evidence of producing a significant behavior change through the use of attitude change techniques. However, considerable indirect evidence for changing behavior exists in the field of advertising. The literature on prediction of behavior from attitudes provides a sound basis for understanding the constraints on performing behavior congruent with attitudes, while the behavior-modification literature offers a firmly established understanding of the control of behavior by environmental factors. Combining these separate-but-related technologies appears to be a fruitful approach to the ultimate goal of persuading people to change their behavior.

"But will it work?" The question remains. We know that the many safety education programs that have been based on attitude change alone have *not* worked. We know that the few programs based on effective use of advertising techniques (i.e., not just TV PSAs) have had measurable success. We suggest that the use of the multi-theoretical approach outlined in this article has even greater potential to change safety behaviors than advertising campaigns conceived and executed without the benefit of an integrated theory.

Safety education programs must be built on a foundation of knowledge of the attitudes and constraints on behavior of the target audience. And they must use a multitude of approaches. Programs that have not worked typically have used a single psychological approach (based solely on attitude change techniques) or a single advertising approach (based on inappropriate reliance on television). The multi-theoretical approach not only attacks the problem on several fronts, it suggests some flanking maneuvers as well. It holds the potential to deal directly and indirectly with many aspects of behavior change that have been ignored by most previous programs.

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APPENDIX B

EXAMPLES OF STRUCTURED FORMS DEVELOPED FOR REVIEW OF SAFETY EDUCATION MATERIALS/DATA ON MAAN EVALUATIONS

EXAMPLES OF STRUCTURED FORMS
DEVELOPED FOR REVIEW OF
SAFETY EDUCATION MATERIALS

FEBRUARY, 1979

NAME_____

AGENCY_____

We would like some brief input from you concerning the following areas:

1. Convincing someone to wear a safety helmet.

2. Review of three safety pamphlets.

3. Feedback on government contracting.

HOW DO YOU CONVINCE PEOPLE TO WEAR HELMETS?

Please jot down any creative ideas or campaign strategies you might have on helmet use. We realize that many pages could be written on each area, but we're looking for the "Ad Man's" viewpoint on getting people to wear helmets.

Creative concepts to weave into materials (PSA's, pamphlets, display ads, etc.)

Campaign strategies - methods/media used to reach target audience.

REVIEW OF THREE TRAFFIC SAFETY PAMPHLETS

Please review the three enclosed pamphlets and provide brief feedback on each.

Motorcycle Helmets: Claims and Facts

1. What is "good" about this pamphlet?

2. What is "bad" about this pamphlet?

Do you agree or disagree with the following statements about this pamphlet?	Strongly Disagree		Dis-Agree		Agree		Strongly Agree
3. Content is balanced-not too simple or complex. .	☐	☐	☐	☐	☐	☐	☐
4. Is of excellent technical quality.	☐	☐	☐	☐	☐	☐	☐
5. Is very clever/highly creative.	☐	☐	☐	☐	☐	☐	☐
6. Is very attention getting.	☐	☐	☐	☐	☐	☐	☐
7. Should be remembered by most readers..	☐	☐	☐	☐	☐	☐	☐
8. Will change the behavior of many readers.. . . .	☐	☐	☐	☐	☐	☐	☐

REVIEW OF TRAFFIC SAFETY PUBLIC SERVICE ANNOUNCEMENTS

A[illegible]: _____ AGENCY _____

[illegible]FFIC SAFETY PSA #1: "STILLER AND MERA"

. What was "good" about this PSA?

. What was "bad" about this PSA?

[illegible]ou agree or disagree with the following [illegible]ements about the PSA?	Strongly Disagree		Dis-Agree		Agree		Stron Agre
. Content was balanced - not too simple or complex. .	☐	☐	☐	☐	☐	☐	[
. Was of excellent technical quality.	☐	☐	☐	☐	☐	☐	[
. Was very clever/highly creative	☐	☐	☐	☐	☐	☐	[
. Was very attention getting.	☐	☐	☐	☐	☐	☐	[
. Should be remembered by most viewers.	☐	☐	☐	☐	☐	☐	[
. Will change the behavior of many viewers.	☐	☐	☐	☐	☐	☐	[

[illegible]FFIC SAFETY PSA #2: "HEADACHE"

. What was "good" about this PSA?

. What was "bad" about this PSA?

[illegible]o [illegible]ou agree or disagree with the following [illegible]ements about the PSA?	Strongly Disagree		Dis-Agree		Agree		Stro Agr
[illegible]. Content was balanced - not too simple or complex. .	☐	☐	☐	☐	☐	☐	[
. Was of excellent technical quality.	☐	☐	☐	☐	☐	☐	[
[illegible]. Was very clever/highly creative	☐	☐	☐	☐	☐	☐	[
[illegible]. Was very attention getting.	☐	☐	☐	☐	☐	☐	[
. Should be remembered by most viewers.	☐	☐	☐	☐	☐	☐	[
[illegible]. Will change the behavior of many viewers.	☐	☐	☐	☐	☐	☐	[

REVIEW OF TRAFFIC SAFETY PUBLIC SERVICE ANNOUNCEMENTS

T _____ AGENCY _____

I ET PSA #1: Football and Traffic

What was "good" about this PSA?

What was "bad" about this PSA?

u agree or disagree with the following ments about the PSA?	Strongly Disagree		Dis-Agree		Agree	Agree
Content was balanced - not too simple or complex. .	☐	☐	☐	☐	☐	☐
as of excellent technical quality.	☐	☐	☐	☐	☐	☐
Was very clever/highly creative	☐	☐	☐	☐	☐	☐
as very attention getting.	☐	☐	☐	☐	☐	☐
Should be remembered by most viewers.	☐	☐	☐	☐	☐	☐
ill change the behavior of many viewers.	☐	☐	☐	☐	☐	☐

I ET PSA #2 : Melon and Helmet

What was "bad" about this PSA?

u agree or disagree with the following ments about the PSA?	Strongly Disagree		Dis-Agree		Agree	Strongly Agree
Content was balanced - not too simple or complex. .	☐	☐	☐	☐	☐	☐
as of excellent technical quality.	☐	☐	☐	☐	☐	☐
Was very clever/highly creative	☐	☐	☐	☐	☐	☐
as very attention getting.	☐	☐	☐	☐	☐	☐
Should be remembered by most viewers.	☐	☐	☐	☐	☐	☐
ill change the behavior of many viewers.	☐	☐	☐	☐	☐	☐

STRUCTURED RESPONSES TO PSA EVALUATIONS

TRAFFIC SAFETY PSA #1: STILLER AND MEARA

Response Distribution for Each Statement Concerning the PSA*

	Strongly Disagree		Disagree		Agree		Strongly Agree		
	1	2	3	4	5	6	7	Mean	Rank Order**
Content was balanced--not too simple or complex	10	3	33	10	37	3	3	3.83	2
Was of excellent technical quality	-	7	30	13	40	3	7	4.23	3
Was very clever/highly creative	7	10	30	7	33	3	10	4.00	2
Was very attention getting	-	3	17	23	37	7	13	4.67	3
Should be remembered by most viewers	7	-	40	23	23	-	7	3.83	3
Will change the behavior of many viewers	23	10	43	20	3	-	-	2.70	3

*Cells present percentages based on an n of 30

**The rank order of this PSA compared to the other 2 traffic safety PSAs on each dimension

TRAFFIC SAFETY PSA #2: "HEADACHE"

Response Distribution for Each Statement Concerning the PSA*

	Strongly Disagree		Disagree		Agree		Strongly Agree		
	1	2	3	4	5	6	7	Mean	Rank Order **
Content was balanced--not too simple or complex	-	-	-	3	50	17	30	5.73	1
Was of excellent technical quality	-	-	3	13	37	10	37	5.63	1
Was very clever/highly creative	-	-	17	30	27	10	17	4.80	1
Was very attention getting	-	-	-	-	21	10	69	6.48	1
Should be remembered by most viewers	-	-	3	-	30	17	50	6.10	1
Will change the behavior of many viewers	3	3	-	13	57	7	17	5.03	1

*Cells present percentages based on an n of 30

**The rank order of this PSA compared to the other 2 traffic safety PSAs on each dimension

TRAFFIC SAFETY PSA #3: PASSIVE RESTRAINT

Response Distribution for Each Statement Concerning the PSA*

	Strongly Disagree		Disagree		Agree		Strongly Agree		
	1	2	3	4	5	6	7	Mean	Rank Order**
Content was balanced--not too simple or complex	7	-	46	4	39	-	4	3.69	3
Was of excellent technical quality	-	-	14	34	31	17	3	4.62	2
Was very clever/highly creative	13	3	23	27	27	3	3	3.73	3
Was very attention getting	-	3	23	13	40	13	7	4.73	2
Should be remembered by most viewers	7	-	27	30	23	7	7	4.10	2
Will change the behavior of many viewers	7	10	28	34	14	3	3	3.62	2

*Cells present percentages based on an n of 30

**The rank order of this PSA compared to the other 2 traffic safety PSAs on each dimension

HELMET PSA #1: FOOTBALL AND TRAFFIC

Response Distribution for Each Statement Concerning the PSA*

	Strongly Disagree			Disagree		Agree	Strongly Agree		
	1	2	3	4	5	6	7	Mean	Rank Order**
Content was balanced--not too simple or complex	13	21	13	21	29	4	-	3.46	6
Was of excellent technical quality	-	4	4	38	38	13	4	4.63	5
Was very clever/highly creative	13	-	8	25	21	-	8	3.75	5
Was very attention getting	-	8	8	42	21	8	13	4.50	4
Should be remembered by most viewers	9	9	26	22	13	13	9	3.96	5
Will change the behavior of many viewers	23	9	32	23	9	-	5	3.05	5

*Cells present percentages based on an n of 24

**The rank order of this PSA compared to the other 5 helmet PSAs on each dimension

HELMET PSA #2: MELON AND HELMET

Response Distribution for Each Statement Concerning the PSA*

	Strongly Disagree		Disagree		Agree		Strongly Agree		
	1	2	3	4	5	6	7	Mean	Rank Order**
Content was balanced--not too simple or complex	-	4	4	12	32	32	16	5.32	2
Was of excellent technical quality	8	-	-	12	24	24	32	5.44	2
Was very clever/highly creative	-	4	4	4	28	24	36	5.72	1
Was very attention getting	-	-	-	4	12	16	68	6.48	1
Should be remembered by most viewers	-	4	-	-	16	20	60	6.28	1
Will change the behavior of many viewers	4	-	8	4	56	8	20	5.12	2

*Cells present percentages based on an n of 25

**The rank order of this PSA compared to the other 5 helmet PSAs on each dimension

HELMET PSA #3: ORCHESTRA

Response Distribution for Each Statement Concerning the PSA*

	Strongly Disagree		Disagree		Agree		Strongly Agree		
	1	2	3	4	5	6	7	Mean	Rank Order**
Content was balanced--not too simple or complex	12	12	16	24	32	-	4	3.68	5
Was of excellent technical quality	4	8	4	28	32	8	16	4.64	4
Was very clever/highly creative	8	13	17	33	13	4	13	3.92	4
Was very attention getting	8	12	20	24	21	-	8	3.84	6
Should be remembered by most viewers	4	29	33	17	13	-	4	3.21	6
Will change the behavior of many viewers	25	21	33	17	-	-	4	2.63	6

*Cells present percentages based on an n of 25

**The rank order of this PSA compared to the other 5 helmet PSAs on each dimension

HELMET PSA #4: KENNY ROBERTS

Response Distribution for Each Statement Concerning the PSA*

	Strongly Disagree		Disagree		Agree		Strongly Agree		
	1	2	3	4	5	6	7	Mean	Rank Order**
Content was balanced--not too simple or complex	4	4	13	21	50	-	8	4.42	4
Was of excellent technical quality	-	8	13	17	46	8	8	4.58	6
Was very clever/highly creative	8	17	21	38	17	-	-	3.38	6
Was very attention getting	-	8	13	33	42	-	4	4.25	5
Should be remembered by most viewers	4	21	4	25	33	8	4	4.04	4
Will change the behavior of many viewers	13	4	26	22	26	4	4	3.74	4

*Cells present percentages based on an n of 24

**The rank order of this PSA compared to the other 5 helmet PSAs on each dimension

HELMET PSA #5: TURKEYS

Response Distribution for Each Statement Concerning the PSA*

	Strongly Disagree		Disagree		Agree		Strongly Agree		
	1	2	3	4	5	6	7	Mean	Rank Order**
Content was balanced--not too simple or complex	-	-	12	16	68	4	-	4.64	3
Was of excellent technical quality	4	-	-	28	36	16	16	5.04	3
Was very clever/highly creative	4	-	24	24	28	8	12	4.44	3
Was very attention getting	4	-	8	40	28	16	4	4.52	3
Should be remembered by most viewers	4	-	16	32	20	20	20	4.56	3
Will change the behavior of many viewers	8	-	24	32	36	-	-	3.88	3

*Cells present percentages based on an n of 25

**The rank order of this PSA compared to the other 5 helmet PSAs on each dimension

HELMET PSA #6: BIKE AND CAR CRASH

Response Distribution for Each Statement Concerning the PSA*

	Strongly Disagree		Disagree		Agree		Strongly Agree		
	1	2	3	4	5	6	7	Mean	Rank Order**
Content was balanced--not too simple or complex	-	-	-	8	48	20	24	5.60	1
Was of excellent technical quality	-	-	-	20	32	16	32	5.60	1
Was very clever/highly creative	-	-	12	20	20	28	20	5.24	2
Was very attention getting	-	-	-	4	32	24	40	6.00	2
Should be remembered by most viewers	-	-	4	4	28	32	32	5.84	2
Will change the behavior of many viewers	-	-	4	12	44	12	28	5.48	1

*Cells present percentages based on an n of 25

**The rank order of this PSA compared to the other 5 helmet PSAs on each dimension

Rank Order of PSAs by Response

"Content was balanced--not too simple or complex"

Traffic Safety PSAs	Mean Rating
Headache	5.73
Stiller and Meara	3.83
Passive Restraint	3.69
Helmet PSAs	
Bike and Car Crash	5.60
Melon and Helmet	5.32
Turkeys	4.64
Kenny Roberts	4.42
Orchestra	3.68
Football and Traffic	3.46

"Was of excellent technical quality"

Traffic Safety PSAs	
Headache	5.63
Passive Restraint	4.62
Stiller and Meara	4.23
Helmet PSAs	
Bike and Car Crash	5.60
Melon and Helmet	5.44
Turkeys	5.04
Orchestra	4.64
Football and Traffic	4.63
Kenny Roberts	4.58

"Was very clear/highly creative"

Traffic Safety PSAs	
Headache	4.80
Stiller and Meara	4.00
Passive Restraint	3.73
Helmet PSAs	
Melon and Helmet	5.72
Bike and Car Crash	5.24
Turkeys	4.44
Orchestra	3.92
Football and Traffic	3.75
Kenny Roberts	3.38

---

*Based on a 1-7 rating scale where 1 was "strongly disagree" and 7 was "strongly agree" with the statement.

Rank Order of PSAs by Response

"Was very attention getting"

Traffic Safety PSAs	Mean Rating
Headache	6.48
Passive Restraint	4.73
Stiller and Meara	4.67
Helmet PSAs	
Melon and Helmet	6.48
Bike and Car Crash	6.00
Turkeys	4.52
Football and Traffic	4.50
Kenny Roberts	4.25
Orchestra	3.84

"Should be remembered by most viewers"

Traffic Safety PSAs	
Headache	6.10
Passive Restraint	4.10
Stiller and Meara	3.83
Helmet PSAs	
Melon and Helmet	6.28
Bike and Car Crash	5.84
Turkeys	4.56
Kenny Roberts	4.04
Football and Traffic	3.96
Orchestra	3.21

"Will change the behavior of many viewers"

Traffic Safety PSAs	
Headache	5.03
Passive Restraint	3.62
Stiller and Meara	2.70
Helmet PSAs	
Bike and Car Crash	5.48
Melon and Helmet	5.12
Turkeys	3.88
Kenny Roberts	3.74
Football and Traffic	3.05
Orchestra	2.63

NON-STRUCTURED RESPONSES TO
PSA EVALUATIONS

TRAFFIC SAFETY PSA #1: STILLER AND MEARA

What was *good* about this PSA?	What was *bad* about this PSA?
Known personalities got attention (but that's all)	Never showed them buckling up--never showed consequences of not buckling up
Approache is new (novel--hence different)	Negative approach/irrelevant argument
Creative. Very "involving." Very "real life"	Could create a backlash from women. Is somewhat demeaning of women
Intent	Approach--antagonistic
Stars were recognizable--easy to identify	Point being made was obscured
	Eastern humour--bickering; not necessarily universal appeal; no clear explanation of benefit of wearing belt--or consequence of not wearing
Well known personalities	Not funny--not much of a message
Well known team; good dialogue	Visuals only fair
Hard to say	Too cute
Point about not carrying for yourself you don't care for me	Was too much dialogue; message watered down
Good reminder to wear seat belt	Not persuasive enough; not factual enough
It was highly people oriented: believable; natural	Perhaps too fast for some less-than-involved viewers
Trades on human emotion. Caring	
Entertaining, well-known personalities. Concentration (repetition) of central theme--seat belts	Vehicle use, versatility, importance lacking. Treats subject with less than serious concern

What was *good* about this PSA?	What was *bad* about this PSA?
Recognizable talent--heavyweights whose words are normally interesting and intriguing; always leading to a remembrance "snapper"	
Theme: "Wear a seat belt for someone you love"	No reward for doing right thing
Held my attention	Did not tell me "why" I should wear seat belt--should use scare tactics
Talent, photography and production	Point was not established soon enough
Confrontation of man/wife opinions invited interest	A bit silly on deathly subject
Concept, acting, execution	Camera work
Know actors/comedians--get immediate attention	Perhaps difficult for average person to get point of commercial and "tailend" twist
Strong recognition of Stiller and Meara	They didn't get enough good lines soon enough. A little preachy
Really did not see anything good; did not show car interior and safety belts	Too contrived--an un-real artificial situation not likely to occur in real life; missed opportunity to project the real danger involved when seat belts are not used
	Creativity gets in the way of message
Eavesdropping is a good basic format	Unnatural action and reaction; credibility gap because people don't react this way
Touch of humor	Reminded me of the BLUE NUN; not top creative product

What was *good* about this PSA?	What was *bad* about this PSA?
Talent	Slow estab. purpose; script/ action in way of message; attempt at entertainment/ humour obscures message
Liked the slice of life approach. It was engrossing, attention getting and keeping	Personally was mislead with "why can't I drive." Was expecting a drunk driving warning
Seemed to be one of attention getting	Not enough into the safety. Too much humor rather than the seriousness needed
When it was over (sorry)	Too cute; didn't like "fighting;" people spread out too much; sounded like a copy of in "Advertising" technique

What was *good* about this PSA?	What was *bad* about this PSA?
Excellent demonstration	No real people in spot at all
Effective; well presented	
High impact. Point made very graphically; memorable	Scene with lap belt and shoulder harness show neck getting a severe "snap.: Could raise doubts in viewers' minds
Realisitc effects. Dramatic treatment	Humor touch
Impact graphically done; excellent message	Needed some photographic help
Demonstrates consequences; shows advantages; ends with a strong positive message; excellent commercial	
Strong statement	Rather flat announcer
Shocking! Excellent	
Dramatically demonstrates what can happen to me if I don't wear seat belt	Nothing
Good demonstration	Did not show (clearly) the harness
Effective visual; factual; persuasive	Nothing
Laboratory proof	Not really people oriented in a way to suggest that the viewer could be seeing himself
Dramatic	Drama did not hold through exit
Highly illustrative of effects of not using belts	Lack some human reality
Graphic! Also somewhat frightening. But effective demonstration as <u>should</u> be for TV	
Three factual situations	Not best theme
Held my attention	Nothing

What was *good* about this PSA?	What was *bad* about this PSA?
Everything, concept strongly developed	Visual graphics weren't contemporary
Good demo of worth of seatbelt; dramatic shot of head hitting windshield	Very little
Attention-getting, dramatic, wow!	Show two, rather than three positions; clutter
Everything--excellent visual impact!	Nothing
Terrific demonstrations	
Very realistic--showed great danger	Violence, but what's wrong with that?
Good graphic presentation of message	
Attention-getting; believable, demonstrates effect	Nothing
Creative, convincing	Quality of color reproduction
Powerful attention getting; We approach strongly believable; message clear/ unquivocal	
Demonstration!!! Simple, to the point!	Nothing
Presented the seriousness at once--very good	
Excellent	Nothing

TRAFFIC SAFETY PSA #3: PASSIVE RESTRAINT

What was *good* about this PSA?	What was *bad* about this PSA?
Excellent demonstration related to real people	Not exciting
Used children, which has an emotional appeal	Ending somewhat contrived; "addy;" music was intrusive
Family emotional appeal	
Brought human touch to safety message	Conclusion--boy with Bsu routine--too literal
	Had to relate first segment to second; pictured air bag inflation in unpleasant way; too many copy points--difficult to follow
Family to identify with	
Showed progress that is being made in safety	Not too creative; somewhat complex--disjoined; too standard
Demonstration of crash and air bag	Too involved
Visual of dummy on impact	Too much; too busy
Attempt to have human interest	Too mixed up
Lots of proof--<u>if</u> the viewer were expecting it	Disassociated; scrambled
Again, dramatic; personally involving	Drama of impact seriously impaired by lacklustre tag--exit
Combines human and "effects"	Leaves listener with suggestion that solution/action is off in distant future (1981)
	Copy was distracting--bridge to actual message not <u>particularly</u> well done
Good demonstration	Not a realistic family reaction

What was *good* about this PSA?	What was *bad* about this PSA?
Used scare tactics to impress danger of not wearing	It was not as attention-getting as others
Production concept	No comment
Slice of family life	A bit slow coming to point
Good concept	Jumped around, too abstract for some viewers
Good/excellent visual	Perhaps beginning and end not as much impact as dummy or person in demonstration
Good family involvement	Weak transition from opening scene to main message
Human situations--simulated airbag effect at end with balloon--showed hope for future developments beyond seatbelts	Nothing
Message was diluted by too many thoughts	
	If the objective was to get people to buckle up now it misses completely. If it intends to inform them about what is coming, then it does that
Family involvement	
Family approach	Confused
Entertaining--attention getting	The child element takes away from the time which should be devoted to the ad
The ball at beginning tied into the point at end--most important point, but could have been a heck of lot stronger	Very tough transition into small children & dummy; too grim; too much time on settings; too jumpy
Comparing child and ball (human) with "accidents"	
Nice color, smooth production; sophisticatedly put together	Too complex. Too much jumping around from one subject to another. Too gruesome!

What was *good* about this PSA?	What was *bad* about this PSA?
Tie in with sports	
Well produced	Slow idea established; message not clear
Dramatic comparison! Very relatable	Not much
Darn little	Confusing--too little follow through on a reason why you should wear--too narrow for the audience
Attempt to compare with necessity of wearing in football	Confusing
	Confusing. Creative concept got in the way of the message
Age appeal - Relation good	
Quick--interest getting	No tail to message
Good comparison--sports & driving easy to relate to!	No final message--ends up in air
Concept	
Fair	Too busy
	Confusion
Good comparison	No conclusion. No evidence
Lots of color & action for attention	Maybe too quick
Not much	Difficult to tie-in with vehicle/driver safety
"Hey Man" line is good	Disconnected visuals--transition too fast
Theme	Poor comparison
Production quality	Did not establish objective soon enough

What was *good* about this PSA?	What was *bad* about this PSA?
Good tie-up between football lineman and cycle driver	Failed to show good result of wearing helmet
Concept, execution	Technical quality
Good analogy	The vocal was amateurish
Spectacular staging--very exciting editing. Simile of motorcycles in traffic to football game marvelous. A really super, involving commercial	Saw nothing bad
	Too many thoughts--should be simplified
Good, believable, memorable comparison	Nothing
Related to sports. Something most young people associate themselves with	Ending left you hanging

What was *good* about this PSA?	What was *bad* about this PSA?
Dramatic	
Concept execution; ethnic orientation; clear message strongly presented	Very little
Wow!! It was memorable!	Nothing
Quick--one point only--dramatic. Well done	
Good demonstration	Crude
Very graphic--strong, simple message	Might shock some viewers
Everything	?
Great impact	
Strong! Very good visual quality--let's the imagination make the bridge	
Different. Shocking. Good visuals	
Gets the point across	
Demonstration	Poor taste
Graphic	Overly graphic
Visual; scary, simple; attention-demanding	Threat
Interesting visuals; poorly handled	Inadequate execution
Great graphic	Heavy on scare technique. Talent a little weak (delivery) yuk!
Strong attention getter	
Strong approach	Taste in graphic
Dramatic footage...benefit simply communicated	
Concept	Gory

What was *good* about this PSA?	What was *bad* about this PSA?
Very dramatic--simple--one good thought presented well and reinforced	
Fantastic warning--exciting--brutal--demonstrative	Saw nothing bad
Makes one simple point	Gross-too violent
Point extremely well emphasized	Might be considered gory by some--not me
Got point across fast	Nothing

What was *good* about this PSA?	What was *bad* about this PSA?
Not much	
Addressed a single issue	Slow estab. Negative impression
	A little too remote, not that immediately perceivable. Failed to get the story across
When it was over--sigh	Who couldn't hear a whole band. Use something softer
Good concept--an expert's advice	Didn't seem to make point
	The problem of hearing with a helmet on is not established early enough. Man with helmet is not a sympathetic character
Everything	Hard to understand
Attention getting	Tag?
Told a story	Unbelievable; phony accent
	Continuity bad
Ugh!	Everything
	Accent of man; not to attention of youth market
Not much	Too far fetched, with orchestra conductor riding a cycle
Believable	Too complicated; too much reasoning
Not much, message submerged	Weak concept, poor technical quality
"Idea" well targeted (hearing)	Too quick. Needs slight expansion
Hearing idea good	Poor comparison. Motorcyclists are not generally symphony enthusiasts

What was *good* about this PSA?	What was *bad* about this PSA?
Made point with valid humor	
	Message too subtle...failed to tie conductor to rider
Technical quality	Concept, hard to follow
People--	Very confusing--not a clear message in this one
Demonstrative--compelling--piercing message	Saw nothing bad
	Too obtuse
I'm not sure	Credibility gap--ridiculous situation/comparison
Got point across in an unusual manner	Nothing

What was *good* about this PSA?	What was *bad* about this PSA?
Identification with a winner	
Person-to-person approach	Slow estab. Not clear idea. Low sound quality
Testimonial, endorsement approach	Didn't leave you with anything. Blah!!
Name star	
Nothing	
Interesting. Good racing shots	Spokesman is difficult to understand. Question of vision should be raised earlier
Testimonial. Believable	
Literal connection to racing need	
Very believable	
Setting good	Audio poor
Known personality	Production blah
Use of known person (to youth market)	Quality was poor
Authentic	Nothing
People oriented	Abstruse; unclear
Overcomes "stimga" of wearing helmet; tie-in with known personality	Not real or sufficiently connected to actual bike use
Vision; idea well targeted	Could have been better illustrated
Reality of situation	?
Established point early with clear and strong copy	Quality of stock footage
Zeroed in on reason for <u>not</u> wearing helmet	

What was *good* about this PSA?	What was *bad* about this PSA?
Testimonial excellent	Point too remote
The celebrity	Not a clear message. Audience could feel he was trying to sell a specific brand of helmet
	Not as illustrative as 1-2-3 spots. Not really convinced that a spokesman is as effective as technique used
Concept is good with key sports figure	Concept of the ad is not clear. Should end with strong consistent message
Industry spokesman is always good. Counter "sissy" intellectual because "hero" does it	
	Talent didn't project the message very clearly

HELMET PSA #5: TURKEYS

What was *good* about this PSA?	What was *bad* about this PSA?
--	--
Addressed single idea person to person; somewhat humorous	Didn't like chicken jokes
Not much	An attempt to be cutsey but failed; came across amateurish
Straightforward talk--nice tie-in for the graphic	
Believability	
Good, believable spokesman. Good peer identification	Too "cute"
Individualism approach--good	Put down doesn't work
Interesting	
Different;appealing to the individual; good announcer	A little cute!
Good lead character; easy to understand visuals	Corny ending--too much for serious subject
Statement by model good	Turkeys not needed. Ruin it
Aimed at right market	
The start	The conclusion
Appeals to psychology of the peer set	
Use of "independent" decision to choose helmets	Visuals weak
Good talent; target thought well developed	
Talk by a motorcyclist	Turkeys!
Talent	
Message clearly delivered	Turkey scene amusing, but not needed

What was *good* about this PSA?

Clever ending

Professional acting job

A strong statement from a spokesman in the first part

Getting better

--

Good latent

What was *bad* about this PSA?

Point too remote

"Honda" was confusing

What was intended by the turkeys did not really come through as a statement you are supposed to grasp instantly or retain

Revise visual identification of brand on helmet

--

Nothing

HELMET PSA #6: BIKE AND CAR CRASH

What was *good* about this PSA?	What was *bad* about this PSA?
Strong finish	
Excellent photography/editing; very strong idea presentation involves viewer emotionally	Very little
Dramatic. Suspenseful. Memorable	Not much
Good build-up to point	
Very effectively presented	Nothing
Very dramatic. Good narration. Not contrived. Best of the bunch.	
Dramatic anticipation good	
Great visual reminder	
Excellent; suspensful and tells message	Could use better photography
Simple--to the point--easy to grasp	
Dramatics	
Realistic	Nothing
Realistic; believable	
Strong visuals, message	Didn't answer questions
Speed shots--freeze frame at end	
Realistic	?
Strong, direct; established objective	
Dramatic footage; message clear	
Concept, execution, audio & track excellent	Nothing
Great editing	
A terrifying mood; forces you to watch and listen. Gets the point across without any doubt	

What was *good* about this PSA?	What was *bad* about this PSA?
Excellent	
Suspense building; believable	
	Nothing

Mutual Advertising Agency Network
Agencies and Personnel

Agencies Presdent During San Diego MAAN Meeting	Participant(s)
Allard, LeSiege, Inc. Montreal, Quebec	Andre Allard
Donald L. Arends, Inc. Chicago, Illinois	Don Arends Bob Erickson
Baer, Kembel & Spicer, Inc. Cincinnati, Ohio	Martin Spicer Kim Martiny
Case Advertising Agency, Inc. Dallas, Texas	Ron Case Don Robbins
Cochrane Chase & Co., Inc. Los Angeles, California	Cochrane Chase
The Coakley Heagerty Companies, Ltd. San Jose, California	John Heagerty Vincent Schaze
Faber Advertising, Inc. Minneapolis, Minnesota	Fran Faber
Gardiner Advertising Salt Lake City, Utah	Hal Gardiner
J.P. Hogan & Company, Inc. Knoxville, Tennessee	Joe Hogan
Gladys J. Lamb Advertising & Marketing Columbus, Ohio	Gladys Lamb
E.B. Lane & Associates, Inc. Phoenix, Arizona	Ed Lane
Lyons Advertising, Inc. Boston, Massachusetts	Phil Jones
Markmakers, Inc. South Bend, Indiana	John Thurin
McLeod Advertising Company Detroit, Michigan	Bud McLeod
Meldrum & Campbell Cleveland, Ohio	Andy Meldrum Don Campbell

Mutual Advertising Agency Network
Agencies and Personnel

Agencies	Participant(s)
Misamore Advertising & Public Relations Grand Rapids, Michigan	Joe Misamore
Morton Advertising Portland, Oregon	Henry Morton Dale Robley
Arthur Polizos Associates, Inc. Norfolk, Virginia	Dick Cummings
Prescott Purcell Karsh & Hagan Denver, Colorado	Bill Prescott
Reynolds-Sullivan Advertising, Inc. Mobile, Alabama	Bruce Reynolds Richard Sullivan
Ken Schmidt, Inc. Milwaukee, Wisconsin	Ken Schmidt
Stephenson Advertising Agency Tulsa, Oklahoma	John Stephenson Tom Halyfield
Warren & Litzenberger, Inc. Davenport, Iowa	Ken Warren

APPENDIX C

USING WORTH ASSESSMENT TO DEVELOP A METHODOLOGY FOR THE EVALUATION OF MATERIALS INTENDED TO CHANGE ATTITUDES AND BEHAVIORS

SEPTEMBER, 1979

USING WORTH ASSESSMENT TO DEVELOP A METHODOLOGY FOR THE EVALUATION OF MATERIALS INTENDED TO CHANGE ATTITUDES AND BEHAVIORS

Introduction

Until now the evaluation of materials and programs intended to change attitudes and behavior has been a prerogative of the "expert", and the datum of materials evaluation has all too frequently been "expert opinion". The only thing wrong with expert opinion is that there are almost as many opinions as there are experts. Consequently, a given program may be rated as "excellent" by one evaluator and "rubbish" by another. In the absence of consistent ratings there ought to be some method for choosing experts, but a void exists in that area as vast as in the material evaluation area.

The problem with expert opinion is not that the experts don't really know anything, as some people have erroneously concluded, but that they apparently make their judgements on the basis of "gut feeling", intuition, or experience.

Intuition may work well in art, but it is antithetical to science. Recognizing this, many experts have attempted to systemize their knowledge and share it with others. Whether they are advertising specialists or attitude-change theorists, these attempts have resulted in a great many lists of rules, do's and don'ts, or checklists. Since there are almost as many lists as there are opinions, there needs to be a way to choose among them systematically. In this paper we present a first step towards that goal.

Attitude Change and Worth Assessment

Our recent review of attitude-change literature (Blatt, 1979) summarized several theories of changing behaviors and attitudes and predicting behaviors from attitudes, concluding with an optimistic belief that combining the several theoretical approaches holds promise for achieving significant behavior change. The major accomplishment of the review was to bring together several theoretical perspectives and list the "rules" and suggestions from each perspective for enhancing the success of attitude and behavior change programs.

We have adapted the worth assessment technique, originally developed by J.R. Miller (1967) and elaborated by Sage (1977), to provide a methodology for combining these rules and suggestions.

Miller's worth assessment procedure was originally developed to assist in the determination of preference between a number of complex alternatives. It is based on a "single-sink diagraph tree" of relationships between a

number of performance criteria.[1] While worth assessment has generally been applied to decision-making processes, i.e., choosing one of several alternatives (Sage, 1977; Farris & Sage, 1975), it also appears well suited to multiple comparisons among alternatives where specific criteria for evaluation can be identified.

In this paper we will describe a methodology using worth assessment for translating lists of theoretical rules and expert opinions into a program useful for evaluating materials and programs intended to change people's attitudes and behavior.

Use of the worth assessment model accomplishes several objectives:

1. it stimulates putting theoretical criteria into measurable (operational) form;
2. it produces a structure which interrelates criteria obtained from different theoretical perspectives;
3. it provides a system for determining the importance of each criterion relative to others; and
4. it provides a systematic and objective method for comparing materials on their overall compliance with attitude/behavior change theories.

In subsequent sections we elaborate on these objectives and how they are accomplished using worth assessment techniques.

Operationalize Theory-Based Performance Criteria

Each of the "pointers" listed in our review of the attitude change literature was extracted from some experiment or experience. In the form in which they were stated, however, they could not easily be applied to the evaluation of educational materials.[2] In order to be useful, each rule must

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[1] A "single-sink diagraph tree" is a non-looping branching structure having single point of origin, with the branches at each node being mutually exclusive. "Performance criteria" are specifications of the desired feature of the "ideal" alternative.

[2] In this paper "educational" materials will be used to mean materials the proximal goal of which is to change attitudes or behavior. These are distinguished from "informational" materials which convey facts but do not appear to be inclined toward persuasion. Worth assessment could be used to derive a process for evaluating "informational" materials but that process would necessarily employ different performance criteria.

be stated in a way that allows a judgement of the extent to which a material meets the criterion.

For example, one of the rules says:

> The person delivering the message (the source) is of status and prestige.

This rule was operationalized as:

> What is the status or prestige level of the source as perceived by the recipient?
>
> | | |
> |---|---|
> | extremely low | ( ) |
> | moderately low | ( ) |
> | neither high nor low | ( ) |
> | moderately high | ( ) |
> | extremely high | ( ) |

Each of the rules was phrased as an evaluative question, with each question having structural alternatives covering the range of possible evaluation responses. Raters must evaluate the material on each question using the alternatives given with that question. A list of all thirty-four performance criteria and response alternatives is provided in Appendix A.

Develop Structure for Interrelating Criteria

Bringing together various concepts from a variety of different theories can be a perilous adventure, although the perils are often ignored by those who like to be considered "eclectic". Unless s/he is cautious, an eclectic theorist may find him or herself espousing a group of incompatible ideas which stem from mutually exclusive theoretical assumptions.[3] The most common result of eclectic "theorizing" is muddled reasoning. To avoid the perils of unbridled eclecticism, one needs either to use the different theories intact, separately, and in sequence, or to find a meta-theoretical framework which interrelates the various theories on a set of dimensions which are different than those on which the theories were based. The worth

[3] For example, two currently popular theories of behavior state: a) behavior is freely chosen, and b) behavior is determined. An eclectic program for behavior change may try both to present an individual with information on which to make a choice and impose rewards or punishments to insure that his/her choice is in the desired direction. This program is less effective than either alone because of the intrusion of the alternate approach. The intrusion is obvious in many materials intended to get people to act more safely. These messages frequently say something like "This is what safe people do...and if you choose not to do it yourself, you'll be sorry."

assessment model provides just such a meta-theoretical framework within which the criteria for attitude and behavior change can be related with one another.

The structure which we developed for interrelating the various performance criteria derived from the attitude/behavior change literature is shown in Figure 1.

The three major dimensions of which attitude-change criteria appear to be based are:

1. What the message contains
2. How the message is stated
3. How the message is conveyed

While one might intuit these (or similar) dimensions by reflecting on the nature of persuasion, it is reassuring that the empirical process yielded such believable and meaningful categories.[4] Beyond reassurance, however, it imparts objective validity to what otherwise would be a subjective judgement.

Building the Framework

The technique we used to construct the framework of interrelationships among the various performance criteria was borrowed from the area of personality psychology: the "Q-Sort". In the Q-Sort task, a person is asked to sort a series of items (usually presented on cards) into categories, based on the sorter's perceptions of each item's similarity to and differences from a specific referent. Using cards, the sorter ends up with a variable number of stacks. Each stack contains cards representing items which are perceived as being related to other cards in that stack and unrelated to cards which are sorted into other stacks. The Q-Sort thus resembles a factor analysis in which items that are correlated are grouped together and items that are uncorrelated are separated out. Factor analysis, however, requires numbers. The Q-Sort utilizes human cognition to determine relatedness of categories in the absence of numerical correlation coefficients.

Relatedness occurs at different hierarchical levels as reflected in human cognitive process. We know, for example, that dogs and cats and lions and trees and rocks are all different from each other but alike in

[4] In evaluating new factor-analysis techniques, mathematicians use test cases (called "plasmodes"). A common plasmode is a set of measurements of various three dimensional objects (typically cardboard boxes). If the factor analysis fails to determine that these data are well explained by just three dimensions (length, width, depth), then the technique must be revised.

some ways. The "ways" in which they are similar depend on a hierarchical schematization of their interrelationships. Cats and lions, although different in size, are similar in appearance and habit. More so than are cats and dogs. Despite their differences, however, dogs and cats and lions are more like each other than any of them is like a tree: Dogs, cats and lions are all four-legged animals with tails and trees are plants. But even in spite of the immense differences between animals and plants, these are more related to each other than either is to rocks, because they are living and rocks are not. But both living and non-living things are made from the same chemical elements. And so on.

Categorizing the theory-based performance criteria into subordinate and superordinate classes is the task of the Q-Sort. The process by which the hierarchy is constructed, however, will vary according to the cognitive style of the sorter.

People seem to fall into two different types with respect to their style in categorizing things: difference seers and similarity seers (if your first impulse is to ask how you can tell them apart, you are probably a difference seer).[5] Difference seers are instructed to sort into as <u>many</u> separate piles as possible, thus reflecting the narrowest level of similarity. Similarity seers are instructed to sort into as <u>few</u> piles as possible, thus reflecting the broadest level of similarity.

After the first sort is complete the sorter is asked to review each pile to make sure that the contents are still perceived as similar to each other and different from the other piles. As the sorter is reviewing and re-arranging the piles, s/he is requested to give each pile a name that conveys the dimension on which the contents of that pile are similar. ("How are these items alike? or "What do these items have in common?")

After this sort is completed, difference seers are asked to condense his/her many stacks into the next <u>higher</u> order of similarity. Similarity seers are asked to subdivide each of his/her stacks into the next <u>lower</u> order of difference.

We once again request the sorter to review and name his/her stacks. Reiteration of the sort-review-name process continues until further sorts become meaningless. The result of this procedure leads to a "single-sink diagraph tree" representing the hierarchical structure relating the various performance criteria with which we started.

By using these two different instructions we allow difference seers to use their native cognitive style of making fine distinctions while we allow similarity seers to use their cognitive style of making generalizations. Then we encourage difference seers to find similarities among the

---

[5] Difference seers accuse similarity seers of making sweeping genralizations. Similarity seers accuse difference seers of nit-picking.

narrow categories while we encourage similarity seers to make more stringent discriminations within each broad category. If a difference seer were forced to conduct his/her sort in the manner prescribed for a similarity seer--or vice versa--the sorter would express confusion and frustration and the sort would proceed erratically, or not at all.

The sort process may be carried out by a small group or by an individual. When using a group, majority vote decides whether or not a given criterion falls in a particular category. Probing with the question "How are these items alike?" will provide insight into the superordinate class to which the items belong. The questions "How are these items different?" provides insight into possible ways of splitting a group of items into subordinate categories.

The group process requires sensitivity to the cognitive styles of the group members. Difference seers will be extremely useful in forming subordinate categories while similarity seers will be useful in forming superordinate classes.

Determine the Relative Importance of Each Criterion

Establishing the tree of interrelationships is a worthwhile endeavor in and of itself since it provides a structure where no such structure previously existed (Miller, 1967). However, the real merit of the worth assessment procedure lies in its ability to assign numerical weights to each of the performance criteria. These weights sum to 1.00, and reflect the percentage that each criterion contributes to the total worth score.

The process for establishing the weights requires a judge (or group of judges) to consider the categories at each branching of the tree. The judge rank-orders the categories and assigns to each category a percentage value that represents how important it is relative to the category next highest in rank (the first-ranked category is assigned the value of 1.00). These values are adjusted so that the sum of values at that branch equals 1.00. This procedure assigns a value to each category at a branch which represents its percentage contribution to the superordinate category.

After values have been determined for each branch, the effective worth of each criterion is determined by multiplying together all of the values assigned to the categories from that criterion back up the tree structure to the first branch.

We will demonstrate this process for the first two performance criteria in the tree for Attitude/Behavior Change shown in Figure 1.

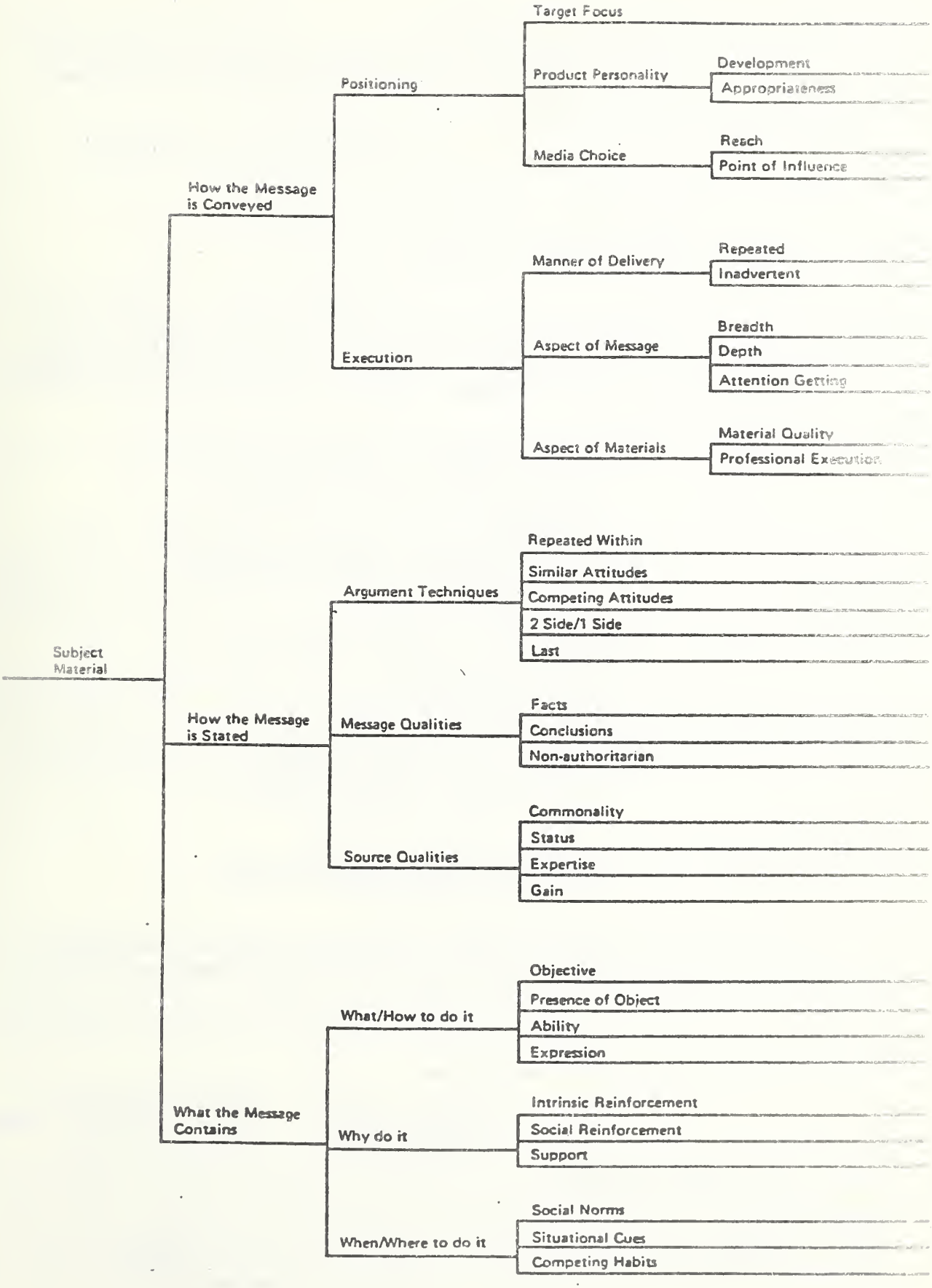


Figure 1. Hierarchical Relationships Between Evaluation Criteria

Demonstrate Ranking/Weighting Procedure

In order to determine the net worth values for product personality "development" and "appropriateness" we must first assign worth values to their superordinate categories.

Our ranking of the branches at the first node of the tree was:

1. How the message is conveyed
2. How the message is stated
3. What the message contains.

We then decided that "How the Message is Stated" is 75% as important as "How the Message is Conveyed", and that "What the Message Contains" is 75% as important as "How the Message is Stated". Using this procedure at each subsequent node we determined ranks and weights for the branches at those nodes as follows:

Node 1. "How the message is conveyed is 100%
"How the message is stated is 75% as important as "How the message is conveyed"
"What the message contains" is 75% as important as "How the message is stated"

Node 2. "Positioning" is 100%
"Execution" is 66.7% as important as "Positioning"

Node 3. "Media choice" is 100%
"Product personality is 85% as important as "Media choice"
"Target focus" is 80% as important as "Product personality"

Node 4. "Appropriateness" is 100%
"Development" is 75% as important as "Appropriateness"

These figures yielded the branch weights of .432, .324, and .243, respectively.[6] Reiterating the procedure for the next branches yields

[6] These figures were derived as follows:

	Percent relative to next rank	Value relative to first rank	Value/Sum
value of 1st ranked category	1	1	.432
value of 2nd " "	.75	.75	.324
value of 3rd " " relative to #2	.75	.5625	.243
		SUM = 2.3125	.999

branch values as follows:

Node 1.	How the message is conveyed	.432
	How the message is stated	.324
	What the message contains	.243
Node 2.	Positioning	.599
	Execution	.401
Node 3.	Product personality	.336
	Media Choice	.395
	Target focus	.269
Node 4.	Development	.429
	Appropriateness	.571

The net worth of "Development" is:

NW = .429 x .336 x .599 x .432 = .037

and of "Appropriateness":

NW = .571 x .336 x .599 x .432 = .050

Thus, "development of the product personality" contributes slightly less than 4% to the total worth of a material in regard to its theoretical potential to change attitudes/behavior. "Appropriateness of the product personality" contributes 5% to the total worth.

Table 2 provides net worth values for the 34 theory-based performance criteria as determined by the authors using the branch weighting procedures described above. (We should point out that other judges might assign ranks and relative weights differently than we did. As part of the development of this methodology we will involve experts from several fields to obtain final values for the weightings of each branch.)

Evaluate/Compare Educational Materials

The worth assessment model was originally developed to help people decide which alternative among several complex alternatives is most preferred. Although we are not required to choose just one alternative, we nonetheless desire a method for comparing various complex alternatives. The total worth figure provides a basis for comparison.

Determine Total Worth

After the worth assessment tree is completed and the net worth values determined, we return to the performance criteria which gave rise to the tree. They are now located at the extreme ends of the tree's branches. We phrased each of these criteria in a form that could be used to determine to what extent a given material met a given theoretical objective. By summing the evaluations of the degree to which each material meets each

Table 2
Net Worth Values
for Performance Criteria

Performance Criterion	Net Worth Value
Development	.037
Appropriateness	.050
Reach	.051
Point of Influence	.051
Target Focus	.070
Materials Quality	.018
Professional Execution	.027
Inadvertent	.024
Repeated	.036
Breadth	.022
Depth	.018
Attention Getting	.028
Gain	.040
Status	.027
Expertise	.027
Commonality	.040
2 Sides/1 Side	.027
Last	.023
Similar Attitudes	.040
Facts	.013
Non-Authoritarian	.029
Competing Attitudes	.038
Conclusion	.020
Objective	.023
Presence of Object	.009
Public Expression	.013
Ability	.017
Knowledge	.021
Intrinsic Reinforcement	.035
Social Reinforcement	.026
Support	.041
Social Norms	.015
Situational Cues	.022
Competing Habits	.021
TOTAL	.999

criterion, we ultimately derive a number which represents the degree to which the material meets the overall theoretical objective.

These figures, the "total worth" in the language of worth assessment, provide the basis for a legitimately numerical comparison between any materials which meet the original requirement that they be educational and not strictly informational. For example, not only may different TV PSAs be compared, but these PSAs may be systematically and meaningfully compared with posters or magazine ads.

Use of the worth assessment procedure allows the use of multiple judges. While most systems flounder when more than one opinion is obtained, there are three reasons why worth assessment continues to work:

1. The evaluators are all responding to structured items rather than responding to an unstructured situation.
2. Each item focuses on a single independent factor in attitude/behavior change rather than global issues which may have considerable overlap with other items.
3. The weight that each item carries in the total is determined independently of the evaluation process and is based on a systematic examination of the relationships between criteria.

The numerical comparisons can be extended well beyond the "total worth" comparisons. Because the tree structure relates the performance criteria to hierarchically superior categories, materials may be "profiled". One can then see by examining a graph or chart in which major areas a given material has its strengths and weaknesses. Two materials with substantially the same worth score might still be very different. One material may lose points in "how the message is conveyed" even though "what the message contains" was outstanding, while the reverse is true for the other. Comparisons of profiles permit us to specify ways in which to improve a given material, thus paving the way for materials-development efforts.

Evaluate/Compare Example PSAs

In order to demonstrate the comparison techniques made possible by the worth assessment procedure, we present the evaluation of three PSAs conducted by the authors and the Helmet Study Project Director.

One PSA, produced by VISUCOM and included in the film "Helmets", shows a baseball bat clubbing a watermelon with and without the protection of a motorcycle safety helmet. Without the helmet the watermelon splatters in all directions, but when it is inside a helmet it isn't bruised, even though the helmet sustains a substantial dent.

The second PSA, also produced by VISUCOM and included in "Helmets", shows a young man on a motorcycle talking about choosing to wear a helmet regardless of what his buddies say. This PSA concludes with the young man saying, "and you know what I think about people who don't wear helmets..."

as the camera zooms back to show the motorcycle and rider in the midst of a flock of turkeys.

The third PSA, produced by the Motorcycle Safety Foundation and named "The Right Equipment", shows a group of clean cut young motorcyclists in "team formation" on a football field. Close-up shots focus on proper use of safety gear--including boots, gloves, jackets, and helmets. This PSA concludes with the spoken message, "Play by the rules and everybody is a winner".

The PSAs were rated independently by three judges on the 34 performance criteria listed in Appendix A. The resulting Total Worth Scores for each PSA are given in Table 3. The results show clearly that all three judges found "Melon & Helmet" met the theory-based performance criteria better than "The Right Equipment". Even though the intermediately rated PSA "Turkeys" received higher ratings than "Melon" from one judge, the average of the three judges' ratings places it between the other two PSAs in meeting the evaluation criteria.

Table 3

Total Worth Scores for 2 PSAs by 3 Judges

PSA	JUDGE			
	1	2	3	MEAN
Melon & Helmet	.584	.525	.589	.566
Turkeys	.619	.530	.513	.554
Right Equipment	.320	.310	.446	.359

Total Worth Scores provide an objective means for rank ordering PSAs. But beyond rank ordering, Worth Scores provide an indication of the "distance" between materials. From these ratings, it is clear that even though "Turkeys" is second ranked, its worth score is quite close to that of the first ranked PSA and both are quite distant from the third ranked PSA.

Worth assessment allows even finer analysis. Because the performance criteria are related to hierarchically superordinate concepts, they can be "profiled", that is, the worth scores for individual criterion can be grouped according to the overall structure, thus providing sub totals for the various major categories (branches). Figure 2 is a plot of the branch worth values for the two highest levels of the tree.

Profiles at the first level of the tree show that "Right Equipment" performs at about the same level across the three categories, while the other two show different degrees of variation. The second level profiles indicate, for example, that all three PSAs were better in the "argument techniques" category than they were in either the "source qualities" or "message qualities" categories.

Melon & Helmet

Turkeys

Right Equipment

Level 1

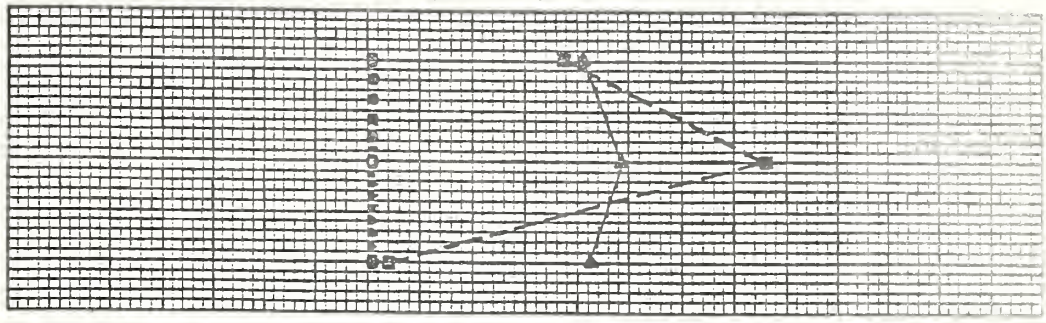
Percent of possible evaluation points

0 10 20 30 40 50 60 70 80 90 100

How the message is conveyed

How the message is stated

What the message contains



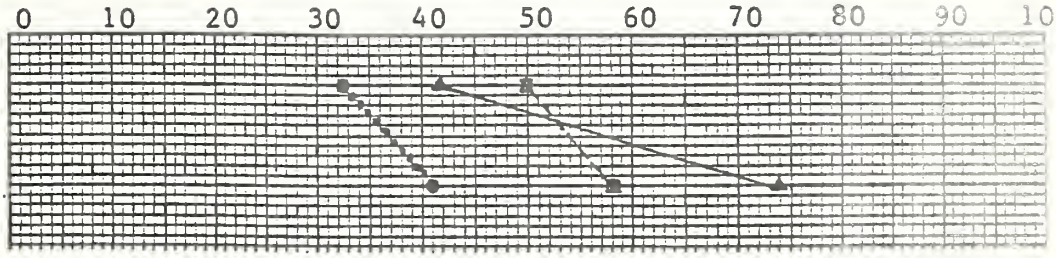
Level 2

Percent of possible evaluation points

0 10 20 30 40 50 60 70 80 90 100

Positioning

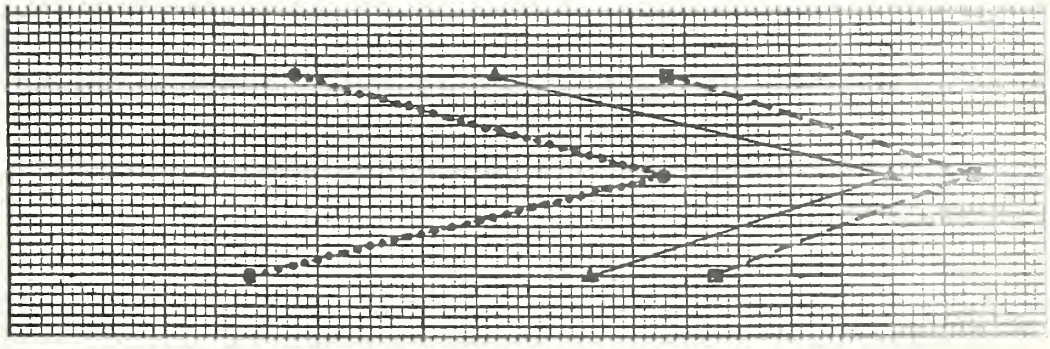
Execution



Source Qualities

Argument Techniques

Message Qualities



What/How To Do

Why Do It

When/Where Do It

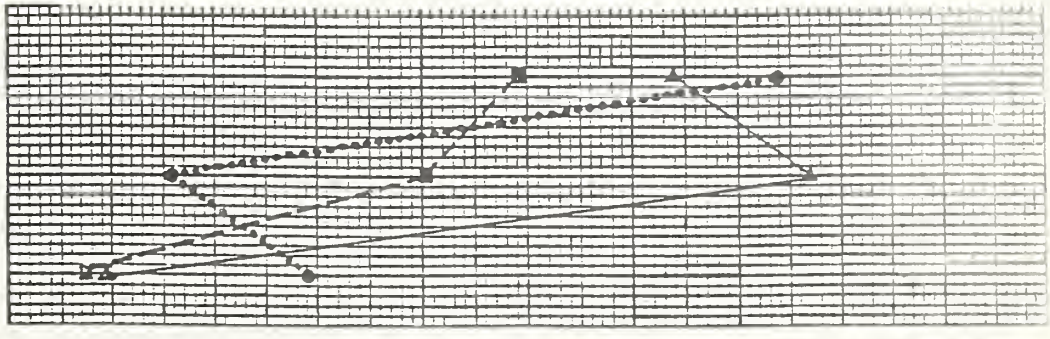


Figure 2. Profiles of Three PSAs

Examination of profiles rapidly shows in what areas materials could be improved. The profiles in Figure 2 indicate that none of the example PSAs is as "good" as it could be in meeting the 34 theory-based performance criteria. They also summarize to what degree each PSA meets the various criteria. "Right Equipment", for example, is extremely poor in providing reasons why anyone should believe the safety message ("Why Do It")--a relatively important branch, contributing 10.3% to the total worth. A low score in the "when/where" category is less influential, contributing 5.8% to the total worth. A low score in the "positioning" category is especially devastating. That category contributes 25.9% to the total worth score.

Validate Comparison Procedures

After all the theoretical hoopla is over, if the worth assessment model did not discriminate between good and bad materials it would be "worthless". Until more data on actual effectiveness of particular materials or programs become available, however, we shall have to be content with indirect validation measures.

A major validation that any new evaluation model must measure up to is a comparison with "expert opinion". In this section we compare the worth assessment of six PSAs (taken from the VISUCOM film, "Helmets") with ratings of the same PSAs by 25 members of the Mutual Advertising Agency Network (MAAN) at their February, 1979 meeting.[7]

Obtain Expert Judgement. The MAAN members were asked to rate each PSA on their agreement or disagreement with six statements related to the quality and effectiveness of the PSA. The specific statements were:

1. The content was balanced--not too simple or complex
2. The PSA was of excellent technical quality
3. The PSA was very clever/highly creative
4. The PSA was very attention getting
5. The PSA should be remembered by most viewers
6. The PSA will change the behavior of many viewers.

The rater indicated his/her level of agreement with each statement by checking one of seven boxes, ranging from "strongly disagree" to "strongly agree", with "neither agree nor disagree" corresponding to the center box. The results are summarized in Table 3.

The most useful outcome of this exercise would appear to be a rank ordering based on the individual judgements. This overall ranking must be

[7] These data were reported in Interim Report #1, Contract # DOT-HS-9-02090, dated March, 1979.

Table 3

Summary of MAAN Evaluation
of VISUCOM PSAs

Evaluation Statement	PSAs											
	Football and Traffic		Melon and Helmet		Orchestra		Kenny Roberts		Turkeys		Bike and Car Crash	
	$\bar{X}$[1]	Rank[2]	$\bar{X}$	Rank	$\bar{X}$	Rank	$\bar{X}$	Rank	$\bar{X}$	Rank	$\bar{X}$	Rank
Balanced Content	3.46	6	5.32	2	3.68	5	4.42	4	4.64	3	5.60	1
Excellent Tech Quality	4.63	5	5.44	2	4.64	4	4.58	6	5.04	3	5.60	1
Clever/ Creative	3.75	5	5.72	1	3.92	4	3.38	6	4.44	3	5.24	2
Attention Getting	4.50	4	6.48	1	3.84	6	4.25	5	4.52	3	6.00	2
Should be Remembered	3.96	5	6.28	1	3.21	6	4.04	4	4.56	3	5.84	2
Will Change Behavior	3.05	5	5.12	2	2.63	6	3.74	4	3.88	3	5.48	1
Median of Column Ranks[3]		5		1.5		5.5		4.5		3		1.5
Overall Rank Based on Col. Median		6		1.5[4]		5		4		3		1.5[4]

1. Entries represent the mean of all responses on a seven point scale where 1=strongly disagree; 4=neither agree nor disagree; and 7=strongly agree.
2. Entries represent ranking of PSA relative to the other 5 PSAs on basis of mean rating of given statement.
3. Median of ranks is used because averaging of mean ratings requires the unwarranted assumption of equal weight for each statement.
4. Tied ranks are indicated as the average of the rank positions involved, in keeping with standard statistical practices.

based on the ranks of individual PSAs on each evaluation item because there is no scale relating one item to another and there is no justification for assuming that all items are equally important. The overall ranking, therefore, can tell which PSA is "better" than which other PSA, but not "how much better".

Examination of the distributions of the responses to each item raise a question about interjudge agreement. Even when a PSA's ratings by a majority of judges were placed at one end of the scale there were always some judges who rated them at the other end. Calculations of average interjudge correlations, shown in Table 4, supported this observation.

Table 4

Interjudge Correlation
for 25 Raters in 6 PSAs

PSA	Average Interjudge Correlation	No. of Correlations
Football & Traffic	.32	210
Melon & Helmet	.38	210
Orchestra	.31	253
Kenny Roberts	.20	231
Turkeys	.12	253
Bike & Car Crash	.08	253
OVERALL AVERAGE	.23	1410

Not only is the overall average interjudge correlation extremely low--indicating that these advertising specialists do not agree very well among themselves about what makes a good TV PSA--the agreement is lowest for the PSA ranked the highest.

One might conjecture that different advertising agencies have different opinions but that the people within one agency agree with each other. To test this hypothesis, we calculated correlations for the three agencies that had two people in attendance. The results are shown in Table 5.

Table 5

Intercorrelations of PSA Ratings
for Judges From the Same Agency

	Agency		
PSA	#1	#2	#3
Football & Traffic	.77	.06	.39
Melon & Helmet	.69	.64	*
Orchestra	.79	-.24	.58
Kenny Roberts	0	.26	*
Turkeys	.45	*	.50
Bike & Car Crash	.71	-.50	*
AVERAGE	.57	.04	.49

*Correlation coefficient undefined because one or both raters gave same rating to all statements

The overall average correlation for judges from the same agency was .37 (obtained by adding the values of all defined correlations coefficients and dividing by the number of terms).

Although Agency #1 showed reasonably good agreement on four of the PSAs, there was no agreement on one and only moderate agreement on the other. The two representatives of Agency #2 actually disagreed as much as they agreed. Agency #3 showed only moderate agreement. This exercise demonstrates that even specialists within the same agency do not necessarily agree with each other.

Obtain Worth Assessment Evaluations

The six VISUCOM PSAs were independently rated on the 34 theory-based performance criteria by the authors and the Helmet Study project director. Total worth scores were determined by use of the branch weights assigned to the materials evaluation tree by the authors. A list of total worth scores by PSA and by rater is provided in Table 6. These values show very high agreement between raters on total worth scores, with the three possible pairs of raters having interjudge correlations of .99, .95, and .96 for an average of .97. But high agreement on total scores may mask disagreement on individual criteria. That this is not the case is demonstrated in Table 7. The overall average interjudge correlation on an item-by-item basis is .72, indicating a substantial agreement between judges on each criterion.

Table 6

Total Worth Scores for 6 VISUCOM PSAs by Three Raters

PSA	Rater			
	#1	#2	#3	Mean
Football & Traffic	.456	.446	.584	.495
Melon & Helmet	.584	.525	.589	.566
Orchestra	.396	.324	.365	.362
Kenny Roberts	.631	.563	.499	.564
Turkeys	.619	.530	.513	.554
Bike & Car Crash	.650	.655	.569	.625

Table 7

Interjudge Correlation by PSA and Pairs of Judges on Criterion-by-Criterion Basis

PSA	Pairs of Judges			
	1 - 2	1 - 3	2 - 3	Mean
Football & Traffic	.57	.66	.21	.48
Melon & Helmet	.71	.66	.83	.73
Orchestra	.67	.62	.70	.66
Kenny Roberts	.79	.60	.77	.72
Turkeys	.88	.79	.80	.82
Bike & Car Crash	.91	.88	.86	.88
MEAN	.76	.70	.70	.72

Compare Expert Judgement with Worth Assessment Evaluation. Several aspects of the comparisons between expert judgement and worth assessment evaluation are immediately apparent.

1. Worth assessment scores are much more reliable than expert judgements (average interjudge correlation of .72 for worth assessment vs. .23 for advertising specialists)
2. The difference in reliability is due to the different procedures, not to advertising specialists working in different angencies (average interjudge correlation of .72 for worth assessment vs. .37 for advertising specialists in same agencies)

3. Worth assessment provides more information than expert judgement--not only can the material be ranked, worth assessment tells the magnitude of the difference between any two materials.

One additional comparison needs to be made explicit. It is important that any new materials evaluation system provide the same basic information as the system it replaces, albeit with more refinement. To this end we calculated the correlation between the ranks determined by the advertising specialists and the ranks determined by ordering the PSAs on the basis of their total worth scores. These ranks are shown in Table 8.

Table 8

Rank Positions of PSAs Determined
by Advertising Specialists and by Worth Assessment

PSA	Rank	
	Ad. Spec.	Worth Assess.
Football & Traffic	6	5
Melon & Helmet	1.5	2
Orchestra	5	6
Kenny Roberts	4	3
Turkeys	3	4
Bike & Car Crash	1.5	1

The rank-order correlation between these two evaluation approaches is .87, indicating very good agreement.

We also validated worth assessment ranks against judges' stated preference. Each of the ASA judges rank-ordered the six PSAs on the basis of their own preference before they had any knowledge of the worth scores. The average rank-order correlation between individual preference rankings and individual worth assessment rankings was .87, indicating very good agreement.

Refine Materials Evaluation Model

The model described in this paper represents a substantial advancement over other evaluation methods. As such it provides more precision than has been previously available. But, like any first effort, it is relatively unrefined. We are working towards refining the worth assessment approach to materials evaluation in several ways:

- Increasing predictive accuracy

- Augmenting interjudge agreement
- Enhancing discriminatory power

Our approaches to these refinements are briefly discussed in the following subsections.

Increase Predictive Accuracy

The accuracy of the model rests on two aspects of the system:

1. the completeness of the list of performance criteria; and
2. the weights assigned to each criterion.

Each of these aspects will be examined by an advisory committee of advertising specialists and attitude- and behavior-change theorists.

New performance criteria will be added as they are identified as missing from our current list. As a body of substantive evaluation data is collected, we will perform discriminant analyses to determine which criteria are consistently good predictors, and which are not. Non essential criteria will be dropped from the list in order to simplify the evaluation task.

Advisory committee members will also be requested to assign branch weights to all or part of the materials evaluation tree structure. These values will be combined to yield net-worth values that reflect the overall judgement of these specialists.

Augment Interjudge Agreement

It became apparent in discussing the evaluation process among ourselves that we were responding to the performance criteria in somewhat idiosyncratic ways. One of the major problems we identified was that virtually every criterion had a different set of response alternatives requiring a rapid cognitive shift. One way to eliminate this is to phrase the criteria as statements about the material to which the evaluator responds with a statement of his or her agreement or disagreement. This approach lends itself nicely to the use of a standard, five-point Likert Scale of agreement (viz., strongly agree, moderately agree, neither agree nor disagree, moderately disagree, strongly disagree) for the response alternatives for every criterion.

In addition to eliminating mental "gear shifting" between criteria, the statement format seems to require less technical expertise on the part of the evaluator. This feature might be useful in obtaining materials evaluation from members of target groups.

One other advantage accrues to the statement format. The mathematical function relating the evaluator's choice and the score the material receives on each criterion (the "Worth Function") must be determined individually for the question format since each criterion may have a different

number of alternatives and each set of alternatives is on a separate dimension. The statement format, however, may employ either individualized worth functions or a single mathematical formula applied to all criteria. The latter is especially desirable when several different evaluators' responses are averaged together, as it does not require "rounding off" to the nearest integer value.

As we develop criterion statements we are also considering the effect of order of presentation, rearranging the order of criteria to improve the clarity of the evaluation process.

Enhance Discriminatory Power

Although the model as currently described discriminates well between "very good" materials and "not very good" ones, it seems less effective at discriminating between "very good" and "moderately good" materials. Witness the relatively small difference in worth scores for, say, "melon and helmet" and "turkeys". Our approach to enhancing the discriminatory power of the model is through changing the Worth Function--the equation that translates the evaluator's responses to the performance criteria into actual numbers.

The worth function used in the evaluations described in the earlier sections was strictly linear, i.e., the interval between adjacent alternatives was the same, as illustrated in Table 9. The distance between alternatives can be adjusted so that the intervals between more favorable alternatives are greater than intervals between less favorable alternatives, as illustrated in Table 10. Total worth scores for less than perfect materials will thus be decreased, relative to the score it would have earned with a linear worth function. The benefit here is that the worth scores of "moderately good" materials will decrease more than worth scores of "very good" materials, thus providing greater discrimination between these materials.

In order to make this adjustment in an orderly fashion, the worth function is determined by the mathematical formula:

$$WF = (1 - e^{-2x})/(1 - e^{-2})$$

This worth function is graphed in Figure 3.

Table 9

Five-Point Response Alternative Scale
Using a Linear Worth Function

Response Alternative	Value
Strongly agree	1.00
Moderately agree	.75
Neither agree nor disagree	.50
Moderately disagree	.25
Strongly disagree	0

Table 10

Five-Point Response Alternative Scale
Using an Exponential Worth Function

Response Alternative	Value
Strongly agree	1.00
Moderately agree	.545
Neither agree nor disagree	.269
Moderately disagree	.102
Strongly disagree	0

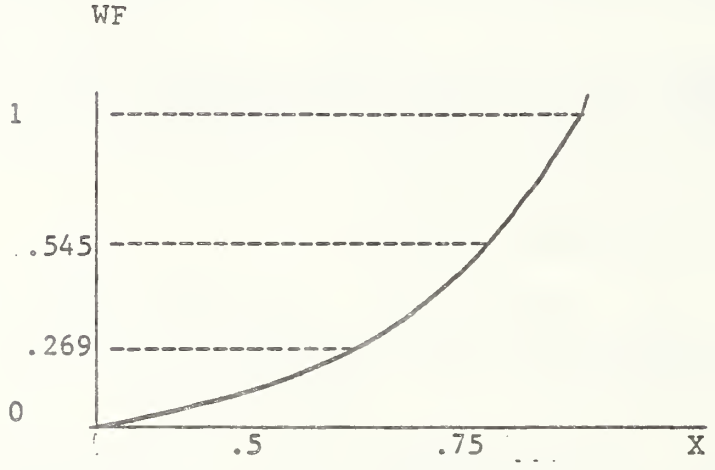


Figure 3. Exponential Worth Function based on the equation:

$$WF = (1 - e^{-2x})/(1 - e^{-2})$$

As an example, total worth scores for "melon & helmet" and "turkeys" based on both linear and exponential worth functions are given in Table 11.

Table 11

Total Worth Scores for Two PSAs
Based on Linear and Exponential Worth Function

	Worth Function	
PSA	Linear	Exponential
Melon & Helmet	.566	.486
Turkeys	.554	.357
Difference	.012	.129

Using a linear worth function these PSAs differed by only .012, whereas that difference was expanded to .129 by using the exponential worth function. The greater difference under the exponential worth function relative to the difference under the linear worth function indicates that "Melon and Helmet" had a preponderance of extreme ratings while most of "Turkeys'" ratings were in the moderate range.

Conclusions

Worth assessment appears to have great potential for quantifying and objectifying comparisons of attitude-change materials. It removes such comparisons from the purely subjective realm of expert opinion and specifies a process for combining the input of several experts into a meaningful and useful form.. The assistance of experts can be well-utilized in two phases of the development of the model:

1. determining branch weights
2. determining worth functions

In both cases, a consultant need only render input in those areas of his/her expertise.

Proper phrasing of the performance criteria can obviate the need for "expert" judges in the actual evaluation phase. Thus, members of the target audience for a given material, as well as "experts", can provide valuable evaluative input on materials.

Like any first effort, the worth assessment approach to materials evaluation needs refinement. As its use becomes more widespread the necessary refinements will become more obvious. Regardless of the refinements that it needs, it opens the door into a new realm of possibilities for systematizing the evaluation of attitude-change materials.

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APPENDIX D

ASA MED SYSTEM:

PERFORMANCE RATING FORM

SEPTEMBER, 1979

		Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
POSITIONING	1. The material effectively focuses on a single essential target group.	( )	( )	( )	( )	( )
	2. The personality of the product is well established.	( )	( )	( )	( )	( )
	3. The product personality is <u>not</u> appropriate to the target audience.	( )	( )	( )	( )	( )
	4. The media choice is highly effective in reaching the target audience	( )	( )	( )	( )	( )
	5. The presentation fails to reach the recipient at a time/place of decision making	( )	( )	( )	( )	( )
EXECUTION	6. There are many separate occasions where the recipient could be expected to encounter the materials.	( )	( )	( )	( )	( )
	7. The recipient perceives the context of the message as an obvious attempt to change his attitude.	( )	( )	( )	( )	( )
	8. The material attempts to cover too many messages for the scope of the effort.	( )	( )	( )	( )	( )
	9. The message goes into an extreme amount of detail.	( )	( )	( )	( )	( )
	10. The material definitely attracts the attention of the target audience	( )	( )	( )	( )	( )
	11. The grade of materials used in the production of this item were excellent.	( )	( )	( )	( )	( )
	12. The materials reflect a low level of professional execution.	( )	( )	( )	( )	( )

		Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
ARGUMENT TECHNIQUES	13. The desired message is repeated frequently within the materials.	( )	( )	( )	( )	( )
	14. The attitudes expressed or implied at the outset of the message are similar to those of the recipients.	( )	( )	( )	( )	( )
	15. The message specifically addresses competing attitudes (source derogation, bolstering, differentiation).	( )	( )	( )	( )	( )
	16. The material presents both sides of the issue for audiences with above average intelligence and one side for audiences with average intelligence.	( )	( )	( )	( )	( )
	17. The material fails to conclude with a clear statement of the desired message.	( )	( )	( )	( )	( )
MESSAGE QUALITIES	18. The message states the facts clearly.	( )	( )	( )	( )	( )
	19. The message states the conclusion clearly.	( )	( )	( )	( )	( )
	20. The message is worded in an authoritarian style.	( )	( )	( )	( )	( )
SOURCE QUALITIES	21. The source has obvious commonalities (interests, background, attitudes, etc.) with the recipient.	( )	( )	( )	( )	( )
	22. The status or prestige level of the source as perceived by the recipient is extremely low.	( )	( )	( )	( )	( )
	23. The source is perceived by the target audience as being highly knowledgeable in the field.	( )	( )	( )	( )	( )
	24. The source will gain or profit from a change in the recipient's attitude.	( )	( )	( )	( )	( )

		Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
WHAT/HOW	25. The message clearly indicates what the recipient should do as a result of receiving the message.	( )	( )	( )	( )	( )
	26. The message fails to show or specify the object necessary to behave in congruence with the desired attitudes.	( )	( )	( )	( )	( )
	27. The message clearly demonstrates or teaches how to do the congruent behavior.	( )	( )	( )	( )	( )
	28. The message effectively induces the recipient to express the desired attitude.	( )	( )	( )	( )	( )
WHY	29. The direct benefits for performing (or losses for not performing) the congruent behavior are clearly shown.	( )	( )	( )	( )	( )
	30. The message fails to show how others will be more attentive or attracted as a result of the congruent behavior.	( )	( )	( )	( )	( )
	31. The message convincingly shows <u>why</u> you should believe that the congruent behavior has the claimed benefits.	( )	( )	( )	( )	( )
WHEN/WHERE	32. The message shows that the recipient's peer group supports (or will support) the congruent behavior--or shows ways to make the new behavior acceptable to peers.	( )	( )	( )	( )	( )
	33. The message fails to show a wide variety of acceptable situations for the congruent behavior.	( )	( )	( )	( )	( )
	34. The material provides new cues or reminders to increase the probability of the congruent behavior and decrease the probability of the old behavior.	( )	( )	( )	( )	( )

APPENDIX E

AMA/MSF HELMET USE SURVEY
SELECTED CROSS TABULATIONS

DECEMBER 1979

Table 1

Helmet Use by Location (State)*

	HELMET USE					
	Never	Seldom	Some-times	Most of Time	Always	Row Tot. (n)
STATE						
New Hampshire	2.1	8.3	17.7	30.2	41.7	96
Maine	2.1	7.3	10.4	23.9	56.2	96
Delaware	3.4	6.9	6.9	27.6	55.2	29
Ohio	5.9	12.5	13.0	24.1	44.4	439
Iowa	12.8	21.0	23.6	25.1	17.4	195
Illinois	10.7	20.2	17.9	25.7	25.4	346
Nebraska	12.7	9.5	30.1	20.6	27.0	63
Texas	4.8	13.0	10.9	32.9	38.3	146
Colorado	3.6	16.7	8.0	32.6	39.1	138
Arizona	10.2	12.8	15.4	29.5	32.0	78
California	5.0	9.3	8.7	29.3	47.7	321
Oregon	4.0	10.9	12.9	29.7	42.6	101
TOTAL	6.9	13.8	14.3	27.2	37.8	2048

*Tabled values are percent of row total.

Table 2

Helmet Use by Gender*

	HELMET USE					
	Never	Seldom	Some-times	Most of Time	Always	Row Tot. (n)
GENDER						
Male	7.2	13.9	14.5	26.8	37.6	2102
Female	3.9	8.5	13.9	22.5	51.2	129
TOTAL	6.9	13.6	14.4	26.6	38.4	2231

*Tabled values are percent of row total.

Table 3

Helmet Use by Age Category*

	HELMET USE					
	Never	Seldom	Some-times	Most of Time	Always	Row Tot. (n)
AGE						
15 or less	0.0	19.0	4.8	28.6	47.6	21
16 - 20	6.0	17.4	16.3	26.1	34.2	184
21 - 25	8.9	16.9	16.3	27.4	30.4	503
26 - 30	8.7	13.9	15.0	29.4	32.9	425
31 - 40	5.5	13.1	13.7	26.4	41.2	541
41 - 50	4.9	7.5	9.8	24.0	53.8	225
51 - 60	6.5	8.0	12.3	23.9	49.3	138
61 or over	1.7	8.5	11.9	32.2	45.8	59
TOTAL	6.9	13.5	14.2	27.0	38.4	2096

*Tabled values are percent of row total.

Table 4

Helmet Use by Occupation*

	HELMET USE					
	Never	Seldom	Some-times	Most of Time	Always	Row Tot. (n)
OCCUPATION						
Prof.	4.5	10.8	13.2	27.8	43.6	424
Managerial/ Admin.	4.4	14.0	14.0	23.4	44.1	299
Sales	3.8	10.1	22.8	20.2	43.0	79
Sec/Clerical/ Cashier	4.5	13.6	9.1	29.5	43.2	44
Skilled Operator	8.8	15.4	15.7	27.6	32.4	376
Service Provider	5.1	9.5	15.3	28.7	41.4	157
Laborer	12.8	17.0	16.5	26.6	27.1	218
Farm Laborer	16.7	16.7	31.2	10.4	25.0	48
Student	3.3	17.3	9.1	35.5	34.7	121
Other	8.0	15.3	10.8	27.8	38.0	313
TOTAL	2.3	13.9	14.4	26.9	37.9	2079

*Tabled values are percent of row total.

Table 5

Helmet Use by Income Level*

	HELMET USE					
	Never	Seldom	Some-times	Most of Time	Always	Row Tot. (n)
INCOME						
0 - 4999	7.3	16.7	13.5	27.6	34.9	192
5K - 9999	7.7	13.0	16.8	30.6	31.8	261
10K - 14999	10.4	14.9	16.6	28.4	29.7	471
15K - 19999	7.0	10.8	12.4	30.2	39.4	426
20K - 24999	4.4	15.2	13.1	24.6	42.7	342
25K - 29999	5.6	12.3	15.2	21.3	45.5	178
30K - 39999	0.8	12.9	16.4	21.5	48.3	116
40K +	6.8	12.3	13.7	13.7	53.4	73
TOTAL	7.0	13.6	14.7	26.8	37.9	2059

*Tabled values are percent of row total.

Table 6

Helmet Use by Education Level*

	HELMET USE					
	Never	Seldom	Some-times	Most of Time	Always	Row Tot. (n)
EDUCATION						
Grad/Prof Degree	4.4	10.1	11.3	25.2	49.0	159
College Grad	4.2	12.0	9.5	27.6	46.6	283
More Than 2 Years College	3.5	11.6	14.5	27.7	42.8	318
0-2 Years College	7.8	15.6	14.4	28.8	33.5	257
Trade/Tech.	7.1	14.6	15.1	25.5	37.7	212
H.S. Grad	10.3	14.4	17.2	25.3	32.8	652
Other	8.1	14.8	12.8	25.5	38.9	149
TOTAL	7.1	13.5	14.3	26.5	38.6	2030

*Tabled values are percent of row total.

Table 7

Helmet Use by Motorcycling Experience*
(Years Riding)

	HELMET USE					
	Never	Seldom	Some-times	Most of Time	Always	Row Tot. (n)
YEARS RIDING						
0 - 1	3.7	7.4	7.4	14.8	66.7	27
1 - 2	4.8	13.2	13.8	34.1	34.1	167
2 - 4	6.4	12.9	13.4	29.8	37.4	372
4 - 8	7.4	13.2	14.7	26.8	37.9	661
8 - 16	7.7	14.7	16.1	23.5	38.0	665
16 or more	6.9	13.9	12.7	25.4	41.1	331
TOTAL	7.0	13.6	14.4	26.5	38.4	2223

*Tabled values are percent of row total.

Table 8

Helmet Use by Motorcycle Make*

	HELMET USE					
	Never	Seldom	Some-times	Most of Time	Always	Row Tot. (n)
MC MAKE						
BMW	0.0	7.8	7.8	19.6	64.7	51
Harley	22.5	29.1	17.5	13.7	17.1	240
Honda	5.6	10.9	14.7	29.5	39.3	964
Kawasaki	4.9	14.0	14.4	25.0	41.7	264
M. Guzi	0.0	0.0	12.5	25.0	62.5	16
Suzuki	4.2	12.2	13.1	25.3	45.1	213
Tr/BSA	13.7	21.6	23.5	17.6	25.5	51
Yamaha	4.5	13.3	12.8	30.9	38.4	375
Other	4.8	3.2	9.5	30.2	52.4	63
TOTAL	7.0	13.6	14.4	26.6	38.3	2237

*Tabled values are percent of row total.

Table 9

Helmet Use by Motorcycle Engine Size*

	HELMET USE					
	Never	Seldom	Some-times	Most of Time	Always	Row Tot. (n)
ENGINE SIZE						
Under 125cc	8.0	16.7	14.0	24.7	36.7	150
125 - 349cc	4.9	10.0	15.8	27.9	41.3	368
350 - 449cc	4.4	8.8	11.2	29.7	45.8	454
450 - 749cc	6.1	12.8	13.0	28.6	39.4	475
750 - 999cc	4.6	15.3	17.8	26.3	36.0	411
1000 - 1199cc	10.5	16.2	16.2	21.9	35.1	228
1200cc plus	25.2	29.5	13.7	14.4	17.3	139
TOTAL	7.1	13.7	14.4	26.5	38.4	2225

*Tabled values are percent of row total.

Table 10a

Helmet Use by Reaction to Helmet Law
for Riders Under 18 Years Old
(Row Percentages)

	HELMET USE						
	Never	Seldom	Some-times	Most of Time	Always	Row Tot. (n)	Col. %
HELMET LAW (< 18)							
Yes	5.6	9.6	12.6	26.1	46.1	1415	63.6
No	9.4	20.0	17.7	27.6	25.2	808	36.4
TOTAL	7.0	13.4	14.4	26.6	38.5	2223	

Table 10b

Helmet Use by Reaction to Helmet Law
for Riders Under 18 Years Old
(Column Percentages)

	HELMET USE						
	Never	Seldom	Some-times	Most of Time	Always	TOTAL	Col. %
HELMET LAW (< 18)							
Yes	51.2	45.6	55.4	62.3	76.2	1415	63.6
No	48.7	54.3	44.5	37.7	23.8	808	36.4
Column Tot.. (n)	156	298	321	592	856	2223	

*1

Table 11a

Helmet Use by Reaction to Helmet Law
for Riders 18 and Older
(Row Percentages)

	HELMET USE						
	Never	Seldom	Some-times	Most of Time	Always	Row Tot. (n)	Col. %
HELMET LAW (> 18)							
Yes	1.7	2.7	4.6	23.4	67.6	629	28.5
No	9.2	18.0	18.5	27.5	26.7	1581	71.5
TOTAL	7.1	13.7	14.6	26.3	38.4	2210	

Table 11b

Helmet Use by Reaction to Helmet Law
for Riders 18 and Older
(Column Percentages)

	HELMET USE						
	Never	Seldom	Some-times	Most of Time	Always	TOTAL	Col. %
HELMET LAW (> 18)							
Yes	7.0	5.6	9.0	25.2	50.1	629	28.5
No	92.9	94.4	91.0	74.7	49.9	1581	71.5
Column Tot. (n)	156	302	322	582	848	2210	

Table 12

Helmet Use by Trip/Environmental Variables*

	HELMET USE					
VARIABLE	Never	Seldom	Some-times	Most of Time	Always	Row Tot. (n)
Short Trip	23.2	20.7	18.5	27.3	10.4	1244
Long Trip	3.7	5.7	12.4	18.4	59.8	1249
Loc. Street	13.9	17.6	22.4	27.3	18.7	1226
Highway	6.6	7.5	24.4	44.2	44.2	1234
Dry	14.7	16.7	23.4	29.2	16.0	1220
Wet	5.0	4.7	12.0	18.7	59.7	1225
Hot	19.9	19.7	21.6	25.6	13.3	1221
Cold	3.3	4.5	11.3	25.0	55.9	1226
Daytime	10.6	16.8	27.0	31.5	14.1	1217
Night Time	8.1	10.0	23.4	26.2	32.3	1219

*Tabled values are percent of row total. Does not include data for respondents who indicate that they always or never wear a helmet. Variation in row n is due to slight differences in response rate across questions.

Table 13

Number of Helmets Available

	n	%
None	70	3.1
One Helmet	412	18.4
Two Helmets	1037	46.2
Three Helmets	477	21.2
Four or More	247	11.0
	2243	100.0

Table 14

HELMET USE *

	Never	Seldom	Some-times	Most of Time	Always	Row Tot. (n)	Col. %
HELMETS RESTRICT VISION **							
Strongly Disagree	1.2	4.3	7.4	26.0	61.1	948	42.7
Moderately Disagree	3.9	10.4	14.7	35.9	35.1	462	20.8
Neutral	11.4	19.6	23.9	28.2	16.9	255	11.5
Moderately Agree	10.6	26.2	23.0	25.4	14.7	339	15.3
Strongly Agree	29.0	33.2	19.1	9.8	8.9	214	9.6
TOTAL	7.0	13.5	14.3	26.7	38.4	2218	

* Tabled values are percent of row total.

** Question 36: "Helmets dangerously restrict a motorcycle rider's field of vision."

Table 15

HELMET USE*

HELMETS RESTRICT HEARING**	Never	Seldom	Some-times	Most of Time	Always	Row Tot. (n)	Col. %
Strongly Disagree	2.2	3.4	5.2	24.9	64.3	445	20.0
Moderately Disagree	2.1	5.2	11.4	30.8	50.6	484	21.7
Neutral	5.5	18.3	15.6	26.6	33.9	218	9.8
Moderately Agree	6.8	16.9	15.8	30.2	30.2	675	30.3
Strongly Agree	19.3	27.5	25.5	17.1	10.6	404	18.1
TOTAL	7.0	13.7	14.4	26.5	38.2	2227	

*Tabled values are percent of row total.

**Question 43: "A motorcycle operator wearing a helmet is less likely to hear sirens and horns than one not wearing a helmet."

Table 16

HELMET USE*

	Never	Seldom	Some-times	Most of Time	Always	Row Tot. (n)	Col. %
HELMETS CAUSE NECK INJURIES**							
Str. Disagree	2.8	4.6	7.2	21.2	64.2	430	19.4
Disagree	4.4	5.8	11.0	28.0	50.7	428	19.4
Neutral	6.4	16.7	17.0	28.6	31.2	980	44.3
Agree	13.1	23.5	17.9	31.1	14.3	251	11.3
Str. Agree	23.1	28.9	22.3	14.9	10.7	121	5.5
TOTAL	7.0	13.7	14.3	26.6	38.4	2210	

*Tabled values are percent of row total.

**Question 48: "Helmets are responsible for increased neck injuries."

Table 17

HELMET USE*

HASSLE ON SHORT TRIP**	Never	Seldom	Some-times	Most of Time	Always	Row Tot. (n)	Col. %
Str. Disagree	1.7	2.0	4.4	17.2	74.7	704	31.7
Disagree	1.3	7.0	10.6	39.8	41.3	387	17.4
Neutral	13.6	19.1	22.5	24.6	20.1	293	13.2
Agree	6.9	19.3	21.4	37.4	15.0	508	22.9
Str. Agree	19.6	32.7	22.0	16.8	8.9	327	14.7
TOTAL	7.0	13.6	14.6	26.7	38.3	2219	

*Tabled values are percent of row total.

**Question 37: "Putting on and taking off a helmet and carrying it around is too much trouble for short trips around town."

Table 18

HELMET USE*

	Never	Seldom	Some-times	Most of Time	Always	Row Tot. (n)	Col. %
HELMETS CROWD FREEDOM**							
Str. Disagree	1.7	5.8	6.9	24.1	61.8	796	35.9
Disagree	2.6	8.7	14.1	33.8	40.8	390	17.6
Neutral	10.9	13.4	21.0	26.3	28.3	247	11.1
Agree	9.3	20.9	19.6	28.6	21.6	560	25.2
Str. Agree	23.5	33.3	20.4	17.8	4.9	225	10.1
TOTAL	7.0	13.6	14.3	26.5	38.5	2218	

*Tabled values are percent of row total.

**Question 55: "Wearing a helmet interferes with the feeling of freedom gained from riding a motorcycle."

Table 19

HELMET USE*

	Never	Seldom	Some-times	Most of Time	Always	Row Tot. (n)	Col. %
USE IS COWARDLY**							
Str. Disagree	5.7	12.2	13.4	27.0	47.0	1960	88.4
Disagree	13.6	22.0	24.7	27.3	12.3	154	6.9
Neutral	31.9	26.4	18.0	12.5	11.1	72	3.2
Agree	0.0	16.7	33.3	33.3	16.7	6	0.2
Str. Agree	4.2	29.2	12.5	29.2	25.0	24	1.0
TOTAL	7.0	13.6	14.3	26.6	38.4	2216	

*Tabled values are percent of row total.

**Question 53: "Wearing a motorcycle helmet is a sign of cowardice--brave motorcyclists don't need one."

Table 20

HELMET USE*

	Never	Seldom	Some-times	Most of Time	Always	Row Tot. (n)	Col. %
CAN'T SEE REAL ME **							
Str. Disagree	4.7	9.4	11.3	25.5	49.0	1061	47.8
Disagree	5.5	15.0	16.7	31.9	30.9	401	18.1
Neutral	11.5	20.9	16.4	23.6	27.5	541	24.4
Agree	8.8	11.2	21.2	32.9	25.9	170	7.7
Str. Agree	15.5	24.4	15.5	17.8	26.7	45	2.0
TOTAL	7.0	13.7	14.4	26.6	38.3	2218	

*Tabled values are percent of row total.

**Question 49: "Wearing a helmet makes me feel that people can't see the real me."

Table 21

HELMET USE*

	Never	Seldom	Some-times	Most of Time	Always	Row Tot. (n)	Col. %
RESIST AUTHORITY**							
Str. Disagree	3.0	5.2	7.5	21.7	62.7	775	34.9
Disagree	4.8	13.2	14.3	38.9	28.8	357	16.1
Neutral	8.2	16.7	19.5	26.1	29.4	497	22.4
Agree	9.6	19.0	20.1	27.5	23.7	363	16.3
Str. Agree	18.0	27.6	17.1	23.2	14.0	228	10.3
TOTAL	7.1	13.6	14.3	26.6	38.4	2220	

*Tabled values are percent of row total.

**Question 51: "The more someone tells me I should wear a helmet, the less I feel like wearing one."

Table 22

HELMET USE*

	Never	Seldom	Some-times	Most of Time	Always	Row Tot. (n)	Col. %
CURRENT DATA IS SUFFICIENT**							
Str. Disagree	19.6	28.4	16.2	14.9	20.9	148	6.7
Disagree	7.7	15.4	25.9	26.6	24.5	143	6.5
Neutral	12.8	22.7	17.6	23.6	23.3	352	15.9
Agree	6.4	13.7	17.4	27.6	34.9	691	31.2
Str. Agree	3.1	6.9	8.4	29.9	52.6	877	39.7
TOTAL	7.0	13.6	14.3	26.6	38.4	2211	

*Tabled values are percent of row total.

**Question 57: "Current data is sufficient to prove that using a helmet substantially reduces head injuries in motorcycle accidents."

Table 23

HELMET USE*

	Never	Seldom	Some-times	Most of Time	Always	Row Tot. (n)	Col. %
SAFE AS CAR**							
Str. Disagree	6.2	16.0	12.2	24.7	40.9	501	22.6
Disagree	4.7	12.0	16.2	27.4	39.6	765	34.5
Neutral	8.3	9.6	13.0	28.7	40.4	230	10.4
Agree	8.3	14.1	14.8	29.3	33.5	460	20.8
Str. Agree	12.0	16.6	14.3	20.8	36.3	259	11.7
TOTAL	7.0	13.6	14.4	26.6	38.3	2215	

*Tabled values are percent of row total.

**Question 60: "Motorcycling is practically as safe as driving a car."

Table 24

HELMET USE *

	Never	Seldom	Some-times	Most of Time	Always	Row Tot. (n)	Col. %
MOST CRASHES HIGH SPEED **							
Str. Disagree	9.7	15.1	13.2	26.5	35.3	792	35.7
Disagree	4.8	13.0	16.5	26.6	39.1	545	24.6
Neutral	6.8	12.3	13.8	26.1	41.0	383	17.3
Agree	4.5	12.8	15.8	27.8	39.1	335	15.1
Str. Agree	6.7	13.5	10.4	25.1	44.2	163	7.3
TOTAL	7.0	13.7	14.3	26.5	38.4	2218	

*Tabled values are percent of row total.

**Question 56: "Most motorcycle crashes are caused by the operator losing control of his/her bike at high speeds."

Table 25

HELMET USE*

	Never	Seldom	Some-times	Most of Time	Always	Row Tot. (n)	Col. %
DISLIKE LAW**							
Str. Disagree	11.2	12.9	15.5	20.7	39.6	116	5.2
Disagree	7.0	9.1	18.3	22.5	43.0	142	6.4
Neutral	5.9	12.0	13.2	25.2	43.6	424	19.2
Agree	5.6	12.1	11.7	28.0	42.5	745	33.7
Str. Agree	8.4	17.1	17.2	27.5	29.8	785	35.5
TOTAL	7.0	13.7	14.5	26.6	38.1	2212	

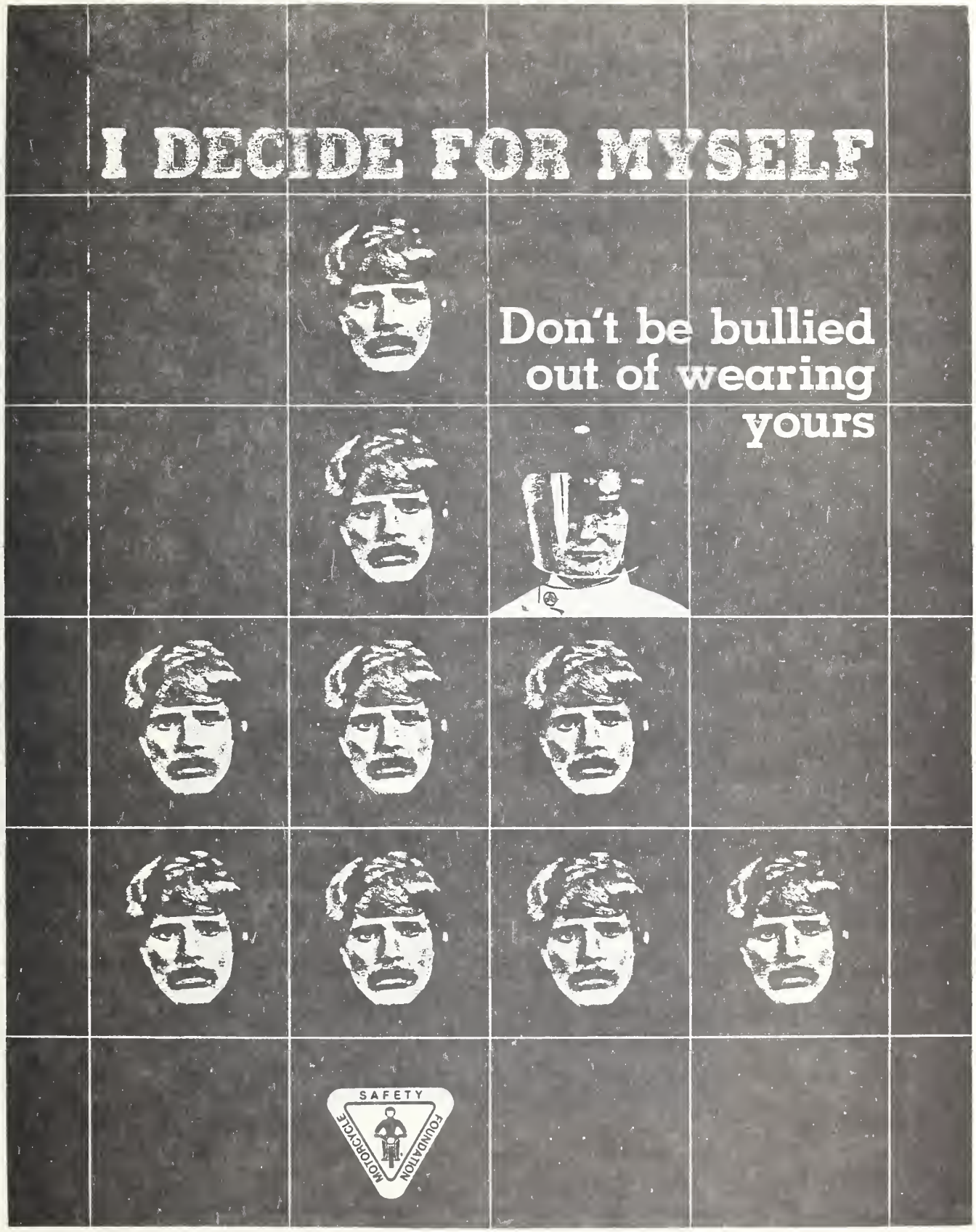
*Tabled values are percent of row total.

**Question 44: "I think motorcyclists express a dislike for helmets when they really mean helmet laws."

APPENDIX F

SAFETY HELMET PUBLIC INFORMATION CAMPAIGN MATERIALS

MARCH, 1982



Poster Displayed at Motorcycle Shops

I DECIDE FOR MYSELF

Brochure sent to all Licensed Motorcyclists

780 ELKRIDGE LANDING ROAD
LINTHICUM, MARYLAND 21090-2983
(301) 859-8050

CAMPAIGN: Houston-- Voluntary Helmet Use
TITLE: "Tinkering" 30-second TV PSA
RELEASE: Upon receipt

VIDEO	AUDIO
LS to MS. Open in garage/ workshop. RIDER, in his early 20's, approaches gleaming, red motorcycle as camera dollies in. (RIDER always speaks to camera.)	RIDER: Ever notice how a lot of guys just go along with the crowd?
CU. Crouched beside motor-cycle, RIDER is changing spark plug.	Me, I like to make my own decisions. Take this business about helmets.
CU. After checking rear brake, RIDER looks up.	When Ray, my best friend, went down-- his helmet saved his life.
MCU. RIDER leans toward camera, his hands planted on motorcycle saddle.	That's when I made up my mind.
MS. In driveway, RIDER is seated on motorcycle, with girlfriend behind him. Both are putting helmets on.	Now nobody's gonna talk me out of wearing a helmet.
CU. Thumb flicks starter button on motorcycle.	SFX: (MOTORCYCLE ENGINE)
MS to CU. RIDER and girlfriend ride past camera. CU of their helmeted heads is captured in freeze frame, pushed back in squeeze zoom. Motorcycle Safety Foundation ID and logo appear beneath freeze frame.	(MUSIC) ANNOUNCER (VO): Helmets work. Don't let yourself be bullied out of wearing yours.

780 ELKRIDGE LANDING ROAD
LINTHICUM, MARYLAND 21090-2983
(301) 859-8050

CAMPAIGN: Houston-- Voluntary Helmet Use
TITLE: "Worker" 30-second TV PSA
RELEASE: Upon receipt

VIDEO	AUDIO
MS. Open in factory's locker room. WORKER, in his early 20's, pulls locker open as he takes off his hard hat. (WORKER always speaks to camera.)	WORKER: You ever get the feeling someone's always telling you what's good for you?
MCU. Dressed in T-shirt at wash basin, WORKER dries face with towel. Turns from mirror to face camera.	Like, if you ride a motorcycle, somebody's always telling you to wear a helmet.
MS. Seated on bench, with foot pulled up in front of him, WORKER is tying shoe.	Now that can make me want to do just the opposite.
MCU. Jacket slung over shoulder, WORKER strides toward locker. Grabs helmet off top of locker.	But it's my life, right? So I decided this one for myself.
LS. Exterior. WORKER is getting on motorcycle in factory parking lot.	SFX: (MUSIC)
CU. WORKER puts on helmet, fastens strap. CU is captured in freeze frame, pushed back in squeeze zoom.	ANNOUNCER (VO): Helmets work. Don't let yourself be bullied out of wearing yours.

MOTORCYCLE SAFETY FOUNDATION

780 ELKRIDGE LANDING ROAD
LINTHICUM, MARYLAND 21090-2983
(301) 859-8050

CAMPAIGN: Houston-- Voluntary Helmet Use
TITLE: "Bully" 10-second Radio PSA
RELEASE: Upon receipt

ANNCR: If you ride a motorcycle, you know wearing your helmet could save your life. So don't let yourself be bullied out of wearing yours. A message from the Motorcycle Safety Foundation.

APPENDIX G

LETTERS SENT TO RADIO AND TELEVISION STATIONS IN THE HOUSTON AREA

APRIL-JUNE, 1982

MOTORCYCLE SAFETY FOUNDATION

780 ELKRIDGE LANDING ROAD
LINTHICUM, MARYLAND 21090-2983
(301) 859-8050

April, 1982

Dear Public Service Director:

There's a lot of pressure on motorcyclists not to wear their helmets. Maybe it's friends, maybe it's just a reaction to being "told" what to do. Whatever the reason, many riders don't take time to analyze why they're leaving their helmets at home.

The Motorcycle Safety Foundation is conducting a campaign to encourage Houston-area motorcyclists to wear their helmets. We hope you'll join us by giving air time to the enclosed series of radio spots. One, "Tinkering," is 30 seconds long, the other two, "Own Shots" and "Sixteen" are 20 seconds in length. And, you'll find a 10-second script, "Bully" enclosed as well.

Sincerely,

Jorja L. Kappes
Senior Manager
Public Affairs

JLK/blm

Enclosures

MOTORCYCLE SAFETY FOUNDATION

780 ELKRIDGE LANDING ROAD
LINTHICUM, MARYLAND 21090-2983
(301) 859-8050

April, 1982

Dear Public Service Director:

"Don't tell me what to do!" That's the attitude many motorcyclists have about wearing their helmets. Maybe it's big government, maybe it's family giving them the message to wear a helmet. Wherever the message comes from, many riders turn off when they hear it.

The Motorcycle Safety Foundation is conducting a campaign to encourage Houston-area motorcyclists to make a conscious decision about helmet use. Not "because you told me to" but because "I made up my own mind."

We hope you'll join us in promoting helmet use by giving airtime to the enclosed 30-second public service announcement, "Tinkering."

Sincerely,

Jorja L. Kappes
Senior Manager
Public Affiars

JLK/blm

Enclosure

MOTORCYCLE SAFETY FOUNDATION

780 ELKRIDGE LANDING ROAD
LINTHICUM, MARYLAND 21090-2983
(301) 859-8050

June, 1982

Dear Public Service Director:

Many motorcyclists quit wearing their helmets because they're pressured by their friends to stop. The Motorcycle Safety Foundation is conducting a campaign promoting helmet use in the Houston area. As a part of the campaign we've developed a 30-second public service spot, "Worker," that addresses the problem of peer pressure to leave that helmet at home.

We hope you'll join us in encouraging Houston's riders to wear their helmets, no matter what anyone says.

Sincerely,

Jorja L. Kappes
Senior Manager
Public Affairs

JLK/blm

Enclosure