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Technical Report 786

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# The Army Communications Objectives Measurement System (ACOMS): Survey Analysis Plan

Gregory H. Gaertner  
Westat, Inc.

Timothy W. Elig  
U.S. Army Research Institute

Editors

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The ACOMS survey is a multiyear telephone survey of a nationally representative sample of 16- to 24-year-old American youth and their parents. The survey tracks changes in perceptions, attitudes, and behaviors relevant to Army advertising. Data are being collected continuously through the year, using computer-assisted telephone interviewing (CATI) technology. Random digit dialing (RDD), involving a modified Waksberg method, is being used to identify eligible respondents. The 30-minute interview asks youth about responses to Army advertising, media habits, career plans, and various demographic characteristics. Parents of selected 16- to 20-year-old respondents, who meet certain eligibility requirements, are also being interviewed on parallel topics. Survey data will be analyzed separately, as well as in conjunction with other data being collected by the ACOMS system.

Other ACOMS-related reports are identified as follows:

Technical Reports 784, 785, and 787  
 Research Report 1473  
 Research Products 88-04, 88-05, 88-06, 88-07, and 88-08  
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# U. S. ARMY RESEARCH INSTITUTE FOR THE BEHAVIORAL AND SOCIAL SCIENCES

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Technical Report 786

**The Army Communications Objectives  
Measurement System (ACOMS):  
Survey Analysis Plan**

**Gregory H. Gaertner**  
Westat, Inc.

**Timothy W. Elig**  
Army Research Institute

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## FOREWORD

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To effectively recruit manpower, the U.S. Army uses advertisements to affect the knowledge, attitudes, and behavioral intentions of youth and such significant influencers as parents. Army advertising development and execution is guided by a positioning statement and by specific, measurable objectives. This report documents the research plan for the main survey conducted to measure the achievement of these objectives under the Army Communications Objectives Measurement System (ACOMS), which supports Army assessments of advertising program strategies and effectiveness and also supports both planning for future strategy and increasing the operational efficiency of Army advertising programs.

ACOMS has been developed to meet the needs of Army policymakers and operational managers through a cooperative effort with a Special Advisory Group (SAG) of representatives from the staffs of the Office of the Deputy Chief of Staff for Personnel, the U.S. Army Recruiting Command, the U.S. Army Reserve Officers' Training Corps Cadet Command, the Office of the Chief of the Army Reserve, and the Army National Guard. Funding for the survey development was provided by the U.S. Army Recruiting Command.

The participation of the U.S. Army Research Institute (ARI) in this cooperative effort is part of an ongoing research program designed to enhance the quality of Army personnel. This work is an essential part of the mission of ARI's Manpower and Personnel Policy Research Group (MPPRG) to conduct research to improve the Army's capability to effectively and efficiently recruit its personnel. Specific efforts on ACOMS were undertaken at the direction of the Deputy Chief of Staff for Personnel. The survey design and plan of analysis were briefed to the SAG at quarterly in-progress reviews and also briefed in January 1987 to the Deputy Chief of Staff for Personnel, the Commander of the U.S. Army Recruiting Command, the Chief of the Army Reserve, and the Director of the Army National Guard.

The ACOMS survey was conducted between October 1986 and December 1987. Results of the survey effort are forthcoming.



EDGAR M. JOHNSON  
Technical Director

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## PREFACE

---

This paper reports on the planned analysis of data collected for Project Image Watch-Dog, "Army Communications Objectives Measurement System (ACOMS)" and addresses the market for the Army personnel accessioning system responsible each year for obtaining from the non-prior-service youth market over 200,000 volunteers for the enlisted and warrant officer force. In addition, the U.S. Army Reserve Officers' Training Corps (ROTC) Cadet Command is responsible for attracting over 37,000 high-quality youth as college freshmen at 4-year colleges. To effectively recruit in the youth market, various components of the U.S. Army use advertisements to produce changes in the knowledge, attitudes, and behavioral intentions of youth and such significant influencers as peers and parents. ACOMS was designed to provide a measurement and analysis system to support army assessments of advertising program effectiveness, assessments of advertising strategy efficiencies, management of the advertising program, and planning and development of new marketing strategies and segmentations.

The planning for this research was initiated in 1984. ACOMS developed out of work performed for a series of advertising effectiveness conferences directed by the U.S. Army Recruiting Command (USAREC) at the request of the Deputy Chief of Staff for Personnel (DCSPER), who met with the Commander of USAREC, the Chief of the Army Reserve, the Director of the Army National Guard, and the Deputy Chief of Staff of Training and Doctrine Command for ROTC in November of 1984 to review the results of these conferences. These officers approved the mission requirements for ACOMS prepared by their staffs as well as the basic research plan for ACOMS prepared by the U.S. Army Research Institute (ARI). The DCSPER directed ARI to develop and monitor research plans and necessary contract efforts for ACOMS with guidance from a Special Advisory Group (SAG) from involved Army offices. The Defense Manpower Data Center was added in a special technical advisory capacity before the first meeting of the SAG.

The SAG was intimately involved in refining the mission requirements for ACOMS throughout the procurement process that led to the selection by ARI in 1985 of Westat, Inc., as the ACOMS contractor. Scientists from Westat and the Army community, together with many advisors, developed and refined The Army Communications Objectives Measurement System (ACOMS): Survey Design (ARI Technical Report 785) and The Army Communications Objectives Measurement System (ACOMS): Survey Analysis Plan (ARI Technical Report 786). In addition to guidance from the SAG, plans for ACOMS benefited from advice concerning sampling, weighting, and estimation from a Statistical Advisory Panel. The report describes the efforts of many people on the Westat Project Team and in the Army community.

The ACOMS system involves more than just surveys or other methods of data collection. The analysis and reporting agenda for ACOMS were set by Army users to ensure that, in addition to their own in-house analyses, research products would regularly flow to users and systematically address their needs. Research products include quarterly reports, annual tabulation volumes, and interim reports on interpretive analyses that are summarized in an annual report.

These reports are forthcoming for the period of ACOMS data collection, October 1986 through December 1987.

The text of the current report is substantially unchanged since it was released as Manpower and Personnel Policy Research Group Working Paper 87-2, January 1987.

TIMOTHY W. ELIG  
ARI Senior Scientist and  
Contracting Officer's Representative

THE ARMY COMMUNICATIONS OBJECTIVES MEASUREMENT SYSTEM (ACOMS) SURVEY  
ANALYSIS PLAN

EXECUTIVE SUMMARY

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Requirement:

To improve the efficiency and effectiveness of Army advertising communications.

Procedure:

Development of the ACOMS project design has been a collaborative enterprise involving the Westat Project Team, the Army Research Institute Contracting Officer's Representative, the ACOMS Special Advisory Group (SAG) composed of representatives from the staffs of the Office of the Deputy Chief of Staff for Personnel, the U.S. Army Recruiting Command, the U.S. Army Reserve Officers' Training Corps Cadet Command and the Office of the Chief of the Army Reserve, and the Statistical Advisory Panel, a group of experts providing the project with advice concerning sampling, weighting, and estimation. The design process began in September 1985 and continued until the start of survey data collection in October 1986.

The ACOMS project design was developed through consideration of a number of factors. Project issues and questions were formulated by a conceptual model of advertising effectiveness, a modified Hierarchy of Effects model. A review of background documents and interviews with Army personnel provided a user orientation in defining the analytic issues being addressed by the system. This preliminary exploration revealed the diversity and complexity of objectives that the project is expected to fulfill. Project objectives were broadened from assessing the effectiveness of Army communications objectives to include analyses pertaining to Army advertising strategy and market segmentation.

The ACOMS development effort has focused on specifying the design and analysis plan for the survey component of ACOMS, by far the largest component of the system. Because of the multiple constituencies interested in ACOMS, the relative priorities among population groups--and hence, the sampling design--were major design issues. Similarly, because of concerns for cost and respondent burden, extensive discussion occurred on the relative priorities among various question domains and on the allocation of specific questions to particular subpopulations. In addition, the design efforts for both the sample and the questionnaires were affected by requirement to maintain comparability (in certain key aspects) to the Youth Attitude Tracking Survey (YATS), which covers many of the same areas related to an enlistment decision-making.

## Findings:

ACOMS was designed and implemented to meet Army objectives through a three-pronged "Fit-Exposure-Change" approach involving a mix of data collection and analytic approaches. In this report, the design of change measures is discussed. The measurement of change, based on an on-going telephone survey of a probability sample of youth and their parents, is central to the ACOMS project. Youth and parental samples were designed to collect information on a variety of topics including the youth's plans for the future, media habits, and reactions to Armed Forces advertising.

## Utilization of Findings:

ACOMS data collection was initiated according to plan in October 1986, and the first product discussed in this plan of analysis was delivered in February 1987. As planned, data is being used to track changes over time in levels of advertising recall and subsequent effects on the knowledge, attitudes, intentions, and actions of youth and their parents. In addition, the analysis of ACOMS data permits a better understanding of the lagged and cumulative effects of advertising and of the relationships between advertising and other factors that influence the eventual enlistment decision.

Thus, the ACOMS effort is contributing to current development of behavioral and economic models of enlistment decision-making by the Army Research Institute. As better models of the enlistment decision process are developed, more effective marketing strategies can be applied to help the Army attain its annual recruiting goals.

A second set of goals involves the use of ACOMS data to assess the Army's advertising strategy. ACOMS is examining the extent to which the Army's intended messages are actually being received, and perceived by, their target audiences. Advertising strategy is also being supported by the analysis of ACOMS data to refine the definitions of the Army's major market segments. Reactions to advertising, media habits, and other variables are being analyzed for the major demographic segments of interest to the Army's recruiting categories, broken down by major regions. Data analysis is assisting in identifying and validating new segments defined in both attitudinal and demographic terms. This information is important in determining the nature and extent of the advertising to be directed at each segment.

ACOMS data is also being used to examine "brand differentiation"--i.e., comparison of image elements--at several levels: differentiation among the Active Army, Reserve, National Guard, and ROTC attributes; differentiation between the Army and other services' attributes; and differentiation between the Army's position and distinctive advantages vis-a-vis civilian alternatives (i.e., college and civilian employment). This information is helping the Army make decisions on relative emphasis of various communications about attributes and offers of Army components.

THE ARMY COMMUNICATIONS OBJECTIVES MEASUREMENT SYSTEM (ACOMS): SURVEY  
ANALYSIS PLAN

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THE ARMY COMMUNICATIONS OBJECTIVES MEASUREMENT  
SYSTEM (ACOMS): SURVEY ANALYSIS PLAN

1. INTRODUCTION

Gregory H. Gaertner

Overview

The Statement of Work for the Army Communications Objectives Measurement System (ACOMS) specifies that one deliverable will be "a Formal Plan for the Analysis." This analysis plan is intended to "[tie] together all elements of data collection and directly [link] them to how the data are to be analyzed...[The analysis plan] is intended to be the basic reference guide for the operationalization of ACOMS and to pull together the efforts of the various Tasks and Subtasks" (Request for Proposals Amendment No. 3, p. 17a).

ACOMS is intended to operate as the cornerstone of the Army's efforts to assess its advertising program, producing estimates of how accurately advertising executions fit the Army's communication objectives, how much audience exposure advertisements and their embedded messages obtain, and how much change in youth plans and perceptions results from advertising. As such, the ACOMS data collection and analysis system draws from multiple data sources: analysis of the message content of Army advertisements, analyses of syndicated sources of exposure data, and interviews with youth and selected parents.

The analysis plan is based on the Statement of Work, Westat's original proposal and responses to questions, a series of design memos produced by Westat staff and guidance supplied by U.S. Army Research Institute (ARI) and the U.S. Army Recruiting Command (USAREC) and by the ACOMS Special Advisory Group (SAG) during the design phases. Much of the material to be presented here was outlined in a detailed briefing presented to the SAG on July 8, 1986.

The analysis plan has two major overarching goals: (a) to summarize the important design decisions made during the design phases, and (b) to provide analytical roadmaps for the upcoming phases. We discuss each of these purposes in turn.

Since the analysis plan follows an extensive design phase during which ARI, the SAG and USAREC have worked collaboratively with Westat to make sample and instrument design decisions, and set basic analysis priorities, this document provides a useful occasion for summarizing these basic design decisions. These decisions have involved defining the ACOMS youth and parent interview samples and specifying criteria for inclusion and exclusion, defining and implementing procedures for collecting additional data apart from the primary ACOMS interviewing frames, retaining comparability with existing research samples and instruments such as the Youth Attitude Tracking Study (YATS II) (Research Triangle Institute, 1985) and the New Recruit Survey, the design of the interviews, reporting deliverables, priorities for analysis and scheduling.

A second purpose of the analysis plan is to develop analytical roadmaps for the upcoming phases. This will involve an overview of the basic ACOMS conceptual model as presented in the proposal and modified subsequently, and a review of how each of the major classes of variables in the model relates to the ACOMS data sources and data collection procedures. Further, we will review the basic analysis priorities decided on by the SAG. Then for each of the priority analyses, separate chapters in the analysis plan can:

- (1) Elaborate which variables/scales will be used in the analysis;
- (2) Indicate the first analytical steps to be taken;
- (3) Indicate likely classes of results of the first steps and what they would mean; and
- (4) Indicate the further steps that might be taken based on these original results.

The ACOMS Survey Analysis Plan begins with this first chapter which provides an overview of the ACOMS conceptual model, data sources and analytic deliverables and summarizes the basic design decisions reached during the design phase.

Chapters 2 through 6 of The ACOMS Survey Analysis Plan discuss the substantive chapters of the annual reports. Chapter 7 describes the ACOMS integrated model while Chapter 8 outlines the ACOMS data timeframe. The chapters can be summarized thus:

- (1) Chapter 2 (Gaertner, Keil & Gay, 1988): Tracking Audience Response includes discussion of scale construction, trending analysis, and quarterly report table shells and narratives;
- (2) Chapter 3 (Wilson, 1988): Market Segmentation Analyses reviews various strategies for segmenting the target audience, analytical techniques for segmentation, and likely segmentation classes and what they might imply;
- (3) Chapter 4 (Wilson, 1988): Brand Differentiation Analyses reviews strategies for identifying the images of the various components and services and other civilian activities held by youth and parental respondents and identifying dimensions of knowledge and attitude differentiation;
- (4) Chapter 5 (Baxter, 1988): Analysis of the Parental Influence includes discussion of the analysis of the parental influencer data, as describing both a cognition/decision process operating parallel to the youth process, and as one which influences the youth process. The chapter also includes discussion of the social influences data collected in the main youth interviews;



- (5) Chapter 6 (Gaertner, 1988): Modeling the Effects of Army Advertising includes discussion of the integrated analysis of the youth interview data across awareness, recall, perceptions, importance, intention and subsequent behavior, outlining the basic correlational structure of the youth cognition/decision process;
- (6) Chapter 7 (Gaertner & Baxter, 1988): A Plan for the Integrated Analysis of Fit, Exposure and Change describes how data drawn from analyses of the message content of Army advertising and data from syndicated sources of estimates of exposure to Army advertising can be linked to the main ACOMS interview data to provide a comprehensive model of fit, exposure and change. The chapter begins by describing the methods and measures collected from the message content analyses. In brief, these data are based on mall-intercept interviews with a stratified, nonprobabilistic sample of American youth. These youth were asked questions regarding the content of active Army print and video advertisements in terms of the extent to which the advertisements embodied the Army's communications objectives. Data on exposure to Army advertising can be drawn from various sources. The chapter describes these and recommends the acquisition of syndicated data from the Arbitron Information on Demand system, which can provide estimates of the rates of viewing during periods in which Army advertising is aired, broken out by demographic groups. The chapter then proceeds to propose that these two data sources be combined with the ACOMS main interview data, and outlines a procedure by which this can be accomplished. The result is the integrated model for the analysis of ACOMS fit, change and exposure data; and
- (7) Chapter 8 (Gaertner, 1988): Work Products, Deliverables, and Schedules outlines a timeframe for the presentations and analysis of ACOMS data.

#### A Strategy for Assessing the Effects of Army Advertising

The purposes of ACOMS are:

- (1) To support Army assessments of advertising program effectiveness in a timely fashion;
- (2) To support Army assessments of advertising strategy in an integrated framework; and
- (3) To support Army advertising management and planning for future strategy.

This undertaking is ambitious in part because of the sheer size and sophistication of the Army's communications program, and in part because of the diversity of analytic perspectives required. Assessment of program effectiveness requires that ACOMS operationalize the objectives of the Army's advertising program, and track performance

against these objectives. Assessments and support of strategy require analysis of the dynamics of the advertising influence process and how Army advertisements target youth and influence populations, position the Army and its component images and offers vis-a-vis other services and civilian alternatives, and lead to subsequent enlistment-related behaviors.

The assessment of effectiveness and strategy in an integrated framework requires a conceptual model to organize the various results. In our original ACOMS proposal we presented a conceptual model of the advertising process based on a modification of the hierarchy of effects approach. An expanded version of this model is displayed in Figure 1.

Implicit in the model is the notion that (a) the consumer gains awareness of a product through advertising messages, which results in (b) beliefs about the product, in interaction with the consumer's evaluation of his/her need for the product which in turn affect (c), the respondent's attitude toward the product, and subsequent intentions and actions toward the product. Section (a) describes a cognitive process, part (b) a process of attitude formation, and part (c) a conative process.

Two additional processes are posited by the model. The first, a process of normative formation, is included in Fishbein and Azjen's (1975) subsequent expansions of the hierarchy of effects model. In it, prevalent social norms regarding the purchase as perceived by the respondent (belief) and the respondent's motivation to comply (evaluation) combine to affect overall perception of social norms regarding purchase behavior, which in turn affect purchase intentions. This process is posited to be independent of the respondent's own isolated judgment. A second process, parallel to the youth decision process, is posited to be operating for the parent. Since the empirical assessment of the effects of influential others has not previously been attempted in a hierarchy of effects framework, the causal paths connecting characteristics of parents and youths are not specified in detail.

This description of the consumer decision process has roots ranging from the attention-interest-desire-action (AIDA) formula of E.K. Strong in 1925, to more refined models in recent years, such as those of Lavidge and Steiner (1961), McGuire (1969), and Fishbein and Azjen (1975). Fishbein and Azjen (1975) and Aaker (1975) present detailed summaries of these developments. Measures of all of the foregoing classes of variables are provided in the ACOMS interviewing frames. The modules from the interviews tapping the variables are indicated in Figure 1.

In the current context, the hierarchy of effects model suggests important measures for consideration in measuring the effects of Army advertising. Respondent demographics are likely to include region, race and ethnicity, and sex at a minimum. For life stage, variables will include age, employment and marital status, income (or income of household) and stage of education at a minimum. (These variables have

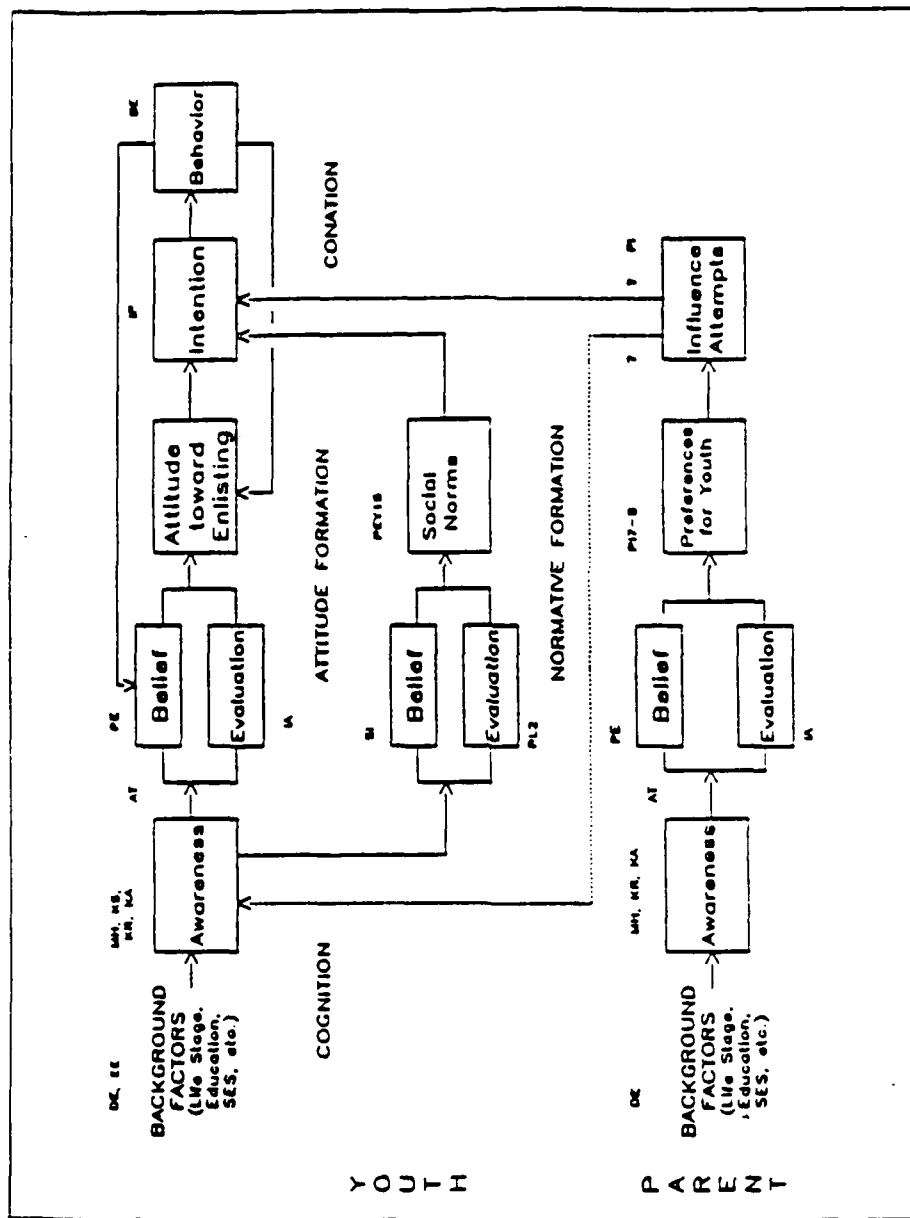


Figure 1. Expanded Fishbein-Azjen hierarchy of effects model for ACOMS.

all been shown to be related to other consequent variables in the model. For details, see Gade et al., 1984; Weltin et al., 1984; and Bray et al., 1985). Finally, media habits and exposure are hypothesized as relatively independent of the particular executions of interest in Army advertising. These variables are postulated to affect respondent awareness of the Army gained through exposure to Army advertising. This level of knowledge is hypothesized to affect respondent beliefs about advertising messages (i.e., attributes of the Army). In Fishbein and Azjen's (1975) model as adapted here, these beliefs take the form of agreement that a given attribute is offered by the Army (or component, other service, college or civilian job). These likelihoods are similar to expectancies in Vroom's model of job satisfaction (Vroom, 1965; House, 1971), and the model has much in common with the decision process explored in Johnson (1983). As we have developed the attributes (see below) these beliefs tend to relate to positive outcomes (for example, the likelihood that the Army offers opportunities for job training, funding for college, challenge and personal development, or patriotic service).

Corresponding to these beliefs are evaluations of the importance of these attributes. As operationalized, attributes are rated by the respondent to be of varying levels of importance. The model assumes that these importance scores depend on a set of underlying needs which can be assessed through a needs-based segmentation analysis, as may be seen in Chapter 3 (Wilson, 1988).

The youth's attitudes toward enlistment are hypothesized to arise as the products of beliefs about what the Army offers and the corresponding personal importance of those attributes. Thus attitudes will be positive when the respondent believes that positively evaluated outcomes relating to military service are likely, indifferent when perceived outcomes are not seen as important, or important positive outcomes seen as only moderately likely, and negative when negatively evaluated outcomes are likely.

By implication, in the Fishbein and Azjen formulation beliefs about attributes are specific to the referent (Army, component, other service, etc.) while importances are specific to the respondent. In this sense, attributes are postulated to inhere in the product. We have modified this position a bit in operationalizing ACOMS, however. Because enlistment represents a "purchase" where the product's attributes cannot be tested in advance, and the benefits of which are likely to be highly subjective, we have included personal referents in the belief statements. So, for example, we ask the youth whether the Army offers him or her each attribute.

These attitudes are hypothesized in turn to affect behavioral intentions (including Army propensity), which in turn are expected to affect behaviors. It is important to note that these actions may include enlistment, but are also likely to include intermediate actions like seeking information, asking for advice, seeing a recruiter and so on. As the model suggests, these intermediate actions can feed back on beliefs and evaluations.

We hypothesize that attitudes, intentions and actions will generally form consistent sets, but that the character of these sets will depend on geodemographic and needs-based segments. One area for research will be to discover whether and how effects from attitudes to intentions to behaviors and back to attitudes will cumulate for particular respondents and types of respondents. While the Fishbein and Azjen and similar expectancy-based models have been criticized as excessively rational, we make no assumptions of rationality. Rather, the hypothesis that youth will act to maximize their expected utilities (in the form of importance-belief products) is one of several testable hypotheses.

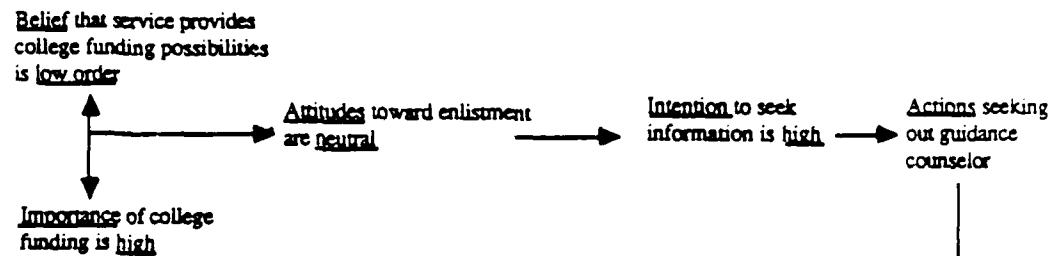
We have modified the model presented in the original proposal to include two additional inputs to the decision process. Fishbein and Azjen have argued that independent of their own decision processes taken in isolation, consumers assess prevalent social beliefs regarding aspects of purchase behavior. These beliefs, as assessed by the consumer, combined with the consumer's motivation to comply with them lead to an effect of social norms, which is posited to operate independent of the consumer's own utilities.

A second social influence on the enlistment decision can be assessed more directly: the influence of the parent. The sampling and data collection procedures of ACOMS have been designed to interview parents of a subset of ACOMS respondents on their exposure to Army advertising, and beliefs and evaluations of Army attributes parallel to the youth interviews. The parent is also asked about his or her preferences for the target youth's future and how he or she has attempted to influence the youth's planning.

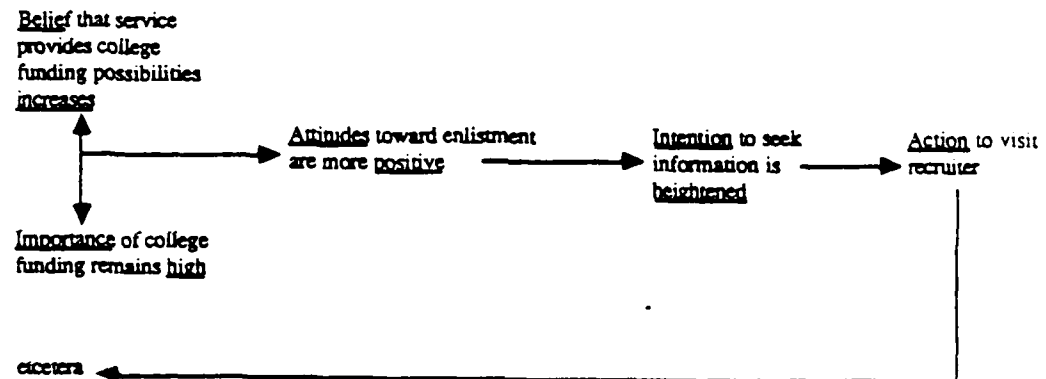
As an example of the application of the model to a likely empirical case, consider the enlistment-decision process of a respondent for whom getting funding for college is of primary importance. Prior to engaging in search behavior, the youth's belief that military service can provide funding for college may be negative or weak. As the time to make college-related decisions approaches, he/she may engage in a variety of tentative actions exploring how this funding can be obtained. To the extent that the respondent comes to believe that the Army College Fund (ACF) or the new GI Bill can provide such funding, his/her attitude toward the service may improve, leading to further intentions and actions to seek out a recruiter or guidance counselor to discover the amounts and limitations on such funding. This action may refine or confirm initial beliefs, leading to additional actions and so on. This step sequence is depicted in Figure 2, top panel. Not displayed in the figure is the possibility that the youth may also be assessing the experiences and beliefs of his or her classmates, or seeking (or receiving unsought) the advice of his/her parents, all of which may affect the search and decision process. The bottom panel depicts a more truncated search process for a respondent to whom patriotism is of primary importance. To the extent that the respondent believes that service in the military represents an expression of patriotism, this resultant positive attitude might lead, fairly directly, to a recruiter visit and a subsequent enlistment when

## Decision Sequence for College-Funding Motivated Respondent

### Stage 1:



### Stage 2:



## Decision Sequence for Patriotism-Motivated Respondent

### Stage 1:

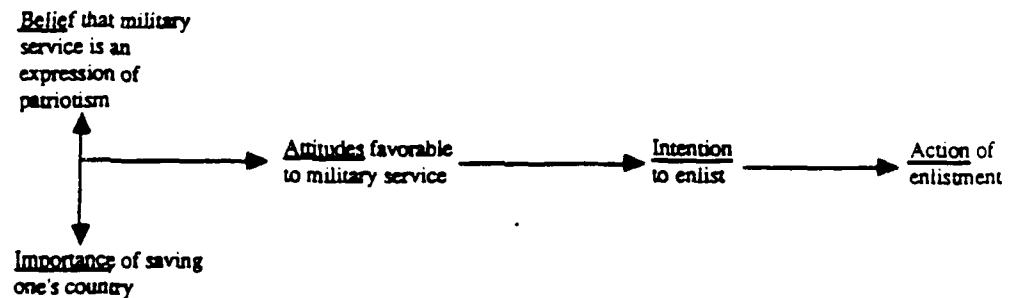


Figure 2. Enlistment decision sequences for differentially motivated respondents.

enlistment becomes a practical possibility. Again, to greater and lesser extents, parental and social influence may have effects.

Some implications for the current research bear mention. First, there are obviously features of "readiness" associated with life stage that must be exogenous to the decision process. That is, there are circumstances (e.g., need for college funding in the first example, and ability to make significant life choices in the second) which allow or impel the youth to make decisions for which information was already available. Second, the two groups of respondents depicted in Figure 2 are likely to come from different demographic and motivational backgrounds. Third, advertising is likely to affect them very differently. For the respondent seeking college funding, an effective advertising strategy may seek to educate him/her on potential Army benefits, to encourage small subsequent action steps and to weigh enlistment as a viable choice among alternatives. For the respondent seeking to express his/her patriotism, the task of advertising is likely to be more inspirational. Obviously, the task of advertising for other segments (for example, influencers) is still different.

As a result of the Army's careful planning process, the objectives of Army communications programs can be translated rather directly into hypotheses about this model and changes in it resulting from advertising-based interventions. Further, these hypothesized effects may take place at a variety of points in the model. For example, one message of USAREC advertising is that "with Army College Fund you can go to college 'older, wiser and richer.'" This message, if effective, will raise the subjective probability (either generally or among those especially interested in college funding) that the Army offers the opportunity to gain funding for college (a belief). If the basic model is correct, this heightened belief will, for those who attach a positive importance to obtaining college funding, result in improved attitudes toward the enlistment, and an intention to seek more information about service in it. This intention may result in subsequent action, leading to a sequence of additional actions. To pursue our other earlier example, the motivational message that the Army is "the best way to serve your country" may have the aim of reinforcing the belief in the Army as an expression of patriotism or of heightening the importance of patriotism either generally or for a particular segment.

These are, however, only the most obvious effects of advertising, and only the most obvious applications of the model. An additional effect of advertising may be to decouple attributes from the Army, for example, by dispelling the belief that one loses out on career opportunities by choosing the Army. If this advertising is effective, it would not be by changing the importance of career concerns, but rather by reducing the presumed association between military service and career disadvantage. In fact, this is one of USAREC's communications objectives. A further effect of advertising might not be on levels of variables in the model but rather on relationships between them. An example might be to strengthen the link between intention and action by making available better methods for gaining information

on the Army, allowing curious respondents to search for information more easily.

In terms of the original Statement of Work, the conceptual model described bears mainly on the analysis of change--given advertising messages and exposure to them, the model examines how advertising contributes to the enlistment decision process. However, the task of ACOMS is broader than this, seeking to assess the nature of messages embodied in advertising executions and further seeking to assess the exposure of prospect populations to the various Army messages in the advertisements.

Taken as a whole, the ACOMS Fit-Exposure-Change analysis involves the sequential meshing of many conceptual elements: messages with advertisements, advertisements with audience exposures, audience exposures with the ACOMS measures, and the ACOMS measures with all of the above. Each of the elements represents an array (of objectives, messages, etc.), and the meshing of any pair of them can be conceptualized as assessing the degree of correspondence between these two arrays. The various arrays involved in an integrated Fit-Exposure-Change assessment are displayed in Figure 3. In fact, the situation is, if anything, more complex than this, since different service components, active Army, Army Reserve (USAR), Army National Guard (ARNG) and Army Reserve Officers' Training Corps (ROTC), will represent different matrix sequences.

In assessing the correspondence among these arrays, a variety of different data sources will be drawn upon. In the next sections we delineate the elements and data sources involved in the overall assessment.

#### Objectives and Messages

As a result of the Army's careful planning process, we began with a good sense of the correspondence between objectives and messages. This correspondence was enhanced through the Multiattribute Utility Assessment analyses conducted with total Army, active Army, National Guard and ROTC, and in consultation with the Contracting Officer's Representative (COR) and SAG.

These activities resulted in a matrix of communications objectives/messages per component, displayed in Table 1. The matrix arrays 17 attributes by three Army service components--active Army, U.S. Air Force and Army Reserve National Guard. ROTC is handled separately, since many of the attributes do not easily apply to it.

The attribute descriptions in the stubs of the rows are presented as they are asked in the ACOMS main interviews and will also be used in the message analyses proposed for ACOMS (see Chapter 7, Gaertner & Baxter, 1988). An entry of 'X' indicates that the attribute in that row is a communication objective for the component identified in the column. Thus, while there are 17 attributes, no component is associated with more than 14 of them. There are 10 attributes common to all the components (except ROTC).



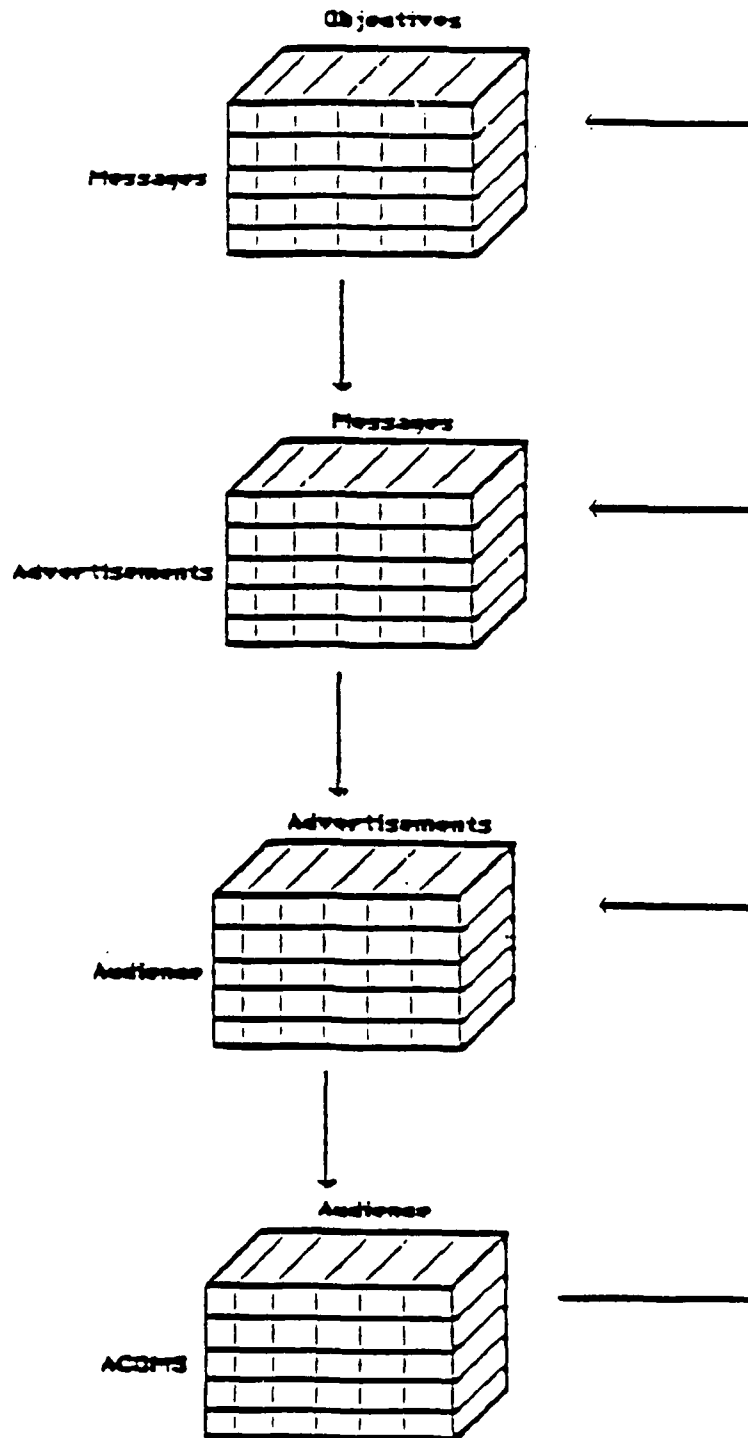


Figure 3. Integrated Fit-Exposure-Change analytic framework.

Table 1  
Allocation of Perceptions to Service and Career Alternatives

PERCEPTION	ARMY	USAR	ARNG	USAF	USMC	USN	All Sr	Work Coll	ROTC	Total
A wide variety of opportunities to find a job you can enjoy	X	X	X	X	X	X	X	X	X	8
A physically challenging environment	X		X	X	X	X	X	X		6
An experience you can be proud of	X	X	X	X	X	X	X	X	X	10
An advantage over going right from high school to college	X		X	X	X	X	X	X		6
An opportunity to develop leadership skills	X	X	X	X	X	X	X	X	X	10
The chance to work with the latest high-tech equipment	X		X	X	X	X	X	X		6
A great value in you civilian career development	X	X	X	X	X	X	X	X		8
An opportunity to develop self-confidence	X	X	X	X	X	X	X	X	X	10
The opportunity to develop your potential	X	X	X	X	X	X	X	X	X	9
A mentally challenging experience	X	X	X	X	X	X	X	X	X	9
An opportunity to become more mature and responsible	X	X	X	X	X	X	X	X	X	9
Many opportunities for training in useful skill areas	X	X	X	X	X	X	X	X		8
Many chances to work with highly trained people	X	X	X	X	X	X	X	X	X	9
An opportunity to obtain money for college or vocational school	X	X	X	X	X	X	X	X		8
An opportunity to serve America while living in your own hometown	X	X	X	X	X	X	X	X		2
An excellent opportunity for part-time work	X	X	X	X	X	X	X	X		2
Interesting and exciting weekends	X	X	X	X	X	X	X	X		2
Additional ROTC alternatives									X	1
Totals	14	14	14	14	14	14	14	12	8	8

Note: Column abbreviations for service and career alternatives, from left to right: Army, Army Reserve, Army National Guard, Air Force, Marines, Navy, all services; work, college; Reserve Officer's Training Corps.

We do not claim that this listing is inclusive of all the communications objectives of all of the components, since considerations of interview length and respondent burden required us to severely limit the number of objectives associated with any component. These attributes do represent major current communications objectives of the Army.

#### Messages and Advertisements

A second level of correspondence addresses whether the messages are being effectively portrayed in advertising executions. Although this correspondence usually is seen as an issue in expert judgment, we intend to supplement this expert judgment with message analyses of Army advertising executions as described in Chapter 7 (Gaertner & Baxter, 1988).

#### Advertisements and Audience Exposures

Several sources of data are available and required to assess the correspondence between the advertisements and the degree of exposure they receive, geographically, chronologically and in terms of key market segments. These include:

- (1) Syndicated data showing frequency and reach obtained in various geographic and market segments for TV and print executions;
- (2) Leads taken from the Rapid Electronic Advertising Coupon Transmission (REACT) data base can also be used as measures of exposure to Army print advertising as direct responses at the county level; and
- (3) Advertising budget at the national and local levels will be utilized to assess relative levels of effort directed at particular executions and areas of dominant interest.

As with the products of step 2, these exposure data can be compared with the intended messages to determine achievement of exposure goals for each communications objective. The most important uses of ACOMS, however, emerge in the next steps.

#### Audiences and ACOMS

The fourth step of the integrated Fit-Exposure-Change analysis is to chart the effects of exposure on prospect audience segments in terms of the ACOMS measures. In the original proposal, we presented the major analytic components of ACOMS: cross-sectional, trend, longitudinal and dyadic analyses. The inclusion of the results of the previous analytical steps heightens the scope and power of ACOMS analyses by extending the secondary and modeling capabilities of the analysis.

As examples:

- (1) By comparing the results of step 1, the matrix of objectives and messages with the knowledge, beliefs and attitudes of ACOMS respondents, we can assess the gross accomplishment of Army communications objectives. Thus, if a particular message was intended to be portrayed as supportive of a particular component, we can use the ACOMS data to determine whether such an effect was found. If moreover, the message was intended to appeal to a particular audience, this, too, can be assessed using the cross-sectional analytic components;
- (2) By comparing the results of step 2, messages and advertisements with effects on ACOMS respondents, we can assess the relative effectiveness of particular executions and campaigns. While we do not expect evaluations of particular executions to form a major part of ACOMS analytic activities, ACOMS data can be an important evaluative tool, especially using quasi-experimental designs (see Chapter 7, Gaertner & Baxter, 1988);
- (3) By comparing the results of step 3, the reach and frequency data with effects on ACOMS respondents, we can assess the gross and marginal effects of exposure and changes in it on the behavior of potential recruits and influencers. Thus, with the exposure data from syndicated services at the county level attached monthly to individual respondents, we can track the effects of changes in advertising mix and levels through exposure to recall and subsequent attitude change; and
- (4) By comparing the results of step 4, the trends and histories of individuals in the enlistment decision process with the results of steps 1, 2, and 3, we can provide feedback on and input to the process of defining and prioritizing objectives, messages and advertisements. These results can be used to evaluate advertising mixes and audience segmentation, and the overall strategy of Army advertising, both for the total Army and its components.

The discussion above suggests several information requirements for an integrated assessment of the Army's advertising program. First, a listing of the Army's communication objectives is required, and has been accomplished (see Table 1). These attributes provide the core of ACOMS. Operationally, in terms of the model, we need to assess the extent to which each attribute is important to the respondent, and the extent to which respondents think each attribute is offered by the active Army and its components, by other services, by military service generally, and by civilian alternatives. In combination, these measures should estimate the attractiveness of the respective components, services, and civilian alternatives.

Attractiveness alone, however, is not sufficient to establish the effectiveness of an advertising program. Thus, a second information requirement of the model is to track the subsequent behavior of the prospect markets to determine whether the advertising results in enlistment-related behaviors. Since advertising, especially for high-risk purchases, is unlikely to result directly in a "sale" (in this case, enlistment) it is necessary to collect data on smaller, incremental, steps toward enlistment. Further, since the advertising process (and the enlistment process) is likely to proceed slowly, it is necessary to track target respondents over time. Thus, ACOMS includes a longitudinal component which tracks the behaviors of interviewed youth over an extended period.

Further, the attractiveness of the Army and behaviors motivated by that attractiveness are not the results of target youths deciding their futures in social isolation. Influential figures, in particular, parents, are likely to be intimately involved in the decision-making process, as the model suggests. This third information requirement relating to the attitudes of influential others is operationalized in ACOMS by the respondent's assessment of the influence of friends and family, and also by separate interviews of parents of half of the youth sample.

A fourth information requirement of the model is measurement of the extent to which respondents have been exposed to Army advertising. In part, exposure is assessed in the youth interview by asking about the respondent's recall of Army (and other) advertising, and by asking about the respondent's media habits. Both of these approaches, however, are deeply flawed as measures of exposure. Recall is influenced not only by exposure, but also by memory decay, comprehension, and respondent demographics. In fact, one major empirical question for ACOMS is the extent to which exposure translates into recall. Media habits predict the actual exposure of prospect youths to advertising during specific periods weakly, at best. Thus, the primary means of assessing exposure will be through the use of syndicated data on the reach and frequency of Army advertising execution exposure to particular demographic segments and geographic markets at defined points in time.

A fifth information requirement of the model is to assess the kinds of Army advertising messages to which the prospect youths are exposed. Army advertising executions are far from homogeneous--the various components attempt to communicate both a common core image and offer, and distinctive images and offers to prospect populations. Further, even for the active Army, different executions focus on particular aspects of the active Army image and offers, and are intended to be aired at different times corresponding to hypothesized prospect market motivations. Thus, ACOMS will employ message content analyses to assess the extent to which various Army print and television advertising executions embody the various Army advertising objectives. Linked with the exposure data, these measures of relative message content will provide vital input to analysis of the effects of advertising.

In sum, the information needs of ACOMS require drawing data from multiple sources, and even within the youth interviews, require the collection of data on multiple content areas (the classes of variables in the model) and multiple advertising stimuli (the active Army, ROTC, USAR and ARNG, other services, and civilian alternatives). In sections to follow, we outline the data collection procedures designed for ACOMS to respond to these challenges.

#### ACOMS Main Interview Data Sources

In the next section, we provide an overview of the youth and parental interview samples and the youth and parental questionnaire structures as proposed and subsequently modified. A fuller description of the ACOMS sample selection procedures can be found in Chapter 3 of The ACOMS Survey Design (Mohadjer & Waksberg, 1988).

#### The Youth and Parental Samples

Sample design for ACOMS was guided by two main criteria--the objectives of the research and the need to retain comparability with extant research (e.g., the Youth Attitude Tracking Study, and the New Recruit Survey). In line with these dual objectives, the final youth sample design for ACOMS consists of 16- to 24-year-old males and females who have neither served nor contracted to serve in the Armed Forces and have not yet graduated from college. This overall sample is broken into four groups:

- (1) The Primary Male Sample (PMS): (annual n=9600)  
Male high school diploma graduates and those currently enrolled in regular high school or college;
- (2) The Secondary Male Sample (SMS): (annual n=850)  
Male high school non-completers not currently enrolled in regular high school or college;
- (3) The Female Sample (FS): (annual n=1950)  
Female high school diploma graduates and those currently enrolled in regular high school or college (Primary Female Sample (PFS)) and high school non-completers not currently enrolled in regular high school or college (Secondary Female Sample (SFS)); and
- (4) Supplementary Samples: (annual n=2000)  
Male Hispanics in all of the above categories (annual n=300) and the ADI supplement (PMS only), described further in Chapter 7 (Gaertner & Baxter, 1988).

Two additional supplements contemplated in the Statement of Work were dropped during the design phase. These included the supplementary sample of four-year college students and a sample of Vo-Tech students. It was further decided that given the final sample design, supplementation of Black youth would probably not be required.

In addition, the PMS and PFS samples are further subdivided. All 16- to 20-year old PMS/PFS sample members become part of a parental-linked sample from which target youths will be selected for an additional interview of a predesignated parent. Half of the parental-linked target youths are designated for participation in a longitudinal sample to be reinterviewed annually.

We discuss each of the main sample groups and the operationalization of their eligibility requirements separately.

#### The Overall Youth Sample

While the definition of eligibility requirements is apparently straightforward, the operational definition of the sample is a bit more complex. Age is defined by date of birth rather than self-reported years of age. Each potential respondent between 16 and 24 years of age is asked whether he/she has served in the military (Army, Navy, Air Force, Marines, the Reserve or the National Guard), or is currently in the Delayed Entry Program. These are excluded. Finally, youth are asked the highest grade they completed and received credit. Those indicating they have graduated from college are excluded.

Youth currently enrolled in college present special problems in establishing household residency since it is desirable to avoid double eligibility for students living away from home while at college. In collaboration with the SAG, it was decided that students living in college-sponsored housing would be reached through their parents (and therefore excluded in the screening interview) while those living on their own would be eligible for interview directly (and therefore not traced through their parents.)

#### The Primary Male Sample and Primary Female Sample

In addition to the age and prior service qualifications of the overall sample, eligibility for PMS/PFS requires an assessment of educational attainment. High school diploma graduates are defined as those completing a regular high school diploma, thus excluding those with certificates from General Educational Development (GED) and Adult Basic Education (ABE). The latter are classified as SMS unless they are enrolled in a two- or four-year college. Current enrollment during the school year is ascertained directly, and, as above, requires enrollment in a regular high school or a two- or four-year college, thus excluding enrollment in training and vocational-technical non-degree programs (the latter are considered SMS if they did not receive a regular high school diploma). Enrollment status for youths interviewed from July 1 through September 1 is defined by their plans for September.

The PMS and PFS encompass many of the Army's prime recruiting groups, not only for the active Army but also for ROTC, ARNG and USAR, and thus conform to the research objectives for ACOMS. However, the inclusion of youth with two or more years of college or youth taking a college ROTC course in the primary samples is at variance with the

market for enlisted personnel. Consequently, for more precise reporting of enlisted market groups, we define a subset of the PMS as the Primary Male Analytic Sample (PMAS), consisting of PMS members who have not yet begun their junior year in college and are not enrolled in a college ROTC program.

None of the sample groups exactly parallels the sample definition for the Youth Attitude Tracking Study II (YATS II). The male sample of YATS II is approximated by a combination of the PMAS and SMS samples. For females, a similar parallel sample is constructed by excluding from the FS respondents who have begun their junior year in college and who have enrolled in a college ROTC program. A category in the quarterly reports (Recruiting Market = PMAS + SMS or PFAS + SFS) is included to provide comparability to the YATS II sample. Note, however, that the YATS II sample is restricted to a September and October interviewing period.

#### The Parental-linked Sample

PMS and PFS eligibles between the ages of 16 and 20 inclusive are designated for participation in the parental-linked sample. The randomly selected parent is interviewed regarding his/her own awareness of and attitudes toward Army and other military advertising, Army offers and images, as well as hopes for and attempts to influence the target youth. For households with more than one PMS/PFS eligible, one is designated randomly as the target youth for the parental interview.

For a randomly chosen half of the parental-linked sample, the eligible parent is female; for the other half, the parent is male. Eligible parents do not have to live in the same household as the target youth. "Parent" does not necessarily imply biological parent, but may include step-parents, foster parents, guardians or adult relatives--the respondent is allowed to self-define the parent, where appropriate. If a parent of the designated sex cannot be found or is not available, the target youth is dropped from the parental-linked sample.

#### The Longitudinal Sample

A randomly chosen half of the parental-linked target youths is selected for participation in the longitudinal sample. Longitudinal sample youths will be re-interviewed annually in the years following their original interviews. Their original interviews are slightly longer than those of nonlongitudinal sample participants, since tracking information and information on social influences are collected from them as well.

#### The Secondary Male Sample and Secondary Female Sample

Logically, these samples represent the complements of their respective Primary Samples--that is, youths not currently enrolled in regular high school or college and not having completed a regular high school diploma. These youths will not participate in the parental-linked or longitudinal samples.



### The Hispanic Supplementary Sample

The screening for the main samples is expected to yield 670 Hispanic youth annually. An additional 300 Hispanic youths will be selected each year from telephone exchanges containing high densities of Hispanics using a list secured for ACOMS from Donnelly.

### The Youth Interview

The youth interview provides the major measures of the dynamics and effects of Army advertising available in ACOMS. A hard copy of the interview can be found in Chapter 4 of The ACOMS Survey Design (Gaertner, Nieva, & Allen, 1988). In accordance with the conceptual model which has guided the development of ACOMS, the youth interview is divided into 14 modules, in addition to the screener. They are, in interview order:

- (1) Education and Employment which verifies and elaborates the information on the respondent's education collected in the screener, and elicits employment history and measures of course content and school performance useful for assessing quality;
- (2) Intentions and Propensity which asks for the respondent's plans for the next few years, constructed to parallel and supplement measures of Army propensity in YATS;
- (3) Behaviors which elicits information on the respondent's activities relative to enlistment, employment and/or college enrollment;
- (4) Social Influences which asks for the respondent's assessments of the attitudes of friends, parents and others toward enlistment (asked only of parental-linked target youths);
- (5) Importance of Attributes which assesses the importance to the respondent of attributes defined by the Army's communications objectives. These items correspond to the evaluation component of the hierarchy of effects model;
- (6) Media Habits which elicits information on the amounts of television, radio and print material the respondent is regularly exposed to, and the types of TV programs viewed and radio programs heard (asked only of a randomly selected half of all youth respondents);
- (7) Knowledge-Recall which asks for unaided and aided recall of Army (by component) and other service advertising, presented in random order. The respondent is also asked where the advertising was seen or heard and what its main message was;

- (8) Attitude toward Army Advertising which ascertains how much the youth likes and believes the advertisements he/she has seen or heard;
- (9) Knowledge-Slogan Recognition which asks whether the respondent can identify slogans utilized in Army, other services and joint-service advertising presented in random order (asked only of a randomly selected half of all youth respondents);
- (10) Perceptions/Beliefs which asks whether the Army (by component), other services, military service in general and/or college and civilian employment offer the attributes defined by the Army's communications objectives presented in random order. These items correspond to beliefs in the hierarchy of effects model;
- (11) Knowledge-Awareness which asks for the respondent's level of knowledge concerning Army offers (asked only of a randomly selected half of all youth respondents);
- (12) Demographics which elicits information on respondent's ethnicity, marital status, Social Security number, socioeconomic background, and current residence location;
- (13) Parental Location Information which elicits information required to contact parents (asked only of parental-linked target youth); and
- (14) Tracking Information which elicits information required to trace youth selected for inclusion in the longitudinal sample, including anticipated changes in telephone number, names and phone numbers of employer and two others likely to know respondent's whereabouts (asked only of longitudinal sample).

While the modules provide measures of the concepts of the hierarchy of effects model, they appear in different order from the model. Our general strategy is to ask questions regarding future plans and behaviors before it becomes apparent (through the interview itself) that a main interest is in Army advertising, in order to minimize potential agreement bias. In addition, to precisely replicate the Army active and Reserve propensity measures in YATS II, it was necessary to place the intentions/propensity measures early in the interview.

The list of modules and items is much longer than can be obtained from any given respondent in a half-hour telephone interview. Several strategies are being utilized to ensure that necessary information is obtained while minimizing respondent burden.

First, certain modules are asked of particular groups of respondents. Tracing and social influence is only being asked of target

youths in the parental-linked sample, since these respondents allow the fullest test of the social/normative aspects of the conceptual model.

Second, certain other modules are asked only of subsets of respondents. Thus, Slogan Recognition, Knowledge-Awareness and Media Habits modules are distributed among respondents as shown in Table 2. Respondents are assigned randomly to each of the three modules with a probability of 0.333. Half are not assigned a second module from this group of three. The remaining half receive one of the two remaining modules with equal probability. The result is that each module is asked of half of the sample, and each pair is asked of one-sixth, so that correlations between items in different modules can be assessed. This results in the average respondent receiving 1.5 modules of the three, a substantial time savings. However, this solution does create potential problems in analyzing the data since some responses will be missing by design.

Third, some sections within modules are randomly assigned to subsets of respondents, most particularly sections relating to Perceptions/Beliefs of Army attributes. The reasoning goes as follows. In order to assess whether respondents believe that various Army components, other services, work and college offer the attributes defined by the Army's communications objectives, we need ratings of the extents to which the attributes are perceived as descriptive of each component. To obtain these ratings exhaustively would require that we ask respondents to rate the attributes in ten separate contexts (active Army, ROTC, ARNG, USAR, Navy, Marines, Air Force, Military Service generally, College, and Work). Given that typically 14 attributes are queried, this would represent an intolerable respondent burden. Further, not all groups of respondents are of equal recruiting priority to the various components--ROTC has greater interest in college students, while ARNG and USAR have greater interest in high school graduates who are not currently enrolled. Finally, as with the Slogan Recognition, Media Habits, and Knowledge-Awareness (above), several of the analyses require correlations across components, as well as within them--thus each pair of components must be rated by some set of respondents.

In collaboration with the SAG, an approach to allocating respondents to sets of perceptions questions was developed. This allocation scheme has the following characteristics:

- (1) All respondents are asked about at least two components--usually active Army and one other;
- (2) Respondents are asked about their current enrollment statuses, their educational attainments and (if appropriate) their plans for further education. These responses are used to form six main groups of respondents:
  - (a) Current College Juniors and Seniors: includes youth currently enrolled in third or fourth year of a four year college or university;

Table 2  
Module Rotation Pattern

Second Module					
First Module	Media Habits	Slogan Recognition	Knowledge-Awareness	None	Total
Media Habits	0.0%	8.3%	8.3%	16.7%	33.3%
Slogan Recognition	8.3	0.0	8.3	16.7	33.3
Knowledge Awareness	8.3	8.3	0.0	16.7	33.3
Total	16.7	16.7	16.7	50.0	100.0

- (b) Current College Freshman and Sophomores: includes youth currently enrolled in first or second year of a two or four year college or university;
  - (c) High School Diploma Students, College-oriented: includes high school students intending to go to college;
  - (d) High School Diploma Students, Work-oriented: includes high school students not intending to go to college;
  - (e) High School Diploma Graduates Not Currently Enrolled in College: includes high school diploma graduates who are not currently enrolled in a two or four year college or university and who have not completed more than two years in a four year college or university; and
  - (f) High School Non-completers (SMS, SFS): includes youth who have not received a regular high school diploma and who have not received any college credit;
- (3) All Primary Male Analytic Sample (PMAS) and Primary Female Analytic Sample (PFAS) eligibles are asked the active Army perceptions questions (Groups 2 through 5);
  - (4) College juniors and seniors (Group 1) are asked two sets of questions--those pertaining to ROTC and one other component, branch, college or civilian job;
  - (5) College freshmen and sophomores (Group 2) are asked two modules--either active Army or ROTC and one other. One-third are asked active and ROTC, one-third active and one other, and one-third ROTC and one other;
  - (6) College-oriented high school students (Group 3) are asked three modules--active, ROTC and one other;
  - (7) Work-oriented high school students and high school graduates not currently enrolled (Groups 4 and 5, respectively) are asked active Army and one other set; and
  - (8) SMS/SFS respondents are allocated as Groups 4 and 5.

Table 3 presents the resultant expected distribution of PMS respondents, making some assumptions about the distribution of respondents to the five groups. That is, if we assume that about 10% of all PMS respondents are college juniors and seniors, 24% are college freshmen and sophomores, 11% high school students college-oriented, 13% high school students work-oriented, and 42% high school graduates not enrolled, we would expect (for example) about 970 sets of responses to the ROTC questions annually from college juniors and seniors, and so on. It should be emphasized that these are expected numbers--actual distributions will depend on the validity of the

Table 3  
 Assignment of Respondents to Perception Modules by Component (Primary Male Sample Only; Includes Primary Male Analytic Sample (PMAS) and College Juniors and Beyond)

n=		970 Attained 3 yrs. + College						10% Of Total			
	ACTIVE	ROTC	ARNG	USAR	NAVY	MARINES	USAF	COLLEGE	WORK	SERVICE	
ANNUAL	970	121	121	121	121	121	121	121	121	121	
QUARTERLY	243	30	30	30	30	30	30	30	30	30	
MONTHLY	81	10	10	10	10	10	10	10	10	10	
n=		2330 Freshmen and Sophomores*						24% Of Total			
	ACTIVE	ROTC	ARNG	USAR	NAVY	MARINES	USAF	COLLEGE	WORK	SERVICE	
ANNUAL	1553	1553	194	194	194	194	194	194	194	194	
QUARTERLY	388	388	49	49	49	49	49	49	49	49	
MONTHLY	129	129	16	16	16	16	16	16	16	16	
n=		1035 H.S. Students College Bound						11% Of Total 45% Of High School			
	ACTIVE	ROTC	ARNG	USAR	NAVY	MARINES	USAF	COLLEGE	WORK	SERVICE	
ANNUAL	1035	1035	279	279	79	79	79	79	79	79	
QUARTERLY	259	259	70	70	20	20	20	20	20	20	
MONTHLY	86	86	23	23	7	7	7	7	7	7	
n=		1265 H.S. Students Work Bound						13% Of Total		55% Of Not in College	
	ACTIVE	ROTC	ARNG	USAR	NAVY	MARINES	USAF	COLLEGE	WORK	SERVICE	
ANNUAL	1265	141	141	141	141	141	141	141	141	141	
QUARTERLY	316	35	35	35	35	35	35	35	35	35	
MONTHLY	105	12	12	12	12	12	12	12	12	12	
n=		4000 HS Grads Not Enrolled**						42% Of Total			
	ACTIVE	ROTC	ARNG	USAR	NAVY	MARINES	USAF	COLLEGE	WORK	SERVICE	
ANNUAL	4000	444	444	444	444	444	444	444	444	444	
QUARTERLY	1000	111	111	111	111	111	111	111	111	111	
MONTHLY	333	37	37	37	37	37	37	37	37	37	

Table 3 (continued)

	n=	TOTALS									
		ACTIVE	ROTC	ARNG	USAR	NAVY	MARINES	USAF	COLLEGE	WORK	SERVICE
ANNUAL		7853	4143	1180	1180	980	980	980	980	980	980
QUARTERLY		1963	1036	295	295	245	245	245	245	245	245
MONTHLY		654	345	98	98	82	82	82	82	82	82

Rules for allocating respondents to modules were as follows:

- (1) All respondents are asked at least two modules -- usually Active Army and one
- (2) Respondents will be asked whether they intend to go to college or into the workforce, as well as their current educational status. Thus for purposes of module assignment, we will establish five groups of respondents -- those attaining junior year in college or beyond, current college students in first and second year, college bound high school students, work bound high school students, and high school students not currently enrolled.
- (3) Questions for perceptions of Active Army are asked of all PMAS respondents. Thus, all college bound, workforce bound non-enrolled and those in freshman and sophomore years are asked the Active Army module.
- (4) College Freshmen and Sophomores are asked 2 modules -- Active or ROTC and one other. One-third will be asked Active and ROTC, one-third will be asked Army and one other, and one-third will be asked ROTC and one other. Distribution among other modules is as shown.
- (5) College-bound H.S. Students are asked 3 modules -- Active, ROTC and one other. The module distributions for the other component activities are as shown.
- (6) Workforce bound respondents are divided among ARNG and USAR, and evenly divided among the other services, work and college.

\* Includes all post-High School education and training

\*\* Excludes Juniors and beyond

assumptions underlying the distribution to groups, and the performance of the random assignment. The assumptions were based on extrapolations from the Current Population Survey and the most recent YATS.

It is useful to explore the effects of these sample sizes on the statistical power of the PMS. In Table 4 we present the smallest detectable difference (between months, quarters or years, depending on the row) in the estimate of a proportion of 0.5 for the sample sizes as depicted in Table 3. Table 4 gives the smallest difference which will lead to a rejection of the null hypothesis of no difference over time (assuming  $P=p_1-p_2=0.5$ ).

The smallest detectable difference was arrived at as follows. Assume that we have two samples, one for the previous period, and one for the current period (annual, quarterly or monthly, depending on the row) each producing estimates of some proportion ( $p_1$  and  $p_2$ , respectively). We can ask what is the smallest difference between  $p_1$  and  $p_2$  which will cause us to reject the null hypothesis of no difference. This is, of course, the same as asking what is the largest difference which will not cause us to reject the null hypothesis. Any difference within the 95% confidence interval surrounding the difference will not lead to rejection. Thus, the null hypothesis is that the estimated proportions are equal to the proportion in the universe,  $P=p_1-p_2$ . The widest confidence interval is at  $P=0.5$ , and the confidence interval is two times the standard error of  $(p_1-p_2)$ . This works out to  $2p$  times the square root of  $2/n$ , in a simple random sample. Formally, the variance of the difference is the sum of the variances of each proportion (since the samples are independent) so that  $2*\sqrt{\text{Var}(p_1-p_2)}=2*\sqrt{\text{Var}(p_1)+\text{Var}(p_2)}=2*\sqrt{2*\text{Var}(p_1)}=2*\sqrt{2*p^2/n}=2p*\sqrt{2/n}$ . However, since respondents for each set of questions represent a sub-sample of the total sample and since we are allocating respondents to question sets differentially depending on group, there is a design effect associated with the allocation. This design effect increases as the proportion giving a set differs by group. Thus, the design effect is highest for ROTC (2.4), next highest for USAR and ARNG (1.13), and nearly negligible for active and other components (1.03). To account for the design effect, we multiply the confidence interval by the root of the design effect.

As should be apparent, almost any substantively meaningful annual difference will be statistically significant in the sample as a whole whether for active (0.017), ROTC (0.036), USAR and ARNG (0.044 or 0.046) or even other components (0.045 or 0.048). Confidence intervals for quarterly and even monthly differences are still reasonably tight for active and ROTC. Monthly and quarterly differences within segments become precarious, especially for other components. However, since quarterly estimates for these other components are not of critical importance, this design tradeoff seems appropriate.



Table 4  
 Smallest Detectable Change Over Time Assuming Allocation Shown in  
 Table 3 and Response Proportion Equals 50%

n=		<u>970 Attained 3 yrs.+ College</u>					10% Of Total				
	ACTIVE	ROTC	ARNG	USAR	NAVY	MARINES	USAF	COLLEGE	WORK	SERVICE	
ANNUAL		0.048	0.135	0.135	0.135	0.135	0.135	0.135	0.135	0.135	
QUARTERLY		0.095	0.269	0.269	0.269	0.269	0.269	0.269	0.269	0.269	
MONTHLY		0.165	0.467	0.467	0.467	0.467	0.467	0.467	0.467	0.467	
n=		<u>2330 Freshmen and Sophomores*</u>					24% Of Total				
	ACTIVE	ROTC	ARNG	USAR	NAVY	MARINES	USAF	COLLEGE	WORK	SERVICE	
ANNUAL		0.038	0.038	0.106	0.106	0.106	0.106	0.106	0.106	0.106	
QUARTERLY		0.075	0.075	0.213	0.213	0.213	0.213	0.213	0.213	0.213	
MONTHLY		0.130	0.130	0.369	0.369	0.369	0.369	0.369	0.369	0.369	
n=		<u>1035 H.S. Students College Bound</u>					11% Of Total 45% Of High School				
	ACTIVE	ROTC	ARNG	USAR	NAVY	MARINES	USAF	COLLEGE	WORK	SERVICE	
ANNUAL		0.046	0.046	0.089	0.089	0.166	0.166	0.166	0.166	0.166	
QUARTERLY		0.092	0.092	0.177	0.177	0.333	0.333	0.333	0.333	0.333	
MONTHLY		0.160	0.160	0.307	0.307	0.577	0.577	0.577	0.577	0.577	
n=		<u>1265 H.S. Students Work Bound</u>					13% Of Total 55% Of Not in College				
	ACTIVE	ROTC	ARNG	USAR	NAVY	MARINES	USAF	COLLEGE	WORK	SERVICE	
ANNUAL		0.042	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	
QUARTERLY		0.083	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	
MONTHLY		0.144	0.433	0.433	0.433	0.433	0.433	0.433	0.433	0.433	
n=		<u>4000 HS Grads Not Enrolled**</u>					42% Of Total				
	ACTIVE	ROTC	ARNG	USAR	NAVY	MARINES	USAF	COLLEGE	WORK	SERVICE	
ANNUAL		0.023	0.070	0.070	0.070	0.070	0.070	0.070	0.070	0.070	
QUARTERLY		0.047	0.141	0.141	0.141	0.141	0.141	0.141	0.141	0.141	
MONTHLY		0.081	0.244	0.244	0.244	0.244	0.244	0.244	0.244	0.244	
n=		9600 TOTALS									
	ACTIVE	ROTC	ARNG	USAR	NAVY	MARINES	USAF	COLLEGE	WORK	SERVICE	
ANNUAL		0.017	0.036	0.046	0.046	0.048	0.048	0.048	0.048	0.048	
QUARTERLY		0.034	0.071	0.092	0.092	0.096	0.096	0.096	0.096	0.096	
MONTHLY		0.059	0.124	0.159	0.159	0.167	0.167	0.167	0.167	0.167	

### The Parental Interview

The parental interview, being conducted with a predesignated parent of target youths 16- to 20-years-old, was constructed in parallel with the youth interview. It contains eight modules in the following order:

- (1) Parental Influence which probes whether the parent has discussed military service with the target youth, his/her expectations for him/her and beliefs that military service is a good or bad idea for most young men and women;
- (2) Importance of Attributes repeats the items in the youth version which assess the importance of attributes, this time asking the parent about the importance of these attributes for the target youth;
- (3) Media Habits items are identical to those asked of the youth and focus on the amounts of television, radio and print material the parent is regularly exposed to;
- (4) Knowledge-Recall questions are also identical to those in the youth questionnaire and ask for unaided and aided recall of Army and other service advertising with questions in random order;
- (5) Attitudes toward Army Advertising items address how much the parent likes and believes the advertisements he or she has heard or seen using the same items as those in the youth interview;
- (6) Perceptions are probed with the identical questions asked of the target youth regarding the extent to which the Army (by component), other services, military service in general, college and civilian employment offer the target youth the attributes defined by the Army's communications objectives;
- (7) Knowledge Awareness items assess the parent's knowledge, as in the youth interview, of Army benefits and programs; and
- (8) Demographics items elicit information on the parent's ethnicity, marital status, socio-economic background and military experience.

In essence, the parental interview adds one module to the youth questionnaire (Parental Influence), and drops Education and Employment, Intentions/Propensity, Behaviors, Social Influences, Slogan Recognition and the Parental Location and Tracking modules from the youth interview. Except in the Importance module (where the referent for the items is changed to the youth), nearly all question wordings are identical to those found in the youth questionnaire. Further, where random assignment to or within modules is performed for the youth interview, the parent's interview will be assigned to the same modules and sections as the target youth. Thus, if the target youth

was asked questions on perceptions of Army and college attributes, the parent is also asked the perceptions questions for Army and college attributes. Further, if the youth was asked media habits and knowledge-awareness questions, the parent is asked the same modules.

#### Summary

ACOMS represents a sampling, data collection and analytic effort of marvelous complexity and sophistication, designed to serve a wide variety of needs, audiences, and schedules, with a corresponding variety of work products and formats. In this chapter we have provided an overview of the analysis plan as a whole, reviewed the conceptual model underlying the effort, and summarized some of the major design decisions reached in collaboration with the SAG and the COR during the design phase. These decisions have included the definition of major sample elements, the construction of the instrument, and basic analytical priorities and schedules. Later chapters describe in detail the major content areas, methods, and deliverables relating to the youth and parental interviews.

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## 2. TRACKING AUDIENCE RESPONSE

Gregory H. Gaertner, Linda J. Keil, and Nancy L. Gay

### Introduction and Overview

The purpose of the tracking activities is to provide timely feedback to the Army on levels of audience response to Army advertising and interpretation of observed changes in response across time. This feedback takes the form of quarterly reports to the Special Advisory Group (SAG), delivered in briefing and narrative form six weeks after the close of each quarter. In this chapter we describe our plans for the quarterly reports and the statistical and methodological developments which support these reports.

In overview, the variables and scales being tracked are drawn from the hierarchy of effects model described in Chapter 1 (Gaertner, 1988). Thus, for key market segments, we will report on enlistment-related intentions, importance and perceptions of Army attributes, enlistment-related behaviors, recall of advertising (aided and unaided), knowledge of Army offers, and media habits. The identification of key market segments and the interpretation of the results is aided by the Army's dual-market concept, trimester advertising plans, and quarterly trends in recruiting missions. Since these identify key quarterly markets and the knowledge and perceptions advertising is intended to support in these key markets, the quarterly reports provides both an assessment of advertising conducted in the previous quarter and a market analysis of the receptivity of key prospect markets in the upcoming quarter.

In addition, the tracking effort relates closely to the market segmentation activities being conducted under the Army Communications Objectives Measurement System (ACOMS) described in Chapter 3 (Wilson, 1988), and provides the basis for models of the effects of Army advertising discussed in Chapter 6 (Gaertner, 1988).

Data collected in the ACOMS Youth interviews is the focus of the analyses described in this chapter. During the first year of data collection, the analyses are primarily cross-sectional comparisons across prospect market segments. Beginning in the second year of data collection, longitudinal data will be added as youth are reinterviewed.

This chapter is divided into two main sections. In the first, we specify the plan for the tracking analysis; in the second, we describe the format, content, and timing of the deliverables that are being produced. The general description and schedule of deliverables is contained in Chapter 8 (Gaertner, 1988). Because the format and content of the quarterly reports is shown in tables incorporated in the text of this chapter, we have shifted some discussion of them from Chapter 8 to the end of this chapter. In describing the analysis plan, we first provide a general overview of the approach we are taking in developing scales of tracked variables and in identifying and describing trends in results. Second, we will define the prospect

market segments that will be tracked and explain their relationship to the Army's dual-market concept, trimester advertising plans, and quarterly recruiting missions. Third, we specify the variables being tracked and the initial steps, anticipated results, and likely next steps to be taken in each of the main analytical activities. Discussion of the deliverables follows and includes detailed information about the format and content of the quarterly reports, annual report chapters, and briefings.

### Methods of Tracking Audience Response

The focus of the tracking analysis is on interpreting and predicting change in audience response to Army advertising over time. The methods involved in the tracking analysis can be summarized in terms of three foci: (a) estimating levels of audience response, (b) summarizing the various measures of audience response, and (c) detecting trends in measures and summaries. We can discuss each method in more detail.

### Estimating Levels of Audience Response

The preliminary step in the tracking activity is to produce estimates of intentions, importance, perceptions, behaviors, recall, knowledge, and media habits for various groups of youth. Educational groupings and groups based on age, gender, recruiting brigade and Reserve Officers' Training Corps (ROTC) region provide the initial segments. Since most of the response variables of interest are at a categorical level of measurement, these estimates can be produced simply by crosstabulating the response variables by the groupings. For reporting purposes, the response variables can be dichotomized and the proportion in some response category reported by group. Thus, for example, we can report proportion viewing a type of television show, or proportion answering a knowledge question correctly, for college students, college-oriented high school students, work-oriented college students, and so on.

We should note that because of the complex nature of the ACOMS sample, standard errors of proportions will differ from those which would be computed on the basis of ordinary statistical formulae. The balanced half-sample repeated replication method (BRR) for estimating variances is being used (McCarthy, 1969; Mohadjer, Chu, Morganstein, & Rhoads, 1986) and was a topic in the analyst training which was provided under ACOMS. Similarly, tests for the significance of differences among segments and over time require BRR. Since the basic data are crosstabular, we expect to use a modified log-linear analysis procedure which provides a chi-square test for independence of crosstabulated variables. These procedures will be covered in a future analyst training session.

### Scale Construction

Literally hundreds of measures of audience response are available from the ACOMS youth interviews, and even the quarterly summaries

report on nearly 100 variables. For ease of summary and interpretation, an initial focus of analytical effort will be on developing scales of higher order constructs such as media habits, recall of advertising, and others. The scaling activity will begin following the second quarter of data collection. Building and refinement of scales will be a continuing activity as cross-sectional data accumulate and longitudinal data become available.

Scale construction is an iterative process beginning with a priori expectations about which variables will form scales. The process can be described in the form of four basic steps.

- (1) The hierarchy of effects model served as the basis for defining the separate question modules that are included in the ACOMS interview. The first step in the scaling process, therefore, is to identify variables within each module that may be expected to form scales;
- (2) Correlational and factor analytic techniques can then be used to test the accuracy of these a priori expectations. These two analytic techniques will indicate which variables in each module reliably cluster together and the underlying dimensional structure on which the clusters rest;
- (3) Scaling expectations can then be refined on the basis of these results using item analysis. Some of the variables initially included in the scaling may be dropped and others may be added in attempts to identify the set of variables within each module that forms the best scale(s). Once again, correlational and factor analytic techniques will be used to test the scales' reliability; and
- (4) Finally, correlations among scales can be computed providing some evidence of construct validity. The modeling utility of the scales is addressed in Chapter 6.

Throughout, the scale construction activity is likely to be driven by compromises between simplicity and accuracy. On one hand, fewer scale summaries of particular constructs are preferred over more of them. Thus, we would prefer to have a single index of, for example, knowledge of Army offers. On the other hand, however, if the scaling results suggest that the intercorrelations of knowledge of offers items differ by component, it is misleading to sum the various knowledge items to produce a single knowledge of offers index. Further, this summed scale would be unlikely to correlate with other items of interest reliably or to track consistently over time. This requirement does not imply that a single scale is useless if levels of knowledge of offers differ by component, but rather only if the correlations among items differ, since the latter might imply that knowledge of, for example, ROTC offers could not be predicted from knowledge of Reserve offers.



### Trend Analysis

Interpretation of aggregate level change will require cross-sectional comparisons of variables and scales over time. The goal will be to identify emerging trends in the responses of prospect market groups to Army advertising. Charting predictable seasonal trends as they relate to advertising plans and recruiting missions will also be required, both as an end in itself and also to distinguish between seasonal and secular trends. This latter analysis, obviously, cannot begin until the second year.

In the first year, analysis of trends from quarter to quarter will not, in principle, differ from analysis of differences among segments within a quarter, simply because we will not have enough data points to treat time as a continuous variable. Thus, methods such as log-linear modeling and analysis of variance which can accommodate discrete variables will be employed for the trending analysis.

Beginning in the second year of data collection, more sophisticated trending methods can be utilized. We propose the use of statistical process control. This method essentially defines confidence boundaries around a set of data points. Interpretive rules are defined for deciding when observed changes represent emerging trends in the data as opposed to isolated events or random fluctuation. Names of these rules, such as "runs of 8" and "trends of 6," demonstrate the importance of numerous datapoints in the interpretation of emerging trends. Thus, the utility of statistical process control will increase over time.

The analysis of quarter by quarter change described above will focus primarily on prospect market segments within the Primary Male Sample (PMS). The sample size for these groups will be sufficiently large to permit quarterly analysis. It should be noted that analysis of certain additional groups, such as Hispanics and Blacks, can only be done on an annual basis because the sample sizes will be too small on a quarterly basis to supply reliable findings.

### Panel Analysis

As longitudinal data become available beginning in the second year of data collection, panel analysis techniques will be used to explore questions related to individual level change. As with the trend analysis, greater confidence will be achieved in panel analysis results as data accumulate. Although panel analyses can be informatively conducted following two waves of data collection, it is generally agreed that three waves are needed for estimation of the reliability of measures.

Analysis of the panel data will not only allow us to evaluate issues of individual change relevant to the hierarchy of effects model such as lagtime between intention to enlist and enlistment-related actions but it will also permit exploration of the stability of prospect market segments and the effects of segment shifts on individual's responses. For example, a high school student's shift from

work-orientation to college-orientation may be expected to be accompanied by appropriate changes in the importance and awareness of particular Army offers such as money for college.

One important goal of the panel analysis will be to identify predictable life-cycle changes and explore their effects on response to Army advertising by market segment. Results of the longitudinal analysis will then be compared to the cross-sectional data to determine if cross-sectional samples accurately represent life-cycle change. This activity will be part both of the tracking activity and the modeling effects of advertising discussed in Chapter 6 (Gaertner, 1988).

#### Tracking Prospect Market Segments

The Army's dual-market concept generates expectations about the effects of each trimester's promotional advertising on specific prospect market segments. For each prospect group, we would anticipate increases in perceptions of specific Army attributes and knowledge of relevant recruiting offers during the time the group is focused on as a key market segment. Attention to change across quarters in the knowledge and perceptions of the prospect market segments will permit close examination of these expectations. It will also allow tracking of the relationship between the knowledge and perception of Army attributes and enlistment-related propensity and behavior, information that is crucial for identifying the lag time between advertising and behavior. Attention to changes in media habits and advertising recall will also be of value in determining where improvements can be made in the media advertising plan.

Using the information we currently have available, we have mapped the trimester advertising plan onto the quarterly recruiting missions to identify primary prospect market segments for each quarter. Since trimesters and quarters do not overlap perfectly, there are relatively strong secondary prospect markets for some quarters as well. The main prospect market is comprised of four groups within the PMS: (a) high school graduates not currently enrolled in college or vocational training, (b) work-oriented high school students, (c) college-oriented high school students, and (d) college freshmen and sophomores. The current primary prospect market segments for each quarter are:

- (1) Fall quarter (October, November, December)--High school graduates not currently enrolled. College freshmen and sophomores and college-oriented high school students are strong secondary prospects during the latter part of this quarter;
- (2) Winter quarter (January, February, March)--College-oriented high school students;
- (3) Spring quarter (April, May, June)--Work-oriented high school students; and

- (4) Summer quarter (July, August, September)--High school graduates not intending to enroll in college.

The quarterly prospect listed above are subject to change as the Army's marketing plans change.

Although the four groups will be the main focus of the tracking effort, additional market segments will be monitored as well. The entire youth sample will be categorized by sex. In addition, the Primary Male Analytic Sample (PMAS) will be grouped first by brigade and second by one-year age groupings. Thus, questions concerning sex differences in the full sample as well as area and age differences among PMAS youth will also receive analytic attention on a quarter by quarter basis.

#### Module-By-Module Description of Analytic Activities

This section specifies in some detail the specific variables in each module that are being tracked. It also includes sample questions to be addressed by scale construction, trend and panel analysis within each module.

#### Intentions to Enlist

Two batteries of questions are being used to measure intention to enlist--questions measuring unaided responses indicating Army enlistment intentions, and aided responses in which the youth states that enlistment in the Army is a probable or definite likelihood.

#### Unaided Intention

IP-1: Now let's talk about your plans for the next few years. What do you think you might be doing? (If answers "Joining the Military or Service") IP-3: You said you might be joining the military. Which branch of the service would that be? (If answers "Army") IP-4: Which type of service would that be? (Code "Active," "Reserve," "National Guard").

#### Aided Intention

IP-8: How likely is it that you will be serving on active duty in the Army?

IP-9: How likely is it that you will be serving in the Army National Guard?

IP-10: How likely is it that you will be serving in the Army Reserve?

IP-11A: How likely is it that you will receive an officer's commission through participation in the Army Reserve Officers' Training Corps or Army ROTC?

Response categories for unaided intention range from "definitely" (scored 1), "probably" (scored 2), "probably not" (scored 3), "definitely not" (scored 4).

For the unaided intention questions, a general intention to enlist in the Army is measured by a response pattern indicating that the respondent intends to join the military and specifically the Army. For the aided intentions questions, a general intention to enlist in the Army is considered positive if the respondent answered "definitely" or "probably" to any of the components. The question wordings and scoring for aided intention are similar to parallel questions in Youth Attitude Tracking Study II (YATS II), (Research Triangle Institute, 1985), modified for Army use. Figure 4 presents the quarterly reporting table shell for intentions.

#### Scale Construction

Scale construction activities will be directed first to validating the aided general intention measure, by determining whether respondents describing themselves likely to enlist in one component are likely to enlist in any Army component. A second activity will be to determine whether aided intention is closely associated with unaided intention, both for general Army enlistment and for the particular components. A third activity will be to determine whether Army enlistment intentions are closely associated with intentions to enlist in other services. These latter two scales will not be reported quarterly, at least initially.

#### Importance of Army and Component Attributes

The ACOMS youth questionnaire asks all youth to rate the importance of 19 attributes of the Army and its components in regard to his or her plans for the near future. Army components include (a) active Army (Active); (b) Army Reserve (USAR); (c) Army National Guard (ARNG); and (d) Reserve Officers' Training Corps (ROTC). The importance statements are:

IA-1: In thinking about your plans for the next year, please tell me how important it is that you have opportunities for the following things?

- (1) Having a wide variety of opportunities to find a job you can enjoy? (Active) (USAR) (ARNG) (ROTC)
- (2) Having a physical challenge? (Active)
- (3) Having an experience you can be proud of? (Active) (USAR) (ARNG) (ROTC)
- (4) Having a stepping-stone between high school and college? (Active)
- (5) Developing leadership skills? (Active) (USAR) (ARNG) (ROTC)

DA Form 100-106  
 TABLE 1  
 PERCENTAGE WITH INTENTION TO ENLIST IN ARMY COMPONENTS  
 (Standard Error)

SAMPLE CATEGORIES	Intention to Enlist			
	General Intention	Unstated Intention	General Intention	Army BOIC
SEXUAL ORIENTATION: MALE (PMAS + PMS)				
FEMALE (PTAS + PFS)				
EDUCATIONAL BACKGROUND:				
PMAS: College Freshman and Sophomores				
U.S. Students (College Oriented)				
U.S. Students (Work Oriented)				
U.S. Graduates Not Currently Enrolled				
1st ACIG Bde				
2nd ACIG Bde				
4th ACIG Bde				
5th ACIG Bde				
6th ACIG Bde				
16 17 Years Old				
18 19 Years Old				
20 21 Years Old				
22 24 Years Old				
TOTAL PMS				

Figure 4. Table shell for Quarterly Report Data Table 1.

- (6) Working with the latest high-tech equipment? (Active)
- (7) Helping your career development? (Active) (USAR) (ARNG)
- (8) Developing self-confidence? (Active) (USAR) (ARNG) (ROTC)
- (9) Developing your potential? (Active) (USAR) (ARNG)
- (10) Having a mental challenge? (Active) (USAR) (ARNG)
- (11) Becoming more mature and responsible? (Active) (USAR) (ARNG)
- (12) Training in useful skill areas? (Active) (USAR) (ARNG)
- (13) Working with highly-trained people? (Active) (USAR) (ARNG)
- (14) Earning money for college or vocational education? (Active) (USAR) (ARNG)
- (15) Serving your country?
- (16) Having interesting and exciting weekends? (USAR) (ARNG)
- (17) Working part-time? (USAR) (ARNG)
- (18) Living in your own hometown? (USAR) (ARNG)
- (19) Being able to make changes and use your own judgment (ROTC)

The statements were presented in order with a random start to minimize systematic biases associated with response set. Response categories ranged from "not at all important" (scored 1) to "very important" (scored 5). Figure 5 presents the quarterly report table shell for importance of attributes. (Importance data for ROTC is reported in Table 10 which also reports ROTC perceptions data. A more detailed account of this table is given in the next section.)

#### Scale Construction

Scale construction activities will initially be directed to two related problems -- what is the structure of needs of American youth, and how do these needs relate to perceptions of the Army and its components? The progress toward answering these two questions is likely to be iterative, beginning with factor analyses of the importance items for the PMAS, comparing these with corresponding results for perceptions of the Army and its components, then observing whether observed importance factors are constant across recruiting market

01 Nov 67 106

TABLE 2

PERCENTAGE RATING OPPORTUNITIES "IMPORTANT" OR "VERY IMPORTANT" TO PLANS FOR THE NEXT YEAR  
(Standard Error)

Importance of Attributes

Attribute	Job Variety	Physical Challenge	Practical Experience	Precedence	Step-Down Leader	High Tech	Civilian	Self-Development	Mental Retardation	Skills	Well-Trained	Money	Service	Exciting Part-Time Live In	Work	Domestic	or	
<b>CHALLENGE INDEX I:</b>																		
Male (90% ± 5%)																		
Female (97% ± 5%)																		
<b>TOTAL CHALLENGE INDEX I</b>																		
<b>Post:</b>																		
College Freshman and Sophomore																		
U.S. Students (College Seniors)																		
U.S. Students (Work Students)																		
U.S. Graduates Not Currently Employed																		
1st Sgt 04e																		
2nd Sgt 04e																		
4th Sgt 04e																		
5th Sgt 04e																		
6th Sgt 04e																		
14-17 Years Old																		
18-19 Years Old																		
20-21 Years Old																		
22-24 Years Old																		
<b>TOTAL POST</b>																		

Figure 5. Table shell for Quarterly Report Data Table 2.

segments and whether perceptions and importance factors correspond within as well as across segments.

This iteration is made possible by the parallel construction of the perceptions and importance items, which was, in turn, suggested by the hierarchy of effects model. Thus for all questions asking perceptions of the Army's components, we have corresponding questions asking how important this attribute is to the respondent.

The first issue in importance scale construction is descriptive--how do the various attributes hang together? The dual market theory suggests that motivations will be divided into instrumental (e.g., skill training, job characteristics) and future-enabling (e.g., developing potential, leadership skills). Other clusterings might separate comparatively instrumental values from patriotic ones, or educational from occupational values. Other arguments have separated factors pulling recruits into the service from those pushing them from their current situations. The first step in scale construction will be to factor analyze the importances to assess what clusterings of the attributes are most descriptive.

A second issue involves relating structures of perceptions to those of importance. As noted in previous sections, Fishbein and Azjen (1975) place critical reliance on the products of importance and perceptions (in their terms evaluations and beliefs, respectively) in predicting attitudes and subsequent behavior. Thus, assessing correspondence between the structures of youth values and perceptions is a critical analytical task for subsequent model development.

#### Perceptions of Army and Component Attributes

The ACOMS youth questionnaire asks the respondent to agree or disagree with statements describing attributes of the Army and its components as well as the military in general, other services, college and work. Since not all of the attributes were equally relevant to all of the Army components and since space in the interview was at a premium, the SAG allocated perceptions to the Army components. The statements used in the first quarter of data collection were later modified slightly. The statements presented are those used in the second quarter and following (relevant components in parentheses). The statements are:

The (SERVICE) offers...

- (1) A wide variety of opportunities to find a job you can enjoy. (active and other services) (USAR) (ARNG) (ROTC)
- (2) A physically challenging environment. (active and other services)
- (3) An experience you can be proud of. (active and other services) (USAR) (ARNG) (ROTC)



- (4) An advantage over going right from high school to college.  
(active and other services)
- (5) An opportunity to develop leadership skills. (active and other services) (USAR) (ARNG)
- (6) The chance to work with the latest high-tech equipment.  
(active and other services)
- (7) A great value in your civilian career development. (active and other services) (USAR) (ARNG)
- (8) An opportunity to develop self-confidence. (active and other services) (USAR) (ARNG) (ROTC)
- (9) The opportunity to develop your potential. (active and other services) (USAR) (ARNG)
- (10) A mentally challenging experience. (active and other services) (USAR) (ARNG)
- (11) An opportunity to become more mature and responsible.  
(active and other services) (USAR) (ARNG)
- (12) Many opportunities for training in useful skill areas.  
(active and other services) (USAR) (ARNG)
- (13) Many chances to work with highly-trained people. (active and other services) (USAR) (ARNG)
- (14) An opportunity to obtain money for college or vocational school. (active and other services) (USAR) (ARNG)
- (15) An opportunity to serve America while living in your own hometown. (USAR) (ARNG)
- (16) Interesting and exciting weekends. (USAR) (ARNG)
- (17) An excellent opportunity for part-time work. (USAR) (ARNG)
- (18) Leadership and management training. (ROTC)
- (19) A college elective that can be taken together with other college courses. (ROTC)
- (20) An officer's commission in the active Army, Army Reserve, or the Army National Guard. (ROTC)
- (21) The opportunity to use your college acquired skills. (ROTC)
- (22) The opportunity to make changes and use your own judgment.  
(ROTC)

The statements are presented in order with a random start to minimize systematic biases associated with response set. Response categories range from 1 to 5 where 1 means strongly disagree, 2 means disagree, 3 is neither agree nor disagree, 4 is agree and 5 is strongly agree. Each respondent is asked about two or at most three components/services/other. These sets of attribute statements are "chained" together such that statements which are common to each set are asked at the same time. For example, if the respondent receives active Army and Reserve statements, the interviewer says, "The Army offers you a physically challenging environment," then follows with, "How about the Reserve?" (During the first quarter of data collection, respondents were asked the full set of attributes for one component/service/other before continuing to the next component/service/other.)

The format for the perceptions tables varies somewhat among the Army components. The active Army table is in the same format as the other tables in the quarterly report. The tables for the Reserve and National Guard report only totals for the main recruiting market groups because sample sizes are not sufficient to allow reliable estimates for the smaller subcategories. The main recruiting markets consist of the Primary Male Analytic Sample (PMAS), the Secondary Male Sample (SMS), the Primary Female Analytic Sample (PFAS), the Secondary Female Sample (SFS), the Total Recruiting Market, and the Total Primary Male Analytic Sample (PMAS). The ROTC table reports data for the ROTC sample which includes only College Juniors and Seniors, College Freshmen and Sophomores and High School Students College-oriented because these groups represent the prime ROTC market. The table also presents data by ROTC region rather than recruiting brigade, and reports both ROTC perceptions and corresponding importance items for the ROTC sample. Figures 6 through 9 present the table shells for the quarterly reports on perceptions.

#### Scale Construction

Rather than asking the respondent to provide his or her image of the military in general or the Army and its components in particular, the statements elicit the respondent's perception of the accuracy of major military advertising copy points. The scale construction activity should produce preliminary measures of the extent to which the Army's advertising and that of the components has been able to project distinctive images of their offers and attributes.

The first scale construction step will be to factor analyze the perceptions measures for all services. While the discussion which follows assumes factor analytic procedures, multidimensional scaling may be more appropriate. Both methods will be explored. Further, in all likelihood, smaller factor analyses will likely precede the large one described below. Correlations among perceptions of attributes within component can be estimated quite directly. Correlations among perceptions across components/services can be estimated because perceptions of each pair of components/services was asked of some subset of respondents. Before proceeding, two caveats should be noted. First, no respondents were asked solely about other services,

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TABLE 3

Perceptions Active Army

PERCEIVED "ADEPT" OR "SIMILARLY ADEPT" WITH ACTIVE ARMY ATTRIBUTE STATEMENTS  
(Standard Error)

ADJECTIVE	PERCEIVED "ADEPT" OR "SIMILARLY ADEPT" WITH ACTIVE ARMY ATTRIBUTE STATEMENTS (Standard Error)	PERCEPTIONS	ACTIVE ARMY
MALES (FAS + SAS)	Job variety Physical Challenge Experience as S. Col. Skills Equipment Leader at Tech Station Career Confidence Potential Challenge Responsible Training Co-workers for Sd.		
DEVELOPMENTAL NEEDS:			
MALES (FAS + SAS)			
FEMALE (FAS + SAS)			
DEVELOPMENTAL NEEDS:			
MALES:			
College Graduates and Superiors			
U.S. Students (College Oriented)			
U.S. Students (Work Oriented)			
U.S. Graduates Not Currently Enrolled			
1st Acig 04p			
2nd Acig 04p			
4th Acig 04p			
3th Acig 04p			
6th Acig 04p			
16-17 Years Old			
18-19 Years Old			
20-21 Years Old			
22-24 Years Old			
TOTAL MALES			

Figure 6. Table shell for Quarterly Report Data Table 3.

Oct. Nov. Dec. 1966

Perceptions Army Reserve

TABLE 4  
 PERCENTAGE "AGREE" ON "STANDARD AGREE" WITH AMT BELONG ATTRIBUTE STATEMENTS  
 (Standard Error)

SAMPLE GROUPS	N	Job Variety	Proud Experience	Leader Skills	Civilian Career	Self Confidence	Develop Potential	Moral Challenge	Mature & Responsible	Skill Training	Well-trained Co-workers	Money for Ed.	Exciting Work	Part Time	Live in	
MALES (PMAS + SMAS)																
FEMALES (PFAS + SFAS)																
TOTAL RECRUITING MARKET																
TOTAL PMAS																

Note: Starred column indicate variable added 62.

Figure 7. Table shell for Quarterly Report Data Table 4.

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**TABLE 5**  
**PERCENTAGE "AGREE" OR "STRONGLY AGREE" WITH ARMY NATIONAL GUARD ATTRIBUTE STATEMENTS**  
 (Standard Error)

Perceptions Army National Guard

SAMPLE GROUPS	N	Job Variety	Proud Experience	Leader Skills	Civilian Career	Self Confidence	Development Potential	Mental Challenge	Mature & Responsible	Skill Training	Well-Trained Co-workers	Money for Ed.	Exciting Work	Part-Time Work	Live in Homes	N <sup>o</sup>
MALES (PMAS • SWS)																
FEMALES (PFAS • SFS)																
TOTAL RECRUITING MARKET																
TOTAL PMAS																

Notes: 5 error columns indicate variables added 82.

Figure 3. Table shell for Quarterly Report Data Table 5.

TABLE 6

PERCENTAGE "AGREE" OR "STRONGLY AGREE" WITH ARMY ROTC ATTRIBUTE STATEMENTS  
 PERCENTAGE RATING ROTC OPPORTUNITIES "IMPORTANT" OR "VERY IMPORTANT" TO PLANS FOR THE NEXT YEAR  
 (Standard Error)

SAMPLE GROUPS	ROTC PERCEPTIONS										ROTC IMPORTANCE					
	a1	Leader/Trnng	Self Conf	College Elect	Officer's Com	Job Variety	Prud Exp	Use Coll	Use Own Skills	Use Own Judgment	a2	Leader Skills	Self Conf	Prud Exp	Use Own Judgment	a*
ROTC MALE SAMPLE: College Juniors and Seniors																
College Freshmen and Sophomores																
F. S. Students (College Freshmen)																
1st ROTC Region																
2nd ROTC Region																
3rd ROTC Region																
4th ROTC Region																
16-17 Years Old																
18-19 Years Old																
20-21 Years Old																
22-24 Years Old																
TOTAL ROTC MALE SAMPLE																
TOTAL ROTC FEMALE SAMPLE																
TOTAL ROTC SAMPLE (MALES + FEMALES)																
TOTAL PMA																

Note: starred column indicates variable added a2.

Figure 9. Table shell for Quarterly Report Data Table 6.

so that the correlations between Navy attributes and Air Force attributes, for example, cannot be estimated without strong assumptions. Second, this overall correlation matrix may have to be smoothed if the correlation matrix is not positive semi-definite.

Several possible classes of results of the factor analysis suggest themselves. First, it may be that youth favorable to any service or component will be favorable to all of them, and that youth favorable to any attribute will favor all of them (and the converse). This result would reflect a relatively undifferentiated picture of military service, either in terms of service images or attributes of military life ("Military life is either good or bad"). A factor analysis of all attributes for all components/services would reflect a single dominant factor. In a sense, this represents the simplest of results, and the nullest of null hypotheses. Another cause of these results might be response set. Our modifications to the Fall 1988 instrument were in part devoted to minimizing this possibility.

Beyond this simple case, the results might increase in complexity several ways. First, it may be that respondents are "brand loyal"--that is, for example, respondents favorable about any Army attribute are favorable about all of them. Extended to all services, this state of affairs would be reflected in factors being extracted from the overall factor analysis which referred not to attributes but rather to services, yielding an "Army" (or component) factor, an "Air Force" factor, and so on. Second, it may be the case that respondents who saw an attribute in one service would see it in all of them (and the converse), yielding factors which were attribute specific rather than service specific. This would suggest a fairly differentiated picture of the attributes of the military ("military life offers some things but not others"), but little differentiation among services. Third, it may be that the factor analysis will show distinctive service by attribute clusters, a highly differentiated picture ("The Army offers skill training and money for education, while the Navy offers ..."). Fourth and finally, it may be that different market segments will perceive different service by attribute clusters. Thus, for example, work-oriented prospects might think that the Army offers distinctive skill training while college-oriented prospects might think the Army has a distinctive money for college offer. These latter results are the basis of the dual market theory.

The classes of results above are presented in increasing order of complexity, from one factor (an undifferentiated attitude toward the military), to a few factors clustered by service (brand loyalty) or by attribute (a differentiated view of the military as a whole), to multiple service by attribute factors (distinctive service attribute packages), and finally multiple contingent service by attribute factors (different service attribute packages by market segment). Scale construction results should mirror this complexity, while attempting to provide a parsimonious description of the results.

### Enlistment-Related Behaviors

Enlistment-related behaviors are being assessed using the following battery of questions:

BE-1: In the past six months, have you talked with anyone about possibly joining the Army? (If answers "yes") BE-2: With whom have you talked? (If answers "recruiter") BE-8: Was the recruiter an Army recruiter?

BE-7: In the past six months, have you talked to an Armed Forces recruiter about military service? (If answers "yes")

BE-8: Was the recruiter you spoke with an Army recruiter?

BE-10-12: In the past six months, have you...

- a. responded to an Army ad by calling a toll-free number or sending for a gift?
- b. visited an Army recruiting station?
- c. taken a written test used for the Army, such as the Armed Services Vocational Aptitude Battery?

Figure 10 presents the table shell for the monthly reports on enlistment-related behaviors.

### Scale Construction

The intent of the scale construction activity for enlistment-related behaviors is to develop a set of milestones measuring progress toward enlistment. Our approach in building this scale will be to sum the responses and determine which of the measures (if any) does not seem to fit an overall scale.

In addition, the interview asks for respondent behaviors with respect to entering college and securing civilian employment. College-related behaviors include thinking or talking about going to college, taking admissions tests, or submitting college applications. Job-related behaviors include thinking or talking about getting a full-time job, visiting employers, or applying for a job. While these behaviors will not be reported quarterly, we expect to construct milestone scales for college- and employment-related behaviors which will parallel the scale for enlistment-related behaviors. These scales in combination should allow us to describe the process of posthigh school life choices for ACOMS respondents, and provide clues for likely and unlikely prospect markets.



PRECEDING TAKING ACTIONS RELATING TO ENLISTMENT DURING THE PAST SIX MONTHS  
(Standard Error)

GROUP	Failed to appear of joining Army	Talked to an Army Recruiter	Taken ASAB	Visited Army Recruiting Station	Tell-Free Call Sent for Gift
MALE (PMAS + SWS)					
FEMALE (PFAS + SFS)					
TOTAL RECRUITING STATION					
PMAS:					
College Freshmen and Sophomores					
U.S. Students (College Oriented)					
U.S. Students (Not Oriented)					
U.S. Graduates Not Currently Enrolled					
1st Actg Bde					
2nd Actg Bde					
4th Actg Bde					
5th Actg Bde					
6th Actg Bde					
16 17 Years Old					
18 19 Years Old					
20 21 Years Old					
22 24 Years Old					
TOTAL PMAS					

Figure 10. Table shell for Quarterly Report Data Table 7.

## Recall of Advertisements

### Specific Variables

Two sets of questions are included in the quarterly reports on recall of advertisements. First, unaided recall is being tracked as shown in the table shell in Figure 11. Four questions are used in tabulating the results contained in this table:

- (1) KR-1: Thinking about all forms of advertising, for which military service or services do you recall seeing or hearing any advertising?
- (2) KR-2: (Asked if the respondent indicates recall of ROTC advertising) You mentioned seeing or hearing advertising for the Reserve Officers' Training Corps. For which military service or services was this advertising?
- (3) KR-3: (Asked if the respondent indicates recall of National Guard advertising) You mentioned seeing or hearing advertising for the National Guard. For which military service or services was this advertising?
- (4) KR-4: (Asked if the respondent indicates recall of advertising for the Reserve) You mentioned seeing or hearing advertising for the Reserve. For which military service or services was this advertising?

Overall Recall levels for each of the branches/components of the military is being tracked by combining the above unaided responses with aided measures of recall elicited in questions KR-5 through KR-13. These nine questions are asked of respondents who did not spontaneously mention recalling advertising for the particular branches/components shown in the table shell in Figure 12. Each of the questions is worded: "Do you recall seeing or hearing any advertising for the <BRANCH/COMPONENT>?"

### Scale Construction

The scales to be constructed will depend heavily on the preliminary analysis. It may be, for example, that recall of military advertising depends heavily on which branch is being considered. It may even be that recall of Army advertising depends heavily on which component is being considered. In these cases, we expect to develop, as necessary, multiple measures of recall, branch- and/or component-specific.

Tracking unaided recall of each of the branches' and components' advertising will indicate the relative differences among recallability of advertising for each of the branches and components. Additionally, responses to aided recall questions will tell us how much the provision of branch/component names helps increase recallability for each. Another important question addressed by analysis of the recall items is the nature of differences among market segments in levels of

PERIODIC SURVEILLING MILITARY ADVERTISING  
(Standard Error)

SAMPLE GROUPS	ACTIVE	Army Components		Other Military Branches		NONE
		BOIC	AMSC	USAJ	USMC	
RECRUITING MARKET MALE (PMS + SPS)						
FEMALE (PMS + SPS)						
TOTAL RECRUITING MARKET						
Peak:						
College Freshmen and Sophomores						
U.S. Students (College Oriented)						
U.S. Students (Not Oriented)						
U.S. Graduates Not Currently Enrolled						
1st Reg Bde						
2nd Reg Bde						
4th Reg Bde						
5th Reg Bde						
6th Reg Bde						
16-17 Years Old						
18-19 Years Old						
20-21 Years Old						
22-24 Years Old						
TOTAL PMS						

Figure 11. Table shell for Quarterly Report Data Table 8.

Oct. - Nov. Dec. 1966

TABLE 9

Knowledge/Recall - Unaided plus Aided

PERCENTAGE SEEING/HEARING MILITARY ADVERTISING  
(Standard Error)

SAMPLE GROUPS	#	ACTIVE	Army Components ROTC AZMC USAR	USA/ NAVY USMC	Other Military Branches USCJ USCB	JAP
RECRUITING MARKET: MALE (PMAS + BMS)						
FEMALE (PFAS + BFS)						
TOTAL RECRUITING MARKET						
PMAS: College Freshmen and Sophomores						
U.S. Students (College Oriented)						
U.S. Students (Non-College Oriented)						
U.S. Graduates Not Currently Enrolled						
1st Bctg Bde						
2nd Bctg Bde						
4th Bctg Bde						
5th Bctg Bde						
6th Bctg Bde						
16-17 Years Old						
18-19 Years Old						
20-21 Years Old						
22-24 Years Old						
TOTAL PMAS						

Figure 12. Table shell for Quarterly Report Data Table 9.

unaided or overall recall of advertising for specific military branches and Army components and how recall varies over time within market segments.

Questions addressed by scaling include the overall question of what level of unaided recall of military advertising exists among 16- to 24-year-olds and how much recall is increased by the provision of branch and component names. Differences in the recall scales among market segments over time will be of interest at both the aggregate and individual levels.

#### Knowledge of Offers

The ACOMS youth interview asks a number of questions regarding respondent knowledge of Army offers, the answers to which can be scored as correct or incorrect. These questions, which will be tracked and reported quarterly, are (the correct answers are displayed in parentheses):

##### Active Army Knowledge

KA-7: Is it possible to earn money for college by enlisting in the Army? (Yes)

KA-1: (If answers "yes" to KA-7) How much do you think can be earned through Army education benefits? (\$15,000+)

KA-3: (If answers "yes" to KA-7) Do you think Army education benefits are more, less or about the same as the Navy, Air Force or Marines offer? (More)

KA-4: Please tell me whether or not each of the following offers the "GI Bill"? [List includes Army, Navy, Air Force, Marines.] (Each Offers)

KA-5: What is the minimum number of years that a new recruit has to serve on active duty in the Army? (2 Years)

KA-6: Is it possible to sign up for the Army and start serving up to one year later? (Yes)

##### Army Reserve and Army National Guard Knowledge

KA-8: Are 17-year-old high school juniors eligible to join the Army Reserve or Army National Guard? (Yes)

KA-9: (If answers "no" to KA-8) Is high school graduation required before joining the Army Reserve or Army National Guard? (No)

KA-10: Who sponsors the "Scholar-Athlete Award Program?" Is it the Marine Corps, National Guard, Army Reserve or Army National Guard? (Army Reserve)

KA-11: Can qualified people who join the Army Reserve or Army National Guard receive money for college? (Yes)

KA-12: (If answers "yes" to KA-11) What is the maximum amount of money for college that qualified people who join the Army Reserve or Army National Guard can receive under the "GI Bill"? (\$4,000-\$5,999)

Rather than presenting the responses for these questions in the quarterly reports, we will simply show the proportion answering each question correctly. Figure 13 presents the table shell for these items in the quarterly report. We expect that we will track knowledge of offers throughout the ACOMS project, but that the actual items being tracked may change over time.

#### Scale Construction

One summary measure to be produced might be the sum of the correct answers given to all of the questions above. Alternatively, the scale results may suggest that knowledge of offers clusters in terms of active versus Reserve and National Guard. In this case separate knowledge scales would be constructed.

The knowledge questions provide a measure of the comprehension of the offers of various components as they are described in advertisements--nearly all of the messages are copy-points currently or potentially in Army advertising. Questions of interest will relate to whether knowledge of offers varies seasonally and/or across key market segments or as copy points are added or deleted.

#### Media Habits

##### Specific Variables

Two sets of media habits questions are being regularly tracked--one having to do with likely exposure to Army advertising, and a second having to do with media consumption patterns.

The former proxy exposure measures include asking the respondent about the various types of television shows he or she frequently watches and about the various types of radio programs he or she frequently listens to. The question sets for television and radio habits are:

MH-12: Do you frequently watch any of the following types of TV shows?

- Sports
- Suspense or mystery
- General drama
- Music or music video
- Situation comedy
- TV movies
- Talk shows

TABLE 10  
 PERCENTAGE MEASURING KNOWLEDGE OF ARMY OFFICE AND SERVICE QUESTIONS CORRECTLY  
 (Standard Error)

Oct. Nov. Dec. 1964

SAMPLE GROUP	N	Total Education Benefits		Active Army Knowledge		Other GI Bill		Minimum Army Tour		Army Reserve and Army National Guard Knowledge 17 Year Old N. S. Scholar if Enlist Maximum Eligible Graduation Athlete Eligible for GI Bill to both Required Sponsor College 5 College 5
		Benefit	Benefit	Army	Other	Army	Other	Year	Year	
RECRUITING MARKET: MALES (PMAS - 804)										
FEN 15 (PTAS - 815)										
PERVA RECRUITING MARKET										
PMAS: College Freshmen and Sophomores										
U.S. Students (College Oriented)										
U.S. Students (Work Oriented)										
U.S. Graduates Not Currently Enrolled										
1st ACIG Sub										
2nd ACIG Sub										
4th ACIG Sub										
5th ACIG Sub										
6th ACIG Sub										
16 17 Years Old										
18 19 Years Old										
20 21 Years Old										
22 24 Years Old										
TOTAL PMAS										

Figure 13. Table shell for Quarterly Report Data Table 10.

MH-26: Do you frequently listen to any of the following types of radio programs?

News  
Classical music  
Pop  
Country  
Sports  
Talk shows  
Rock & roll  
"Easy listening"

Figure 14 shows the table shell for the quarterly reporting of media habits responses. These measures represent proxy measures of exposure to various types of media programming.

A second set of media habits questions relates to patterns of media consumption--that is, the levels and balance of media regularly monitored by the respondent. The questionnaire asks the youth whether he/she regularly watches television, listens to the radio, watches programs on a VCR, and reads magazines or newspapers and how many hours weekly for each. While these results will not be reported quarterly, they will have several potential uses. First, they may be used in the segmentation analyses to define groups partly on the basis of media consumption. Second, they relate to the overall modeling of advertising effects (Chapter 6, Gaertner, 1988). Third, we may use these measures to refine the analysis of exposure data from syndicated sources (Chapter 7, Gaertner & Baxter, 1988).

#### Scale Construction

In general, media habits scaling results may be specific to medium (e.g., print readers, television viewers, radio listeners) or perhaps can be summarized in a single index. That is, both for proxy exposure and media consumption patterns, it may be sensible to speak of an overall level of media and/or advertising exposure, or it may be more useful to break down the results in terms of print, television and radio media habits and exposure.

Questions to be addressed by examining patterns of media consumption include: What level of attention (in terms of time) do youth devote to media? How does the level differ across media? Are there differences among market segments in level of mass media attention? Are there segment differences in orientation to specific media? Are there seasonal trends in media orientation? Are there differences in level of media orientation at the individual level over time? Do these differences correspond with cross-sectional observations (e.g., age and educational groupings)?

Results of the scaling of likely exposure to Army advertising will address questions about levels of exposure among 16- to 24-year-olds given the Army's current advertising campaign. The relationship between likely exposure and education, sex, age, and region of residence will also be explored both in general and by medium. Other



PERCENTAGE BEGAINABLE VIEWING OR LISTENING TO ADAMS WITH ADVERTISING (Standard Error)

SAMPLE CATEGORIES	n1			n2			Media habits		
	Sports	Mystery	Drama	Music	Comedy	Novels	Talk	News	Other
ADULTS (Males + Females)									
MALE (Males + Females)									
FEMALE (Males + Females)									
EDUCATIONAL LEVEL:									
High School									
College Freshman and Sophomore									
U.S. Students (College Oriented)									
U.S. Students (Work Oriented)									
U.S. Graduate Not Currently Enrolled									
1st BC19 Bin									
2nd BC19 Bin									
3rd BC19 Bin									
4th BC19 Bin									
5th BC19 Bin									
6th BC19 Bin									
16-17 Years Old									
18-19 Years Old									
20-21 Years Old									
22-24 Years Old									
TOTAL PERCENTAGE									

Figure 14. Table shell for Quarterly Report Data Table 11.

questions that will be addressed include: What are the differences in likely exposure to ads of each of the Army's components? How does the level of likely exposure vary across seasons?

#### Scheduling and Deliverables

The main deliverables associated with tracking audience response are quarterly reports and briefings and annual report chapters. The first quarterly report was presented February 18, 1987 and contains data analysis from the first quarter of data collection (October, November, and December, 1986). Thereafter, reports will be presented mid-May, mid-August, and mid-November, 1987 with the annual report scheduled for October 30, 1987. Quarterly reports are briefed to the SAG and presented in narrative form. Subsequent years will continue this quarterly and annual schedule of report production.

The following subsections describe our plans for the format and content of these deliverable items.

#### Quarterly Reports and Briefings

The quarterly reports consist of two main sections: (a) an executive summary which highlights important findings from the quarter in terms of the key prospect markets for that quarter and the next defined by the dual market concept, the quarterly accession missions and the Army's advertising plans, and (b) a section of "top-line" data tables, providing results in summary form. The quarterly reports will also be accompanied by information cards and appendices to aid in interpretation.

#### Executive Summary

The first main section of the quarterly reports will focus on interpretation of the findings. As described earlier, we can use the dual-market concept to organize and interpret the main findings in each quarter.

The dual-market concept in combination with cyclic changes in accession missions defines target markets for each quarter--high school degree graduates (HSDGs) in quarter 1, college-oriented in quarter 2, work-oriented in quarter 3 and HSDGs not intending to enroll in college in quarter 4. The dual market concept also posits perceptions critical to the respective motivations of these key target markets, such as college-oriented high school students attracted by offers of college funding and normative appeals, work-oriented high school students by future-enabling work-oriented messages. In Table 5 we have mapped the Army attributes against these target market motivations. Finally, the dual-market concept helps to define the sorts of knowledge critical to enlistment related decision-making for the target markets. Table 6 maps the the knowledge questions asked in the ACOMS interview against the market segments defined by the dual market concept.

Table 5  
 Messages Directed to Prospect Markets as Measured by the Perceptions of  
 the Army Attributes Questions

Target Markets		
College-Oriented	Both	Work-Oriented
An opportunity to obtain money for college or vocational school	<sup>a</sup> An opportunity to develop leadership skills (ROTC <sup>c</sup> wording: leadership and management training)	Many opportunities for training in useful skill areas
An advantage over going right from high school to college	<sup>a</sup> An opportunity to develop self-confidence	A great value in your civilian career development
The opportunity to make changes and use your own judgment (ROTC <sup>c</sup> only)	<sup>a</sup> A mentally challenging experience	A wide variety of opportunities to find a job you can enjoy
A college elective that can be taken together with other college courses (ROTC <sup>c</sup> only)	A physically challenging environment	Interesting and exciting weekends
An officer's commission in the active Army, Army Reserve, or the Army National Guard (ROTC <sup>c</sup> only)	An experience you can be proud of	An opportunity to serve America while living in your own hometown
The opportunity to use your college acquired skills (ROTC <sup>c</sup> only)	<sup>b</sup> The chance to work with the latest high-tech equipment	
	An opportunity to become more mature and responsible	
	Many chances to work with highly trained people	
	The opportunity to develop your potential	
	An excellent opportunity for part-time work	

<sup>a</sup>Although targeted to both market segments, these messages are expected to have stronger appeal to the college-oriented segment. <sup>b</sup>Although targeted to both market segments, this message is expected to have stronger appeal to the work-oriented segment. <sup>c</sup>Reserve Officers Training Corps

Table 6  
 Messages Directed to Prospect Markets as Addressed by the Knowledge of  
 Army Offers Questions

Target Markets		
College-Oriented	Both	Work-Oriented
<p>Is it possible to earn money for college by enlisting in the Army?</p> <p>How much do you think can be earned through Army education benefits?</p> <p>Do you think Army education benefits are more, less or about the same as the Navy, Air Force, or Marines offer?</p> <p>Please tell me whether or not each of the following services offers the "GI Bill"?</p> <ul style="list-style-type: none"> <li>- Army</li> <li>- Air Force</li> <li>- Navy</li> <li>- Marines</li> </ul> <p>Can qualified people who join the Army Reserve or Army National Guard receive money for college?</p> <p>What is the maximum amount of money for college that qualified people who join the Army Reserve or Army National Guard can receive under the "GI Bill"?</p>	<p>What is the minimum number of years that a new recruit has to serve on active duty in the Army?</p> <p>Is it possible to sign up for the Army and actually start serving up to one year later?</p> <p>Who sponsors the "Scholar-Athletic Award" program? Is it the Marine Corps, National Guard, Army Reserve, Air Force, or Navy?</p>	<p>Are 17-year-old high school juniors eligible to join the Army Reserve or Army National Guard?</p> <p>Is high school graduation required before joining the Army Reserve or Army National Guard?</p>

The dual-market concept in combination with the ACOMS interview data allow retrospective and prospective assessment of the Army's advertising on a quarterly basis. Retrospectively, the theory suggests that if the advertising were successful, the work-oriented knowledge of offers and perceptions of Army attributes should increase in the first quarter for non-enrolled high school graduates, that the college-oriented knowledges and perceptions of college-oriented high school students should increase in the second quarter, and that the work-oriented knowledges and perceptions of work-oriented high school students should increase in the third quarter. These expectations may be excessive, but they do provide measurable milestones against which we can assess advertising performance.

The dual-market theory also provides diagnostic indicators of the likely receptivity of target markets in upcoming quarters. Since, for example, much of the accession mission of quarter 2 is allocated to I-III high school seniors, the extent to which first quarter results indicate favorable perceptions among college-oriented high school students should be of interest.

We should note several caveats in these retrospective and prospective assessments. First, it is not clear how much perceptions of Army attributes will vary from quarter to quarter, or how much advertising can affect them. Obtaining answers to these questions is why ACOMS was developed. Second, the target markets are themselves not fixed and immutable. It is likely, for example, that many high school seniors will, in the early part of the school year, consider themselves "college-oriented" before the exigencies of college admissions and funding have been seriously considered. Third, the question of how favorable is favorable enough is a real one and will only become clearer with time. Nonetheless, the process of hypothesizing and tracking results in line with the dual-market theory should allow much clearer assessments of Army advertising than would otherwise be the case.

#### Data Tables Section

The data tables section will feature the 11 full data tables and the 3 tables of monthly PMAS totals, and any additional tables approved by the Contracting Officer's Representative (COR) and the SAG. Copies of the 11 data table shells are shown in Figures 4 through 14. These tables provide estimates of levels of media habits, recall, knowledge, perceptions, enlistment-related behaviors and intentions to enlist in the Army broken out by market segments as shown. The PMAS monthly totals are for enlistment-related intentions, perceptions of active Army and unaided recall of military advertising.

The main focus of this section is to provide "quick readings" of where respondents stood with respect to critical variables during the quarter. However, summary statements about observed changes across quarters will also be included in this section when appropriate. This section may expand as scaling results become available. Tables and/or graphical representations of scales with accompanying text may be added when available, after discussion with the COR and the SAG.

### Information Cards and Appendices

In addition to the two main sections, each quarterly report includes information cards for each of the 11 main data tables. These cards provide information on respondents, special notes and cautions and a question key which details "at a glance" the exact wording of each question item and its accompanying table column headings and variable names. A set of appendices containing useful reference materials on ACOMS sampling, the weighting of data, computation of standard errors, and a list of reference sources is also included. The quarterly reports are reproduced on three-hole punched paper so that one binder will hold all reports for one year plus the entire set of reference appendices.

### Annual Reports

The tracking results for the year will also provide a chapter in the annual reports. This chapter can have several purposes. The first is to summarize the trends for the year in terms of media habits, knowledge, recall, perceptions, intentions and behaviors in a more holistic way than is possible in the quarterly reports. A second is to compare the results for the current year to those in the previous year as these data become available. This activity will be of particular interest as the panel data become available. A third purpose is to address topics that are distinctively related to tracking--estimates of seasonality of particular items and scales, and estimates of secular trends which are noncyclic.

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### 3. MARKET SEGMENTATION ANALYSES

Michael J Wilson

#### Introduction and Overview

Market segmentation is the process of classifying individuals into homogeneous groups based on the similarity or dissimilarity of respondent characteristics (Sands & Warwick, 1981). As such, segmentation analyses form an important part of the overall Army Communications Objectives Measurement System (ACOMS) analysis. Efficient segmentation of the youth market can help the Army locate promising prospect groups, tailor advertising executions and placements to them and track the achievement of communications objectives.

Several unique features of the Army complicate segmentation analysis. First, the Army's market segments are defined in terms of respondent attitudes and buying motives and in terms of socio-demographic attributes of the respondent such as entry Test Score Category (TSC), race, gender, age, etc., or both. Second, the various Army components can be expected to require different segments and segmentation strategies regardless of whether the segments are defined demographically or attitudinally. Third, the task requires that we both analyze the existing segmentation strategies of the Army and its components, and develop new segmentation strategies in support of Army advertising. In this chapter we outline our approach to these challenges.

The market segmentation analyses discussed in this chapter constitute a natural extension of the activities described in Chapter 2 (Gaertner, Keil, & Gay, 1988). Continuing this earlier focus, the segmentation analyses will consider how key current market segments vary with regard to media habits, knowledge of active Army and component offers, recall of Army advertisements (aided and unaided), perceptions of active Army, Reserve Officers' Training Corps (ROTC), Army Reserve (USAR) and Army National Guard (ARNG) attributes, and enlistment-related intentions and behaviors. The market segmentation analyses will focus directly on the multivariate characteristics of market segments while simultaneously extending analytic activities to include the assessment of new segmentation strategies. Specifically, the questions the market segmentation analyses will address are:

- (1) How well do current predominantly sociodemographic segmentations isolate the needs, perceptions, propensities, and behaviors of American youth?
- (2) How do important market segments differ among components? Do segments defined for the active Army differ in attitudes toward reserve components?
- (3) Do alternative more efficient segmentation strategies exist? More specifically, can sociodemographic and attitudinal data be combined to produce homogeneous respondent clusters?



- (4) How do these combined sociodemographic and attitudinal segmentation strategies differ among the various components?
- (5) How stable are the segmentation results over time?
- (6) How can the various segments defined be utilized to target advertising messages and placements and to support recruiting missions?

These questions will structure the ACOMS market segmentation analyses. They address, first, the utility of existing segmentations overall and differentially by component, and, second, the development of new segmentation strategies based upon respondent needs, habits, perceptions, propensities, and behaviors, again, overall and by component. The last question constitutes an overarching concern of any market segmentation analysis--how the results can be used to direct advertising, marketing and sales efforts.

We begin this chapter by describing our approach to the segmentation analyses. Then a more detailed account of year 1 analyses is presented. This discussion is divided into two parts: (a) assessing current segmentation strategies, and (b) developing new segmentation strategies. For each, we first discuss a general approach to be applied to active Army segmentations and then analytic procedures for extending the results to the ROTC, ARNG and USAR. The discussion of year 1 activities is then augmented by an overview of year 2 analytic extensions.

#### Approach

Our approach to the market segmentation analyses is divided into two separable, but related, parts. The first is designed to describe current market segmentation strategies. In performing these investigations, we will: (a) develop tabular descriptions of current segments, (b) describe and summarize relationships between market segments and important demographic, attitudinal, and intentional/behavioral characteristics, (c) assess differences in knowledge and perceptions of Army components in terms of existing segments and (d) assess the stability of descriptive findings throughout the data collection year. This assessment of current market segments is closely integrated with the tracking efforts described in Chapter 2 (Gaertner et al., 1988).

The second set of activities, directed toward the development of new market segments, will proceed somewhat differently. Rather than beginning with established market segments and moving to a comprehensive description of their relevant demographic, attitudinal, and intentional/behavioral characteristics, this second approach will begin with an examination of salient respondent characteristics and then work "backwards" to a formulation of market segments. Outlined as a series of steps, this analysis will: (a) classify respondents into "natural" clusters or groups based on attitudes and values (b) describe the clusters in terms of targetable characteristics such

as demographics or future plans (i.e., work-oriented, college-oriented) in order to define the new market segmentations, and (c) assess the stability of new segment characteristics throughout the data collection year.

In addition to the close relationships between the segmentation analyses and the tracking results noted above, the segmentation analyses can also be seen as the obverse of the brand differentiation analyses described in Chapter 4 (Wilson, 1988). If market segmentation describes the structure of demand for Army enlistment and the ways in which youth view the Army, brand differentiation describes the structure of supply of Army enlistment and the ways that Army components hope to be viewed by prospect youth. The dynamics of this joint positioning are addressed more directly in Chapter 6 (Gaertner, 1988).

#### Analysis of Current Market Segmentation Strategies

The analysis of current market segmentations will be the first of the year 1 activities and will proceed in a three-stage, incremental fashion. The steps to be taken are:

- (1) Tabular descriptions of market segments in terms of their demographic, psychological, and behavioral characteristics as appropriate;
- (2) Examination of the results for the various Army components to determine whether unified or separate segmentation strategies are required; and
- (3) Assessment of the stability of findings obtained in steps 1 and 2 throughout the data collection year.

Within each of these steps, initial analytical efforts will be directed to the active Army. Subsequent activities within each step will seek to replicate and extend the findings to provide results which are of relevance to the ROTC, USAR and ARNG.

In the sections following, these steps are described in greater detail.

#### Tabular Descriptions

As discussed in Chapter 2, an initial cut at the active Army segmentation strategy is based on three factors: the dual-market concept (i.e., work-oriented and college-oriented high school seniors), the trimester advertising strategy which varies the mix of advertised communications between "core" and "targeted" messages, and the differential education and quality foci of quarterly recruiting missions. Thus the main active Army prospect market is comprised of four market segments within the Primary Male Analytic Sample (PMAS):

- (1) High school graduates not currently enrolled in college or vocational training,

- (2) Work-oriented high school students,
- (3) College-oriented high school students, and
- (4) College freshmen and sophomores.

These segments will constitute one of the more important current market segmentations examined in the analysis. In order to distinguish this segmentation from others discussed, it will be termed the main active Army prospect segmentation. Crosstabulations of major ACOMS variables by main active Army prospect segmentation will be made available in the quarterly reports.

The active Army also segments its prospect market according to gender, race, age and recruiting brigade. These segmentations will also be examined and, except for race, which is unavailable because of the small numbers of nonwhites in the quarterly sample, provided in the quarterly reports.

The segmentation strategies of the reserve components appear to yield similar groupings, but emphasize different markets. Among youth, for example, the ROTC defines high school juniors and seniors and college freshmen and sophomores as its main markets. ROTC results will also be examined in terms of the ROTC recruiting regions. Additional segments defined in terms of college major may not be available under ACOMS. ARNG and USAR main markets include nonprior service men, ages 17 and up, with secondary markets including prior service and in-service men. USAR results will also be examined by recruiting brigade. ARNG has expressed special interest in racial breakdowns, and in college students aged 21 and older. Special interest groups identified in terms of doctors, physician assistants and present members of ARNG/USAR may not be available under ACOMS.

Additional cutting variables for the segmentation analyses of reserve components not routinely available through the quarterly reports will be developed collaboratively with the Contracting Officer's representative (COR) and the respective components.

The first step in our analysis of the currently utilized market segmentations will be the examination of tabulations of these segments against: (a) demographic characteristics; (b) media habits; (c) knowledge of Army and component offers; (d) perceptions of the active Army, ROTC, USAR and ARNG; (e) importance of attributes; (f) enlistment intentions, and; (g) enlistment-related behaviors.

Much of this information will be presented as a part of the tracking activity described in Chapter 2 (Gaertner et al., 1988). Further, the beginning analyses can be conducted simultaneously for the active Army and for the reserve components.

For gender, race and age segmentations, demographic descriptions will be of limited utility since demographic characteristics form the basis of the segment groupings. On the other hand, the main active Army prospect segmentation constitutes a mixture of demographic

(educational attainment) and attitudinal or aspirational classifications (work-oriented and college-oriented). In this case, it will be important to focus on demographic description as well as characteristics such as media habits, enlistment intentions/behaviors (behaviors) and perceptions and importances (attitudes).

These tabulations of segments by respondent characteristics will allow preliminary assessment of the ability of a particular segmentation to isolate specific youth prospects. For example, the active Army's dual-market concept assumes work-oriented and college-oriented high school students have differential receptivity to training and college benefit messages. Bivariate assessment of the main prospect market segments will provide evidence as to whether various segments recall messages homogeneously; whether they have similar enlistment intentions; and whether they manifest differential beliefs about the Army. In a like manner, descriptions of differential media habits across age segments will provide information regarding the differential probabilities of youth even being exposed to advertisement messages. In short, the bivariate segmentation analyses will establish the ability of present segmentations to isolate important demographic, attitudinal, and intentional/behavioral groups in the prospect market.

Two caveats are in order. First, as noted in Chapter 2, questions regarding perceptions of ROTC, ARNG and USAR were not directed to all respondents, but rather to selected subsets. Thus, bivariate relationships between segments and reserve component perceptions will be delayed until adequate case bases are available -- perhaps the third quarter of 1987. Second, in spite of the large size of the ACOMS youth sample, adequate case bases for rare segments (e.g., Hispanics) will not be available on a quarterly basis. Thus, segmentations involving race will also likely be delayed until the third quarter of 1987.

Together, these comprehensive descriptions of market segments will provide a firm baseline for establishing who is targeted by the various segmentations and how they view the Army. In addition, this baseline will be useful as an anchor for considering changes in the composition of market segments through time due either to seasonal fluctuation or structural change in the manpower marketplace.

#### Multivariate Description of Current Market Segments

Upon completion of the tabular descriptions of market segments, multivariate descriptions will be developed. The tabular descriptions generated above are useful for summarizing segment composition on one or two variables at a time. They become increasingly complex and difficult to interpret, however, as additional variables enter into table construction. Higher order descriptions, therefore, will utilize correspondence analysis (Lebart, Morineau, & Warwick, 1984) for the multivariate description of market segments. A few comments regarding this technique should serve as both an introduction to this

relatively new statistical approach and as an illustration of how the multivariate descriptions of current markets segmentations will proceed.

Correspondence analysis is a multivariate descriptive statistical technique related to multidimensional scaling, log-linear modeling, canonical correlation and factor analysis. Like these techniques, correspondence analysis is a statistical technique for summarizing large amounts of data in as compact a manner as possible. Factor analysis, for example, is a technique for summarizing the information contained in a large number of variables using a smaller number of factors. Analogously, correspondence analysis is a technique that summarizes graphically the information contained in large contingency tables.

Conceptually, correspondence analysis is a method for expressing the rows and columns of an n-way contingency table as profiles. Specifically, row profiles are described by the dimensions defined by table columns and column profiles are described by the dimensions defined by table rows. An example should clarify:

Assume we wished to analyze the relationship between the main active Army prospect segmentation and five importance measures (e.g., having a physical challenge, earning money for college or vocational school, having a mental challenge, working with high-tech equipment, and having weekend excitement). Traditional contingency analysis would be very complex in the case of this six-way table. Correspondence analysis, however, simplifies the search for interpretable relationships and might produce output like that shown in Figure 15.

In this hypothetical figure, we see the four main active Army prospect market segments and the five importance measures displayed in a two-dimensional grid defined by axes 1 and 2. Recalling that row profiles are defined in terms of contingency table columns, the segments can be interpreted in terms of importance dimensions. In order to accomplish this interpretation, the dimensions defined by axes 1 and 2 must be identified (much as is done during a factor analysis).

In the present hypothetical case, axis 1 might be interpreted as a money for school/work environment continuum and axis 2 as a physical/mental challenge continuum. On this grid we see the placement of market segments. As we have arrayed the segments here, high school work-oriented and graduates not currently enrolled seem to form one homogeneous group while high school college-oriented and college students form another group. This is not entirely unexpected.

The ways in which segments within these groups distinguish themselves is interesting as well. The hypothetical figure suggests that college-oriented students place roughly equal emphasis on mental challenge and school money while college students focus more specifically on money. We also see that work-oriented students place relatively greater emphasis on job characteristics than the nonenrolled segment. A final piece of information summarized in this figure is

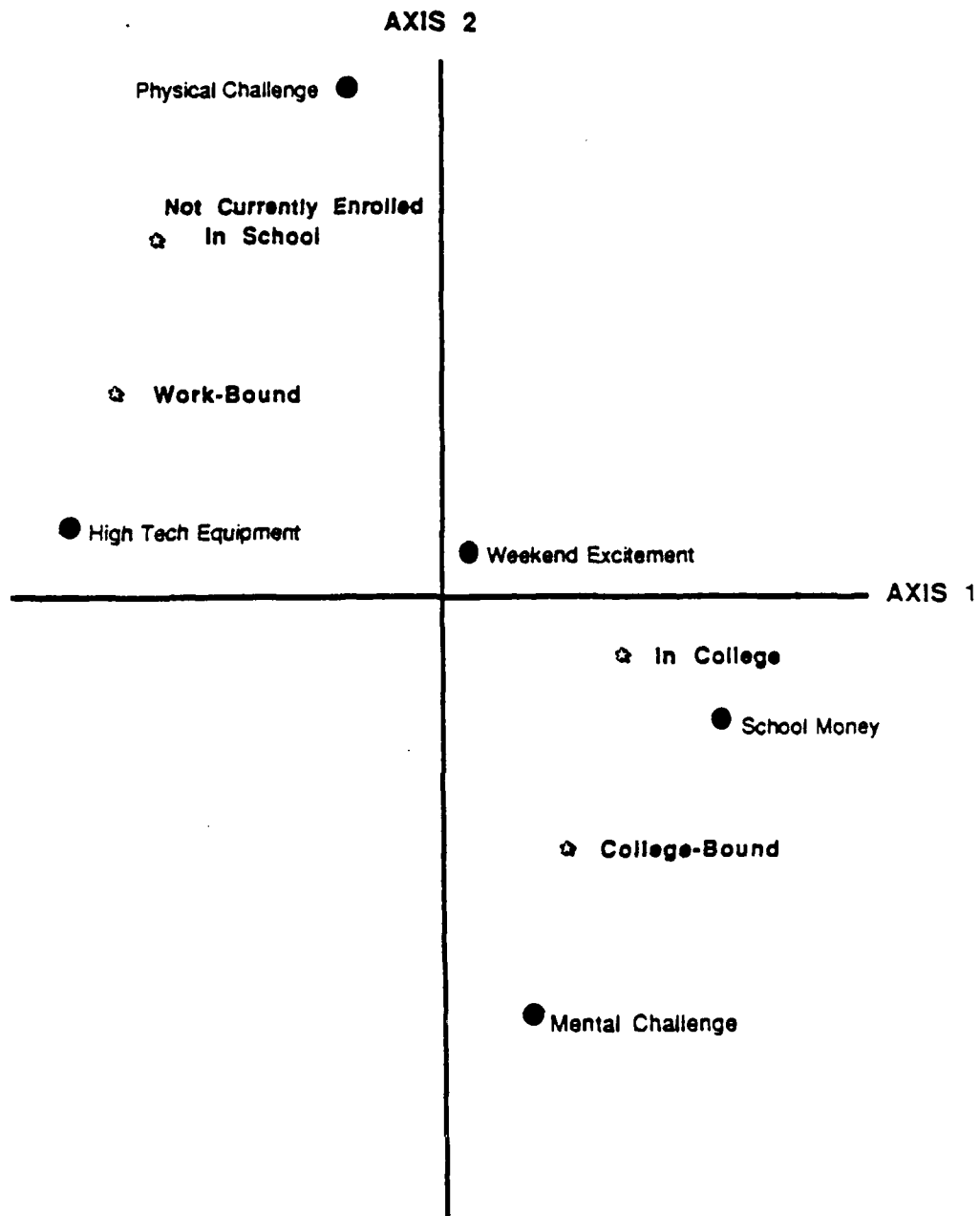


Figure 15. Hypothetical results of a correspondence analysis on current market segments.

the finding that weekend excitement is not a salient importance attribute for any of the segments. Its position near the origin signifies that it contributes little in defining the grid for the segments.

By producing such summaries of multivariate tabular information, correspondence analyses can address whether segmentations isolate distinctive groups of respondents and can summarize relationships between segments and characteristics of interest. The market segmentation illustrated in Figure 15 very clearly distinguished between importance orientations across segments. In addition, this example also provided a summary of the relationships between segments and those importance orientations.

In the case of ACOMS segmentation analyses, correspondence analysis has two features that particularly recommend its use. Most obviously, the technique produces dual displays of row (segment) and column (criterion) geometries, each having a similar interpretation. This is very important in the case of ACOMS as the linkages between market segments and respondent perceptions, attitudes, and behaviors is only incompletely known.

Second, correspondence analysis has highly flexible data requirements. Unlike techniques such as canonical correlation, and factor analysis, correspondence analysis does not require interval-level data. This technique was explicitly developed for the analysis of contingency table data, a flexibility very important in the present ACOMS application.

Correspondence analysis, then, will be used to describe the relationships between existing market segments and key attitudinal and behavioral indicators. We would anticipate conducting these analyses first for active Army segments, including the main active Army prospect segmentation, gender, age, brigade and race (as data become available). Column (criterion) variables will be, in order of priority, perceptions, importance, intentions, behaviors, media habits, and knowledge. As case bases permit, these criterion variables can be utilized in combination as well. We would then go on to produce corresponding analyses for the other components to assess whether existing segments isolate important attitudinal and behavioral differences or whether additional segments seem necessary.

#### Assessing the Stability of Existing Market Segmentations

The final step in the evaluation of currently used market segmentations will be the assessment of their stability over time. It is quite possible that, as a function of changing advertising targeting and messages throughout the year, perceptions about the Army and recall of messages will vary over time. In fact, the sizes of the segments themselves may vary through the year. For example, college-oriented high school students early in the year may become work-oriented as the college entrance process proceeds. It is vital, therefore, that ongoing analyses be performed on all market segments in order to detect and evaluate change throughout the first year.

Through successive replications of the tabular descriptions discussed above as well as correspondence analyses, the stability of perceptions, attitudes, media habits, intentions/propensities, and behaviors within market segments can be tracked. These replications will provide two important kinds of information. First, they will provide an initial indication of the stability of findings during any particular period. Individual analyses are capable of producing unrepresentative results. To the degree that successive analyses reinforce each other, we can be more assured that findings are not based upon mere random fluctuations in any one period.

The second important function performed by the successive replications will be the incremental accumulation of information regarding seasonal variation in market segment composition. It is expected, for example, that recall of Army messages will vary as a function of the messages aired. As the content of messages and/or their mix is changed throughout the year, we would expect to register this change through replication of the analyses.

#### Development of New Market Segmentations

The development of new market segmentations will follow as a natural extension of the investigation of current market segmentations. Much of the information gained in the initial analyses will be used here as the starting point for development of new segmentations. From correspondence analysis, for example, we will have indications as to the salience of the various importance, beliefs, and attitude measures to respondents. While this second set of analytic steps will proceed from the findings of the first, the steps taken are different.

Instead of beginning with established market segments and working toward a description of them in terms of their multivariate relationships to key respondent characteristics, the development of new segmentations will begin by analyzing key characteristics and work back to the demographic identification of new market segments. The analysis will consist of the following four steps:

- (1) Identification of natural respondent groupings displaying homogeneous and distinct beliefs, attitudes, habits, behaviors, and intentions profiles;
- (2) Description of respondent groupings in terms of market segment characteristics;
- (3) Generalization and modification of the segmentation for use by reserve components; and
- (4) Assessment of the stability of new market segments.

These steps are detailed below.



### Identification of Natural Respondent Groupings

A variety of respondent behaviors, attitudes, and intentions are of potential interest for the targeting of advertising. Among those of greatest interest are importance of attributes and perceptions of the various components. We expect to begin the development of new segments focusing on the perceptions of active Army. We will then replicate and extend these analyses using perceptions of the reserve components.

The first step in the development of new market segments will be the determination of whether respondents naturally group themselves into relatively homogeneous clusters.

For example, it is reasonable to assume that a subset of ACOMS respondents hold strongly negative views about the active Army while another subset of respondents will be very favorably disposed toward Army attributes. It would be useful to identify these two groups and target advertising as appropriate. Even more important, though, is the identification of individuals in the middle who may constitute the largest potential pool of Army enlistees.

It is further reasonable to suppose that these three groups would differ in terms of the structure of their perceptions of the Army. For example, we might expect that respondents with extreme attitudes toward the Army (favorable or unfavorable) might evidence a strong halo effect and not discriminate among Army attributes, while respondents with moderate attitudes might be disposed to favor some attributes and dislike others. Thus, these results would suggest two nested segmentation strategies. An initial cut would separate extreme attitudes from moderate ones, and a second cut would target appeals to different segments within the moderate group. Procedurally, we would run separate factor analyses of active Army perceptions within groups of differing overall favorability toward the Army. If our suppositions were correct, we would only expect more than one factor to emerge among those with moderate opinions, and the factor analysis in this group would define its characteristic market structure. This market structure might be similar to the one depicted in Figure 15. In order to be useful, this latter segmentation would require a multi-dimensional analysis showing, for different sets of respondents in the moderate group their distinctive values, behaviors and demographic backgrounds. Of course, the factor analysis might not yield the same results if the criterion variables were perceptions of, for example, the USAR. We would expect to replicate this basic analysis for the various components.

The classification of respondents into a limited number of meaningful groups (for example, groups within the moderate opinion set) will primarily rely on the technique of cluster analysis (Aldenderfer & Blashfield, 1985). "Cluster analysis" is the generic name for a wide variety of techniques used for the purpose of creating classifications or taxonomies. These procedures empirically form clusters or groups of similar entities. More specifically, clustering techniques are multivariate statistical procedures that begin with information about

all respondents and attempt to classify them into a small number of relatively homogeneous groups.

The basic data used for a cluster analysis are measures of the similarity between cases on variables of interest (i.e., their profile similarity). That is, the input required for analysis is the relative response of each case to questions vis-a-vis the responses of all other cases. This is not the kind of information collected by ACOMS. The first step in the cluster analysis, then, is the transformation of survey responses into measures of relative similarity. In this step, two popular similarity measures will be used. These are the correlation coefficient between cases and the Euclidean distance between cases.

The correlation between cases J and K is defined as

$$r_{jk} = \frac{\sum (x_{ij} - \bar{x}_j)(x_{ik} - \bar{x}_k)}{\sqrt{\sum (x_{ij} - \bar{x}_j)^2 \sum (x_{ik} - \bar{x}_k)^2}}$$

where  $x_{ij}$  is the value of variable I for case J,  $\bar{x}_j$  is the mean of all values of the variables used for case J, and n is the number of variables.

The Euclidean distance between case J and K is defined as

$$d_{jk} = \sqrt{\sum_{i=1}^p (x_{ij} - x_{ik})^2}$$

where  $d_{jk}$  is the distance between cases J and K, and  $x_{ij}$  is the value of the  $i^{\text{th}}$  variable for the  $J^{\text{th}}$  case.

Returning to the previous example, the space defined by the factor analysis of perceptions of the active Army for respondents with moderate opinions would form a satisfactory frame for computing distances between cases. The distance between two cases would be defined as the root of the sum of the squares of their differences on each dimension. Distance, then, would be the opposite of similarity.

Following the transformation of survey responses into a format suitable for input, cluster analyses will begin. As noted above, cluster analysis is the generic name for a family of multivariate statistical techniques. The techniques are distinguished primarily by the methods they use for the formation of clusters. In general, the methods fall into one of three groups: linkage methods, errors sums of squares or variance methods, and centroid methods. All require the same data input but differ in how they measure the distances between clusters in the successive steps of their iterative algorithms. The choice of which method to use in a particular application will be reached following extensive diagnostic procedures. These analyses

will group respondents according to the similarities of their profiles. In the example of active Army perceptions, moderate respondents would be grouped according to their similarity of position in the space defined by the factor analysis. Each cluster will contain respondents having relatively similar perceptions and the clusters, themselves, will define the differences among respondents.

We expect that the process of moving from cluster analysis results to new segments will be iterative. That is, we expect to define a comparatively large number of clusters and then use these clusters in correspondence analyses with other variables of interest to determine parsimonious yet effective clusters. In the example, we would expect to relate the perceptions clusters to measures of importance of attributes, propensity, enlistment-related behaviors, and the like. Then, as clusters do not appear to differentiate in terms of other variables of interest, they could be collapsed, forming a more inclusive segment. The collapsing process would stop when all remaining clusters differentiated among other variables of interest.

Alternatively, the clustering could continue by including relevant criterion variables in the profiles. (Obviously, the question of whether a variable should operate as a correlate of a cluster or as part of the profile, thereby helping to define the cluster, is a matter of analytical judgment and projected utility.) In the active Army perceptions example, we might decide to include importance of attributes in the clustering algorithm, thereby measuring configurations of importance/perceptions. Clusters might include those for whom work values were important but not seen as offered by the active Army, important and perceived, unimportant and not perceived, and where challenge variables were important but not seen as present, etc.

As the new segmentations are developed, they can then be assessed in much the same way as existing segments. It is expected that a number of respondent clusters will correspond to multiple respondent characteristics. Media habits, for example, may correspond closely to age, or enlistment intentions may be roughly approximated by family income. Such relationships can increase the utility of the segmentation since the additional variables add additional handles for targeting advertising messages and placements. Since a number of different key respondent characteristics will be used in forming profiles and subsequent clusters, it is likely that several new segmentation strategies will be developed, each having a particular perspective on the partitioning of American youth.

#### Generalization of Clusters to Reserve Components

As clusters defining market segments are developed and refined, we expect to adapt them for use by the ROTC, USAR and ARNC. To be sure, it is unlikely that one new segmentation will satisfy the disparate needs of the various components. Nonetheless, it is hoped in the interests of parsimony and the capacity to project an overall Army image that the segmentation strategies of the various components will have many elements in common.

## Assessment of Market Segment Stability

The final stage in the development of new market segmentations will be an assessment of their stability over time. It is important that any new segmentations developed are proved to have known characteristics that are stable over time or at least fluctuate seasonally in known manners. As in the assessment of current market segmentation strategies, it is necessary that replications of the above analyses be performed periodically. These replications will be conducted as discussed earlier.

### Year 2 Segmentation Analysis

The year 1 analyses will be continued in the second year as well as expanded to consider issues of seasonality and longitudinal change. Year 1 analyses will be replicated (except as modified on the basis of findings) in order to retain continuity in research results across the years of ACOMS data collection. More fundamentally, however, the analyses will be repeated in order to more precisely establish the patterns and amplitudes of seasonal fluctuation in market segment characteristics.

With the beginning of the second year of ACOMS data collection, it will become possible to compare findings across years. To the degree that first quarter 1987 findings agree with those of the first quarter in 1988, increased confidence may be placed in the results and our conclusions. In a like fashion, if fluctuations in segment composition over quarters in the two years are essentially similar, we will be in a good position to track and assess seasonal fluctuations among market segments.

Longitudinal data collection begins during the second year of the ACOMS project. Using longitudinal data, it will become possible to determine the changes that have taken place in respondents in their media habits, message recall, perceptions about the Army, and enlistment intentions and behaviors. The collection of these data is invaluable for a number of reasons. First, it will allow assessment of period effects. If, for example, in comparing the cross-sectional (not longitudinal) attitudes toward the Army of 18-year-olds in 1987 and 1988 we find a substantial difference, we cannot determine whether the difference is due to an actual change in attitudes or due to inaccuracies in measurement during 1987, 1988, or both. If, on the other hand, we compare the 1988 cross-sectional findings with those for longitudinal sample 18-year-olds and find substantial agreement, it becomes possible to assert that a true shift in attitudes has taken place. This calibration function of the longitudinal sample is vital for correct inference.

The longitudinal sample will also be invaluable for the study of changes in the attitudes, perceptions, and beliefs about the Army as individuals mature. Currently, longitudinal information is not available on individuals specific to their attitudes and plans regarding the Army. The longitudinal study of changes occurring in market segments will provide insight into the dynamic interaction between

market segment composition and the changing marketing strategies and needs of the Army. It may be possible to define segments empirically in terms of life-cycle processes moving toward (or away from) enlistment, college enrollment, work, etc. Such a segmentation would be invaluable in targeting advertising messages not only cross-sectionally but over time. Thus, for example, direct mail advertising could be directed especially to particular kinds of prospects in particular stages of a potentially multiyear enlistment process.

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#### 4. BRAND DIFFERENTIATION ANALYSES

Michael J Wilson

##### Introduction and Overview

Before we can fully explain the processes through which Army advertising affects individuals or model how advertising changes enlistment intentions, we must first understand how individuals perceive the Army. The brand differentiation analyses discussed in this chapter are designed to provide a comprehensive understanding of not only how Army opportunities are perceived, but also how the Army is perceived in relation to selected other service and civilian career alternatives.

The data used in these analyses is taken from the Perceptions/Beliefs module of the Army Communications Objectives Measurement System (ACOMS) questionnaire. In this module, youths are asked to respond (on a five-point scale ranging from "strongly disagree" to "strongly agree") to a number of statements concerning opportunities offered by the Army, its components, the other military services, military service in general, civilian employment, and college attendance. The statements describe opportunities for mental and physical challenge, personal growth and maturity, skill training and work with high-tech equipment, and opportunities for gaining experience and monetary benefits that will be helpful in civilian life. Together, these perceptions and beliefs about opportunities offered by 10 military and civilian alternatives will be used as the basis for characterizing how respondents differentiate among them. No single respondent is asked to provide his/her perceptions and beliefs about all 10 alternatives. The actual alternatives considered by any single respondent is determined according to an allocation algorithm.

Before proceeding, a few comments should be made regarding terminology used in this chapter. For discussion purposes, each of the 10 alternatives is considered a brand in the same way that Ford and Mercury automobiles constitute distinct brands or alternative purchase choices. In some cases, brands overlap. For example, the Army and Navy are distinct brands subsumed by the larger corporate entity, the military in general. This does not pose a difficulty as one of the brand differentiation research goals is to determine whether and how the individual services distinguish themselves from the more global image of the military in general. In what follows, therefore, "brands" and "alternatives" will be used interchangeably to refer to the several military services and civilian job and education choices evaluated by ACOMS respondents. Additionally, since the characteristics of brands queried relate primarily to opportunities offered by each, we will often refer to beliefs as perceived "opportunity structures" or "opportunity space."

The brand differentiation analyses will highlight the differences in perceived opportunities among the various career alternatives. These analyses will lead to the "positioning" of the Army vis-a-vis the other alternatives. The simultaneous positioning of the Army with

respect to both opportunities and other brands will clearly show in what ways the Army is viewed as essentially similar to other services and where it distinguishes itself. Finally, the brand differentiation analyses will be continually replicated throughout the period of data collection to provide information on changes in the perceptions of the Army and other brands throughout the calendar year. As a component of the ACOMS analysis plan, the brand differentiation analyses will prove invaluable as (a) a description of how youth perceive the Army and other career alternatives and (b) a method for tracking changes in youth perceptions.

The remainder of this chapter is divided into three sections. In the section immediately following, we describe our general approach to brand differentiation analyses. Next, a more detailed account of year 1 analyses is presented followed by a brief discussion of year 2 extensions.

#### Approach

Our approach to the study of brand differentiation in the Army recruiting marketplace during year 1 will consider differentiation modeling in three steps. First, basic or summary or descriptive information will be generated about cross-brand opportunity perceptions and within-brand opportunity structures. In this effort, tabular and correlational techniques will be used to investigate differences in perceptions/beliefs regarding opportunities across brands as well as the correlational structure among perceived opportunities within brands. These investigations will provide important initial data summaries upon which the multivariate analyses will build. The tabular descriptions of perceptions/beliefs by career alternatives will highlight where military and civilian opportunities are perceived as essentially similar and also where different. Descriptions based on correlations among perceptions/beliefs within each career alternative serve a second purpose. This information will describe interrelationships among perceived opportunities within each of the 10 career alternatives offered to ACOMS respondents.

In the second step of the brand differentiation analysis, multivariate statistical techniques (i.e., multidimensional scaling (Davison, 1983) and correspondence analysis (Lebart, Morineau, and Warwick, 1984) will be used to describe more comprehensively how respondents perceive the opportunity structures for each of the ACOMS career alternatives. The first use of multivariate techniques will be oriented toward gaining a general understanding of how youths view opportunity structures across brands. Using multidimensional scaling techniques to construct perceptual maps of career opportunities, we will determine the major salient dimensions used by respondents to evaluate career alternatives as well as the importance of various potential opportunities with regard to salient criteria. As a scaling and data reduction method, multidimensional scaling shares many characteristics with factor analysis. The scaling of perceptions will uncover underlying or latent dimensions which organize respondent



evaluations of opportunities. Additionally, multidimensional scaling will produce graphic output illustrating the relationships between observed perceptions/beliefs and latent factors.

Following the careful examination of perceptual maps for each of the 10 career alternatives, we will use correspondence analysis to determine the relative images of alternative brands vis-a-vis their opportunity structures. Correspondence analysis will produce maps similar to those produced by multidimensional scaling. Instead of being confined to the representation of opportunity space alone, however, correspondence analysis will additionally position career alternatives within this space. This positioning analysis will show which opportunities are most closely associated with particular alternatives and how the alternatives differ.

The third step in year 1 analytic activities will consist of a constant monitoring of changes in perceptions about career alternative opportunities throughout the calendar year. At least quarterly, analysis steps one and two will be replicated in order to determine whether perceptual changes have occurred in either the salience of specific opportunities or the relative positionings of career alternatives.

During the second year of ACOMS data collection, analyses will be extended to consider both seasonality and longitudinal issues. As the data come available, quarter-by-quarter brand differentiation analyses can be compared across years. To the degree that changes in year 2 correspond with those observed in year 1, we can confidently conclude that such fluctuations are seasonal and, consequently, begin their parameterization. If fluctuations do not coincide between the two years, we will search for causal mechanisms.

The second year of ACOMS data collection also signals the beginning of longitudinal data collection. Once such data are available, we will begin the process of separating period from cohort effects and studying the process of individual changes in brand perceptions as ACOMS respondents mature.

Each of these steps in our approach to the study of brand differentiation is discussed in greater detail in later sections of this chapter

#### Tabular and Correlational Descriptions

As the first step in the brand differentiation analyses, extensive tabular and correlational descriptions will be developed of respondent perceptions and beliefs about the opportunities presented by the 10 ACOMS career alternatives. The tabular and correlational descriptions are designed to: (a) investigate the distributions of perceptions/beliefs individually across career alternatives, and (b) summarize any associations that may exist among the perceptions/beliefs variables within individual career alternatives.

Tabular descriptions will be developed for each perceptions/ beliefs question. That is, each ACOMS question asking respondents about brand opportunities (i.e., the Army offers a wide variety of opportunities to find a job you can enjoy, a physically challenging environment, etc.) will be crossed with all appropriate career alternatives. For example, a table may contain as column entries the response categories (i.e., the values one to five) for perceptions/ beliefs regarding opportunities to develop leadership skills while the rows will identify different career alternatives. In this way, perceptions of each brand will be displayed in a fashion facilitating comparison across alternatives. These tabular descriptions will facilitate identification of those areas where perceptions of specific alternatives agree and diverge. In the description of civilian career development, for example, respondents may generally think that college attendance and a civilian job further civilian career development while military service does not. Such information is important for the understanding of how the Army, and the military in general, appeals to youth. Such preliminary descriptive information will aid in locating those areas where military and civilian opportunities are viewed by respondents as essentially different. This identification is the primary purpose of the tabular analyses.

A data difficulty must be mentioned here. The ACOMS questionnaire does not query identically regarding available opportunities for all career alternatives. As noted in the introduction, there are a total of 17 generic perceptions/beliefs questions. This summarization excludes Reserve Officers' Training Corps (ROTC). Questions about this Army component are centered about eight opportunity attributes, four of which overlap to a greater or lesser extent with the larger list of fourteen. The difficulties associated with ROTC brand differentiation analysis are, therefore, unique and largely of a technical nature. For this reason, they will not be highlighted in this overview of our analysis plan. For all services and military service in general, respondents are asked to rate their perceptions on 14 of them. When rating civilian employment and college attendance opportunities, the total number of questions asked drops to 12 and 8, respectively. The implication of this is that not all perceptions/beliefs tables will contain rows corresponding to the civilian employment and college attendance options.

The second stage of initial opportunity structure description utilizes product-moment correlations to assess patterns of associations among perceptions/beliefs questions. This task is designed to determine whether the opportunities are distinct or correlated as perceived by respondents and, further, to establish whether the correlational structures is invariant with respect to career alternatives. In the course of ACOMS questionnaire development, an extensive list of Army opportunity attributes was assembled. While these opportunities largely correspond to particular advertising "messages," it is important to determine whether the recruiting marketplace distinguishes between the offered opportunities. When evaluating the Army, for example, respondents may consider opportunities for developing self-confidence, personal potential, and maturing as essentially the same.

Correlational analyses will be conducted separately for each of the 10 brands considered. These analyses will determine the degree to which beliefs about one opportunity covary with beliefs about others, within brands. As an initial description of opportunities within alternatives, these analyses will reveal the underlying dimensions upon which career alternatives are evaluated. In addition, comparisons of correlation matrices across brands will provide indications of the differing ways in which alternative career choices are evaluated. An example should clarify these points.

Suppose that in the correlational analysis of perceptions/beliefs regarding the Army we find the opportunities to develop one's potential and skill training are highly correlated, but in the perceptions regarding civilian employment, skill training is highly correlated with working with highly trained people. Both correlations rest on skill training but the thrust of the relationships appears different. In the civilian case, training seems associated with a second training-related attribute, while for the Army it is related to individual development. The conclusion that might be reached in this circumstance is that enlistment and employment are evaluated (perceived) according to different criteria. Such a finding contributes to an understanding of brand differentiation. Examination of such correlational descriptions provide an initial picture of the "mind set" used by respondents when considering career alternatives.

Following completion of the tabular and correlational descriptions, analysis will move to more comprehensive multivariate evaluations of respondents perceptions and beliefs regarding alternative career opportunity structures.

#### Multivariate Analysis of Perceptions/Beliefs

The first step in multivariate brand differentiation analysis will be the development of "perceptual maps" which plot respondent perceptions/beliefs about the 10 ACOMS career alternatives. Construction of these maps will utilize the technique of multidimensional scaling (MDS), the generic name for a collection of techniques designed to portray psychological relations (perceptions) among stimuli (opportunities) as relations among points in a multidimensional space. Input for MDS corresponds generally to the requirements discussed in the previous chapter in the case of cluster analysis. That is, some measure of case similarity (regarding perceived opportunities) is required. It is expected that a measure such as the Euclidean distance will be used. To restate, the Euclidean distance between case J and K is defined as

$$d_{jk} = \sqrt{\sum_{i=1}^p (x_{ij} - x_{ik})^2}$$

where  $d_{jk}$  is the distance between cases J and K, and  $x_{ij}$  is the value of the  $i^{\text{th}}$  variable for the  $J^{\text{th}}$  case.

As an example of what this technique yields, consider Figure 16.



Figure 16. "Bostonian's map" of the United States (from Shepard, 1966).

This figure presents the Bostonian's map of the United States. It was obtained by Shepard (1966) when he surveyed New England university students about the relative proximity of the contiguous American states. The figure illustrates the mapping orientation of MDS. Specifically, it demonstrates that MDS produces a psychological, rather than objective, characterization of stimuli. In this example, the map produced by MDS clearly reflects a bias which overemphasizes New England and the mid-Atlantic states. The geographic relations between these states are much more accurately reproduced than those for midwestern and western states. Given the fact that this map is produced using the perceptions of undergraduate students in New England, the natural ethnocentricity is not unexpected.

In order to more directly demonstrate the utility of MDS for the analysis of ACOMS respondent perceptions and beliefs, we have devised the following hypothetical example of a perceptual map of Army Reserve opportunities. Figure 17 illustrates the results of such a hypothetical MDS analysis. In this figure we observe that the 14 opportunities rated by respondents are arrayed in a perceptual space defined by axes 1 and 2. As with factor analysis, the substantive interpretation of the axes are arrived at through a consideration of the placement of the rated opportunities and the similarity of opportunities, is signaled by close proximity.

In this hypothetical case we might define axis 1 as a skill acquisition dimension ranging from fewer skill training opportunities on the left to greater opportunities on the right. The vertical axis could be characterized as ranging from personal growth opportunities (top) to individual inertia (bottom). While we have no expectation that the perceptual map is empirically accurate, the figure serves to highlight the information content available from such multivariate descriptions.

Continuing the example, we see that only the skill training and personal growth dimensions are required to "explain" variation in perceptions and beliefs regarding Army Reserve opportunities. These dimensions, then, constitute the only salient dimensions upon which the recruiting marketplace evaluates Army Reserve messages. This information is useful, but perceptual maps yield additional insights.

If we examine the placement of the 14 various appeals along the two dimensions, several interesting findings emerge. First, the opportunities for a proud experience and community service are generally of no salience (being near the origin in this mapping). Second, we see that skill training, money for education, and the value for future civilian opportunities strongly define one dimension. These messages are clearly important. Finally, there is an interesting pattern in what might be considered personal growth and situation opportunities: challenge and development are on one end of the continuum while enjoyment, weekend excitement, and hometown stationing anchor the other. This dimension might be seen, therefore, as dividing opportunities between those associated maintaining the status quo and others related to growth, challenge, and development.

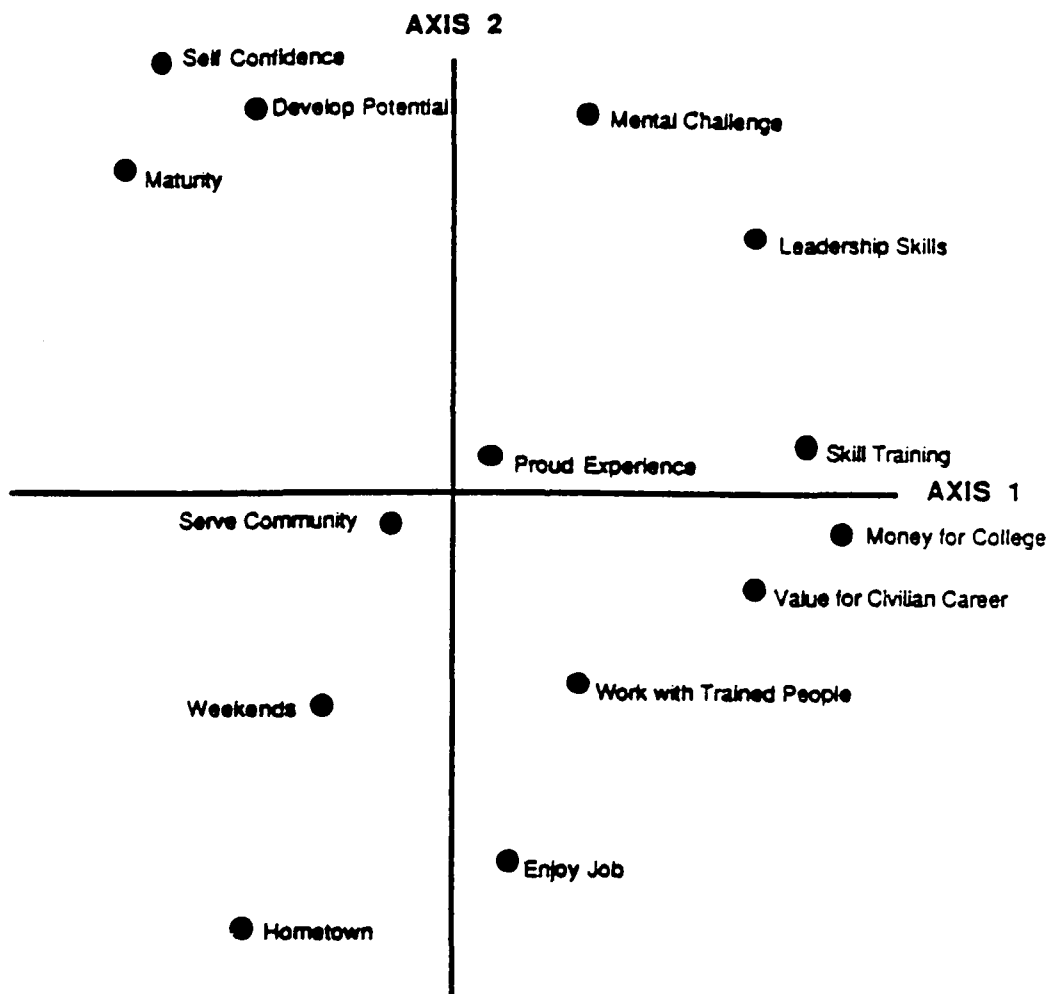


Figure 17. Hypothetical results of a multidimensional scaling analysis of Perceptions/Beliefs.

What has been done to this point, through the construction, inspection, and interpretation of perceptual maps for each of the 10 career alternatives investigated by ACOMS, is the identification of differences among opportunities within a univariate framework and the delineation of multivariate opportunity structures within brands. It remains to be determined how the various ACOMS career alternatives are perceived as total opportunities. Correspondence analysis will be used for this determination.

Correspondence analysis, as described in Chapter 3, Market Segmentation Analyses (Wilson, 1988), is a multivariate descriptive method related to MDS that also summarizes information graphically. Conceptually, correspondence analysis constitutes a direct extension of both the tabular and correlational analyses discussed earlier. The tabular analyses are extended beyond examination of perceptions on a one-by-one basis. Rather, perceptions regarding all offered opportunities are expressed in one n-way table and summarized graphically as with MDS. Correspondence analysis also extends the correlational studies by considering the interrelations among the various opportunities. As a multivariate technique, correspondence analysis produces profiles of career alternatives with regard to opportunities while simultaneously representing opportunities within the space defined by career alternatives.

Figure 18 should clarify the point. This figure presents a hypothetical example of the output that can be produced by a correspondence analysis. In this figure the opportunity space continues to be represented as it was for the MDS example (and shown in Figure 17) with opportunities perceived to be arrayed along two dimensions, skill acquisition and personal development or growth. Added to this mapping, however, is the placement of three career alternatives--the Army, college attendance, and civilian employment--within the space defined by opportunities. In this example, college is most directly seen as offering a challenging environment for personal development and growth and both the Army and civilian employment are perceived as less challenging.

Civilian employment is positioned most favorably along the axis defined by skill training and career value. The Army, in contrast to both college attendance and civilian employment, is placed in a median position between training and development. What this implies is that while college and a civilian job are perceived by respondents as more distinctly offering subsets of the 14 opportunities, the Army is positioned as a career alternative which offers a wider range of opportunities.

In this obviously hypothetical figure, we see the information that correspondence analysis can reveal. By placing the various ACOMS career alternative within the structure of respondent opportunity spaces, we can uncover the relative positioning of alternatives. Such positioning analyses serve to define the relative competitive positions of career alternatives. To the degree, for example, that advertising stresses a strength of the Army that is differentiated from other career alternatives, perceptions of Army service and perhaps

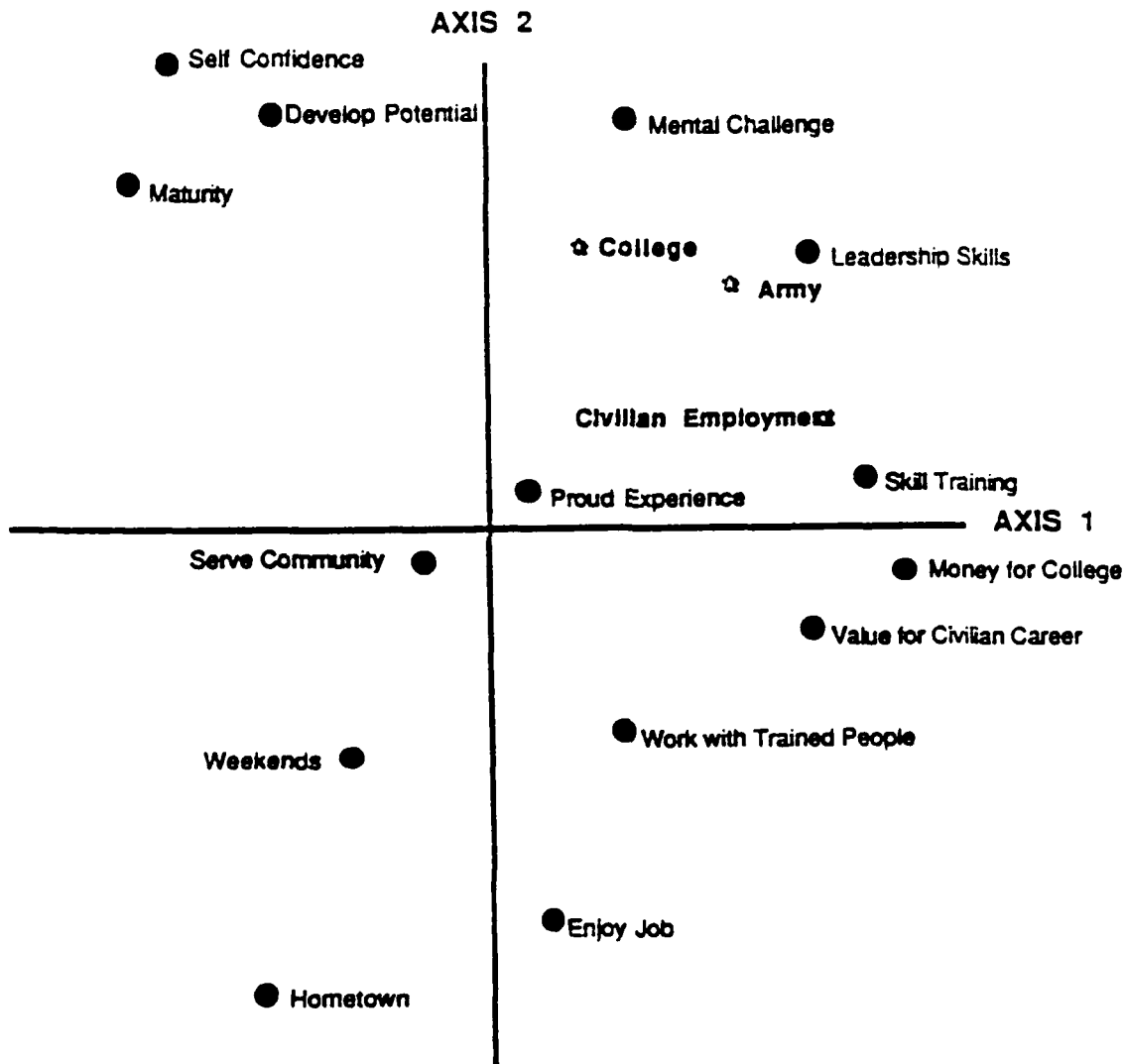


Figure 18. Hypothetical results of a correspondence analysis of Perceptions/Beliefs and three career alternatives.



enlistment intentions should be favorably influenced. If, however, messages emphasize opportunities equally attributed to several career alternatives, the benefit to the Army is less.

Correspondence analyses, therefore, are intended to provide an overall summary of how ACOMS respondents perceive the Army, its components, the other services, the military in general, and civilian alternatives with regard to the differential opportunities they offer. As a vehicle for understanding basic perceptions about the Army and its competitors, the brand differentiation analyses proposed here will provide a comprehensive foundation for the modeling analyses described in Chapter 6 (Gaertner, 1988).

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## 5. ANALYSIS OF PARENTAL INFLUENCE

Sandra J. Baxter

### Introduction and Overview

In numerous studies of their attitudes toward military service, adolescents have described their parents as the primary influencers on career planning (e.g., Gade et al., 1984; Hicks, Collins, & Weldon, 1979). To explore the attitudes and impact of parents, the design for Army Communications Objectives Measurement System (ACOMS) includes telephone interviews with the parents of all 16- to 20-year-old Primary Male Sample (PMS) and Primary Female Sample (PFS) sample members. Half of the parents will be mothers and half fathers.

Studies on the role of parents in enlistment decisions (Orkand Corporation, 1983) substantiate the targeting of parents as the intended recipients of some Army advertising. What is not fully known, however, is how parental attitudes toward military service are influenced by advertisements and how parental influence, in turn, shapes youth decisions regarding enlistment.

This chapter discusses the research questions stemming from a consideration of the parental influence process as explored in the ACOMS surveys administered to youth and parents. The chapter begins with a discussion of the approach and the four sets of major research questions to be examined. The next sections focus on each set of research questions in turn, detailing the survey items to be used, the analysis techniques that will be employed, and possible findings.

The plan discussed in this chapter focuses primarily on the analysis of parent and youth data from the first year of ACOMS data collection. As the fielding period lengthens, trend analyses will be conducted to search for aggregate level changes in the responses of parents and in parent-youth dyads. Once longitudinal data from the youth re-interviews are available, panel analyses can be conducted that incorporate the parent data. We will conduct dyadic trend and panel analyses on many of the research questions raised in the sections that follow.

Many of the dyadic analyses described below will generate hypotheses that can be tested with data from the youth reinterviews. For example, we might predict that youth not considering military service but with parents who would like to see them join will eventually broaden their options to include the military. Longitudinal evidence that such a shift has not occurred would lead to further dyadic analyses to test at least three rival hypotheses: (a) career plans are firmly set for many youth by age 16, (b) the youth are resisting parental influence, or (c) the communication between parent and youth is very poor. Each hypothesis bears implications for Army advertising aimed primarily at parents.

### Approach

The hierarchy of effects model will guide the analysis of parental influence. The lower portion of the Fishbein and Azjen model argues that demographic variables are associated with parents' awareness of Army advertising, which in turn shapes their beliefs and evaluations regarding Army service. These result in preferences for the career choices of their youth, which underlie the influence attempts a parent makes or does not make.

The Fishbein and Azjen model also displays considerable conceptual similarity in communication processes between youth and parents. This similarity, coupled with the plan to begin analysis of parental influence after the first year of data collection, will enable us to build upon findings in the youth data made during the tracking (Chapter 2) (Gaertner, Keil, & Gay, 1988), segmentation (Chapter 3) (Wilson, 1988), brand differentiation (Chapter 4) (Wilson, 1988), and modeling (Chapter 6) (Gaertner, 1988) analyses. Many of the relationships explored in those analyses can be replicated among the parent sample because of the high degree of overlap between the youth and parent questionnaires. As the following comparison of question modules shows, six of the eight modules in the parent version are identical to those in the youth version:

<u>Module in Parent Version</u>	<u>Content in Youth Version</u>
Importance of Attributes	Identical questions
Media Habits	Identical questions
Knowledge/Recall	Identical questions
Attitudes toward Army Advertising	Identical questions
Knowledge/Awareness	Identical questions
Perceptions/Beliefs	Identical questions
Parental Influence	Parallel questions in Behaviors and Social Influence modules
Demographics	Similar questions

Further comparability was gained by programming the questionnaire administration so that modules or sets of items randomly assigned to 16- to 20-year-old youth were also given to their parents.

As examples of how we can capitalize on aggregate youth data analyses described in the earlier chapters, we will use the parent data to replicate scales constructed on the perceptions items in the youth survey to discover whether the Army's advertising copy points have been received by both groups in the same way. We will examine demographic and attitudinal groupings that emerged as analytically useful in the youth segmentation analysis to see whether they are of value for the parent sample. We will also replicate a portion of the youth analysis directed to modeling the effects of Army advertising.

The analysis of parental influence will explore four sets of research questions, three of which compare youth and parent responses both in the aggregate and as linked pairs of respondents:

- (1) A set focusing on parents as targets of Army advertising;
- (2) A set comparing the knowledge and attitudes of parents with those of their youth;
- (3) A set about the career preferences parents hold for their youth, compared with the preferences youth hold for themselves; and
- (4) A set on social influence from the youth and parent perspectives.

Within each set, the investigation will begin with univariate statistics measuring the level and variation of aggregated parent or youth responses. It will then shift to crosstabular analyses focusing on pairs of responses given by a respondent, such as relationships between their demographic characteristics and attitudes or between attitudes and behavior. Next will come dyadic analyses focusing on the similarities and differences in responses of parent and his or her youth. The analysis will then move to multivariate analyses, ranging from replication of scales based on the youth data, to a variety of linear and nonlinear statistical techniques.

#### Dyadic Analysis

Most of the research questions in this chapter require dyadic analysis techniques to explore the similarity or difference in responses between parent and youth pairs. Dyadic techniques are still relatively simple, due in part to the small number of family studies that have collected data from two or more members (Klein, 1982). As more studies rely on paired respondents in a household, analysts will utilize more sophisticated techniques. Currently, several approaches to measuring similarity or disparity in reports are available. As Klein points out, however, few researchers test the validity of more than one disparity measure in a study, so the differing techniques may be more widely useful than now thought.

Klein presents five "strategies" for dealing with discrepant reports about families. Although his interest is in the quality of family functioning while ours is in the influence process between a parent and youth, the models are suggestive of dyadic analysis alternatives we could pursue. The models include:

- (1) The additive model which simply takes the sum or average of the reports from the family members surveyed;
- (2) The discrepancy score model which views the degree of discrepancy in reports as an important family property;

- (3) The disjunctive model which treats separate reports as equally reliable and valid and does not attempt to combine them;
- (4) The weighted model in which some reports are regarded as more realistic than others and are given more weight; and
- (5) The conjunctive model which focuses on the covariance in reports of two family members across a variety of questions.

The additive model has been depicted as the best when the respondents are talking about concrete behaviors rather than attitudes (Ballweg, 1969). The discrepancy model appears most appropriate when the focus is on the degree to which one family member can state the attitude or perception of another. The weighted model is best when there is varying credibility of respondents in a household, due perhaps to a differential pull of social desirability among them (White & Brinkerhoff, 1978).

The model that offers the greatest analytical insight for the ACOMS data set appears to be the conjunctive model building on the covariance of responses to the same question offered by two respondents. Several statistical techniques have been advocated for this model. We could perform a factor analysis of the pool of responses from all youth and parents combined on one question, generate the factor loadings, and calculate a factor score for each parent-youth pair. We could also create a four-level dependent variable (such as high advertising credibility parent and youth, high adult and low youth, etc.) and use discriminant function analysis to look at the linear combination of predictor variables that best explain the dependent variable pattern. Finally, we could define one dyad member's response to a particular item as the dependent variable in a multiple regression equation. The predictors would include the other member's response to the same item plus other variables which might influence their covariation.

We will follow Klein's suggestion and utilize several dyadic analysis models in our examination of parent-youth responses. As we become more familiar with the dyadic techniques and the level of similarity or dissimilarity in paired responses, we will develop a systematic approach to comparing parents' responses to those of their sons or daughters.

#### Parents as Targets of Army Advertising

A number of the Army's advertisements are directed at parents, on the assumption that they influence their youths' thinking about military service. The form and extent of parental influence is examined in the fourth set of research questions listed above; here, the topics are parents' own attitudes toward Army advertising and recall (aided and unaided) of it, their knowledge of Army offers, perceptions of Army attributes, and media habits.

Initially, we will replicate the analysis of these questionnaire modules conducted for the youth sample as discussed in Chapter 2 (Gaertner, 1988). That is, we will look at the level of response of the audience of parents as measured by items in the first six question modules listed earlier, e.g., the proportions of parents believing that the opportunity for a physical challenge is important to their son or daughter, regularly viewing television, recalling ads for the various Army components, reporting that they believe Army advertisements, perceiving the Army to offer a physically challenging environment, and correctly estimating Army college benefits. These analyses will be conducted on the aggregated parent sample and then on various subgroups based on variables in the demographic module such as education, age, ethnicity, gender, military experience, and income as well as brigade. As with the youth analysis, we will use the BRR method for estimating variances and a modified log-linear procedure for calculating a chi-square test of independence between crosstabulated variables.

Continuing to take advantage of the analyses outlined in Chapter 2, we will replicate the scales constructed on the youth sample which summarize media habits, advertising recall, awareness of Army benefits, etc. The thrust here is to develop scales and scale scores which summarize parental attitudes and knowledge and will serve as analytical variables in subsequent analyses. The youth scales provide a convenient starting point for these analyses. We expect to revise the scales substantially when applied to the parent data. We will discuss the differences in scale composition between the youth and parent samples and the implications of these differences for the Army's audience targeting efforts.

The analysis of parent data will also parallel the market segmentation and brand differentiation activities conducted on the youth data as summarized in Chapter 3 (Wilson, 1988) and Chapter 4 (Wilson, 1988). We will search for segmentations, based on knowledge, attitude, and demographic variables, that define distinctive subsets of the parent sample which could be targeted by different Army advertisements. We will also work backwards from items in the Knowledge-Awareness and Perceptions/Beliefs modules to specify the characteristics of parents who clearly discern differences among the "brands" of service, and among the competing opportunities of military service, college, and civilian employment. We will use the same set of statistical techniques, e.g., correspondence analysis, cluster analysis, and multidimensional scaling, as used on the youth data.

#### Knowledge and Attitudes of Parents and Youth

The set of research questions to be addressed here focuses on the similarities and differences in the knowledge, attitudes, and media habits of parents and their sampled youth. The main issue is whether the parent-youth dyads are sufficiently homogeneous that Army advertising directed to one group is appropriate for the other as well. For example, do parents who describe themselves as regular television viewers have youth who also describe themselves as frequent watchers, or do media consumption patterns tend to vary in a household? If the

former is true, parents and youth can both be reached by televised ads; if the latter, one group must be targeted through some other medium, a more expensive strategy.

Parent-youth similarities in knowledge-awareness and knowledge-recall will be interesting to study because the data are not behavioral, as are those on media habits. When we look for similarity in attitudes toward Army advertising and perceptions/beliefs, which are clearly attitudinal, a finding of high or low similarity will beg the question of causality. The important issue of whether parental attitude influenced the youth's, or the obverse, or whether the process was genuinely interactive, or whether both attitudes were caused by some third factor will be explored once the longitudinal youth data become available.

#### Youth Career Preferences of Parents

The preferences parents hold about the immediate career they would like their youth to pursue summarize the subtle and explicit ways they have been shaping the youth's aspirations since birth. They are asked:

PI-7: "What would you like to see (youth's name) do in the future--go to college, get training in a vocational or technical program, get a full-time job, join the Armed Services, get married and not work, or something else?"

The parents' responses will be the primary indicators of immediate career preference for their youth. Openness to the idea of military service as a specific career option is gauged by a series of questions, beginning with a normative pair asking whether the parent thinks service in the military is a good idea for "most men" and "most women." Subsequent items ask explicitly whether the parent has talked to the youth about enlisting, entering as an officer, signing up for active duty, and seeing a recruiter.

While the parental responses will be valuable indicators of their relative support for school, work and military service as career options for their young adults (and youth generally, in the instance of military service), their answers will be even more useful when juxtaposed with the career preferences articulated by their youth. The youth are asked:

IP-1: "Let's talk about your plans for the next few years. What do you think you might be doing?"

Unlike their parents, the youth are not read the response categories, which consist of going to school, working, doing nothing, joining the military, and other.

The analysis will begin with a simple crosstabulation of the aggregated parent and aggregated youth responses to reveal gross similarities and discrepancies in career preferences. A small portion of the discrepancy will be attributable to the fact that youth are not



given any response categories to consider. The remaining discrepancy will motivate analysis of whether the two generations are at odds over immediate career expectations or whether there is considerable congruence. The parents, many of whom made career decisions in the late 1960's when military service was disparaged, may be less supportive of it than their youth. We will explore sexual stereotypes by comparing the immediate career expectations of parents with daughter and among the daughters themselves (does the younger generation consider military service more frequently?), and contrast parent-daughter and parent-son dyads (is there greater congruence of expectations in the former than in the latter?).

Several analyses will focus exclusively on the immediate career preferences of high school students, who are of special analytical interest since the active Army draws a large proportion of its enlisted personnel from high school graduates or near-graduates. These students will have been categorized as college-oriented or work-oriented as part of the audience tracking effort; the utility of this segmentation will have been tested in the analyses outlined in Chapter 3 (Wilson, 1988). We will crosstabulate the two groups with the preferences held for them by their parents to determine the degree of congruence in expectations and the proportion of youth whose parents express a preference for military service. By stratifying these analyses according to the education, age, ethnicity, and military experience of the parent, we will be able to specify the parental characteristics of youth within the two segments who may be especially open to advertising messages about Army service.

#### The Parental Influence Process

The final set of research questions focuses on three topics: (a) the process by which parental attitudes, perceptions, knowledge, and immediate career preferences for their youth are communicated, (b) the content of those communications, and (c) their apparent impact. We perceive these three topics to comprise the influence process as measured by ACOMS. There are, of course, myriad ways for parents and youth to "communicate" about the immediate career choices facing the youth that are not measured by ACOMS, and the ideas and attitudes exchanged are far more complex than the survey questionnaire can tap. Nevertheless, the role of parents is known to be so pivotal in youth decision-making about military service that the survey data we can collect will warrant extensive analysis.

As with the previous two topics, the influence process will be probed from both the parent and youth perspectives and will rely heavily on dyadic analysis techniques. Unlike most of the analyses described earlier in this chapter, in which the dyadic analysis focused on parent and youth responses to the same question, the dyadic techniques used here will link responses to similar or related items (e.g., did parent encourage youth to see a military recruiter, did youth ever talk with a recruiter?). The thrust of the analysis will continue to be on similarities or discrepancies in reports.

The behaviors underlying the influence process will be examined first. Parents are initially asked how frequently they have had informal talks about the youth's general educational and job plans. They are then queried about talks regarding enlisting in the Armed Services, signing up for active duty, the Reserve or the National Guard, seeing a military recruiter, and about pointing out ads for the services in the mass media and receiving recruiting materials mailed to the home. We will first examine the frequencies on these items to learn the percentage of parents who report having done each activity and the proportion of parents having informal talks who report any of the military-oriented influence behaviors. We will then construct scales (if the items appear linear) or conduct cluster analysis (if several dimensions seem to underlie the responses). We will also introduce demographic variables to ascertain the characteristics of parents associated with high, medium and low scale scores or with activity patterns located in the four quadrants of the cluster analysis space. The responses of youth will then be incorporated and dyadic analyses conducted on parent and youth reports about having talked about joining the Army and having spoken with a military recruiter.

Understanding the influence process requires not only information about the frequency of talks between a parent and youth, but also information about the content of those talks. Parents are asked whether they generally encourage, discourage, or stay neutral about the youth's enlisting during talks about military service. Similarly, youth are asked whether their enlisting would be perceived as a good or bad idea by their father and by their mother. Analysis of the parent responses, combined with several demographic variables and possibly attitude-based segmentations, will show the types of parents who are supportive of military service. Dyadic analysis linking the youth responses with them will reveal harmonious or discordant pairs, and perhaps suggest the types of parents who could use information about the Army's offers to persuade an uninformed or reluctant youth about the value of military service.

The final portion of the influence process is the impact: given the level of communication and its content, did the parent-youth interaction appear to shape the youth's career plans for the immediate future? To measure this, parents are asked two questions about the amount of influence they think they have had on the youth's plans for the future and on plans about enlisting. The ACOMS survey does not contain parallel items for the youth. The parents' responses to the more general question of impact will be used to stratify the dyads, and we will investigate whether parents who perceive themselves as influential have greater attitudinal similarity to their youth regarding military service than do parents who report little influence. A similar analysis will be conducted using parental influence concerning enlistment as the stratifying variable.

Friends, teachers, school counselors, fellow students, employers, and coworkers are also potential sources of influence on a youth's decision process regarding enlistment. Youth are asked, as they are about their mother and father, whether each of these groups would feel

that his or her enlisting in the Army was a good or bad idea. Multivariate analysis will probe the relative support of parents vis-a-vis the others. We will also identify the two subgroups of youth who report a strong intention to, or not to, enlist and then examine where they might be drawing social support. Further discussion of the analyses on the social influence process is contained in Chapter 6 (Gaertner, 1988).

The parental influence process is inherently dynamic and our analysis of it will benefit greatly from the youth longitudinal data. Many of the attitudes and behaviors of parents are better conceptualized as having lagged rather than immediate impact. From this perspective, similarities between parent and youth documented in the first year of data collection are the result of an influence process long underway. To investigate military- and, more specifically, Army-related parental influence occurring during the fielding of ACOMS, we will use several lead-lag statistical analysis techniques (using various time intervals) on the parent and longitudinal youth data bases. All of the analyses discussed in this chapter will be relevant to the ACOMS assessment of the Army advertising program, and will suggest how parents can be more effectively targeted to help the Army achieve its human resource requirements.

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## 6. MODELING THE EFFECTS OF ARMY ADVERTISING

Gregory H. Gaertner

### Introduction and Overview

One goal of the Army Communications Objective Measurement System (ACOMS) is to provide an assessment of effects of Army advertising in an integrated framework. The current research activity begins to provide this integrated assessment. Previous chapters concentrate on one subject area (e.g., segmentation, brand differentiation, parental influence). The focus of this chapter is on bivariate and multivariate analyses, within and across segments, components, services and time in an attempt to determine how Army advertising affects knowledge, recall, perceptions, attitudes, intentions and ultimately enlistment-related behaviors. An additional goal will be to assess how each of these constructs in turn affects others, cumulating toward youth career choice and life planning, including options provided by military service.

This chapter focuses on data collected in the ACOMS interviews, and mainly on the youth interviews. Data components will include cross-sectional interviews with youth and parents in year 1, and cross-sectional and longitudinal interviews in subsequent years. Since the analysis must proceed before the full year's data are collected, we plan to run preliminary analyses on the first two quarters of data and replicate them on the data collected through June 30 of each year for inclusion in the annual reports. Progress briefings and working papers will be based on preliminary data. Scheduling and deliverables are described in Chapter 8 (Gaertner, 1988). The analysis of fit, exposure and change, described in the next volume, includes information drawn from syndicated exposure data and message content analyses to be conducted later.

This chapter is organized as follows. We begin by describing the approach to the analysis, and then step through the plan for the analysis in detail. At each step, we discuss likely results and how the plan responds to them. We begin with the plans for the first year of analysis, and then move to discuss the additional extensions and refinements available in the second year of data collection.

### Approach

The approach to the analysis of advertising effects in this chapter is incremental. The analysis will begin with a review of the univariate findings from Chapter 2 (Gaertner, Keil, & Gay, 1988). We will then examine bivariate relationships to answer questions of interest, and develop several multivariate models corresponding to aspects of the hierarchy of effects model presented in Chapter 1 (Gaertner, 1988). These models build toward an inclusive test of the latter part of the hierarchy of effects model. In each step, we will begin by describing overall results, and then note differences by segment of the prospect population and further differences by component and service.

This approach relies heavily on the scale construction and trending results described in Chapter 2 (Gaertner, et al., 1988) on tracking. It also relies heavily on the segmentation/brand differentiation analyses described in Chapter 3 (Wilson, 1988) and Chapter 4 (Wilson, 1988). In the interest of providing a complete but succinct description of the plans for this analytical activity we will briefly summarize the results from previous chapters on which the current effort will depend. Readers desiring further details on these tracking and segmentation analyses should consult those chapters.

Since we assume that most of the scales and segmentations will be developed in other activities, the basic statistical methods to be utilized for the modeling effort will be correlational and path analytic in the first year. Cross-lagged panel analysis and event history analyses will also be conducted in the subsequent years. Finally, some of the replication analysis within segments will require analyses of covariance.

#### Analysis Steps (Year 1)

As noted above, modeling the effects of advertising will consist of four basic analytical steps during the first year:

- (1) Reviewing and extending the univariate results from the tracking and segmentation/brand differentiation activities;
- (2) Presenting bivariate results;
- (3) Presenting sub-models representing portions of the hierarchy of effects model; and
- (4) Producing an inclusive hierarchy of effects model.

In the sections to follow we describe these steps in further detail.

#### Univariate Results

The various constructs from the hierarchy of effects model are measured in the main youth interview. We can summarize the discussion in Chapter 2 (Gaertner, et al., 1988) as follows.

##### Intentions and Propensity

Measures of intentions and propensity are elicited with respect to several stimuli: (a) likelihood of enlistment (by component and branch of service, aided and unaided); (b) likelihood of college enrollment; and (c) likelihood of full-time civilian employment. As with previous measures, early efforts will be devoted to determining variability seasonally, by segment and by component/service.

### Perceptions/Importances and Main Message

Since the questions on perceptions of Army attributes represent the core of the ACOMS measurement system, particular attention will be directed to the internal structure of perceptions and beliefs regarding the Army and its components, and the importance of communications objectives to youth respondents. It is reasonable to suppose several scales of perceptions of the Army (relating, for example, to personal growth, to educational benefits, and to skill training) will emerge. One early interest will be to discover whether the importance of attributes clusters along similar dimensions. A second focus will be to determine whether perceptions are annually cyclic corresponding to youth life-cycle changes (e.g., college testing, application and acceptance, employment search) and whether importance of attributes varies as would be expected under current segmentation strategies (e.g., whether college-oriented students place relatively high importance on college benefits, work-oriented on skill training). Further, if strong brand differentiation exists, perceptions may also differ by component and service.

Depending on the analysis of the open-ended question on main message perceived in Army advertising, measures derived from it may allow analysis of "unaided" perceptions (for example, what do youth perceive the main intended messages of Army advertising to be, and in what priority). These may vary seasonally and by segment.

### Behaviors

Measures of career choice behaviors are likely to cluster along several nonorthogonal dimensions--actions relating to enlistment, actions relating to college search and enrollment, and actions relating to job search. Levels of each of these can be expected to vary seasonally, corresponding to youth life cycle changes. Dual market theories predict the types of behaviors undertaken by youth (work-oriented youth searching for employment, college-oriented youth active in education-related search) and we will test the hypotheses.

### Recall of Advertisements

Recall of Army component and other services advertising is elicited in youth interviews in both unaided and aided forms. Scale and brand differentiation results may suggest that advertising for certain components or services is better recalled than others. Tracking questions will reveal whether recall varies seasonally with advertising weight or is more associated with durable characteristics of the respondent.

### Knowledge of Offers

The youth interviews are likely to yield estimates of respondent knowledge of offers and images per component, and perhaps for the Army overall. Tracking results should determine whether knowledge is annually cyclic corresponding to Army advertising weights. Brand differentiation analyses should assess how to categorize types of knowledge



(e.g., overall knowledge of military or Army offers, knowledge of Reserve or Reserve Officers' Training Corps (ROTC) offers, etc.) and, in conjunction with segmentation analyses, who knowledgeable respondents are likely to be.

### Media Habits

Two sorts of media habit measures are likely to result: (a) proxy measurements of exposure; and (b) measures of the youth's habits of media consumption in terms of levels of and balance among media. The former, proxy measures of exposure, can be derived from the extent to which a respondent views shows, reads publications, or listens to radio shows on which the Army regularly advertises. The latter, measures of media habits, can be derived from the amounts of time the respondent views television (and which kinds of shows), reads newspapers/ magazines, and/or listens to radio, both overall and in proportions to one another as well as tastes in particular kinds of television and radio programs. Both types of measures may yield media-specific or overall scales, and the tracking results are likely to yield estimates of annual cycles of media consumption (for example, higher radio listening in the spring and summer than in the fall and winter).

### Bivariate Results

Examinations of the bivariate relationships among constructs in the hierarchy of effects model represent the initial steps in the testing of the model as a whole. They also provide needed answers to questions of practical importance in assessments of Army advertising effectiveness.

Our approach in examining the bivariate relationships among constructs will consist of several steps:

- (1) Assess the form of the relationship (i.e., linear, exponential, etc.) through scatterplots, analyses of variance and piece-wise regression;
- (2) Assess the strength of the relationship through sizes of correlation coefficient, tests of significance; and
- (3) Assess differences among segments and between youth and parents through analyses of covariance and/or regression substitution methods.

In Chapter 2 (Gaertner et al., 1988) and in the foregoing discussion, segments were used in isolating differences in univariate distributions of enlistment-related intentions, importance and perceptions of Army attributes, etc. In this section, segments tend to be used as specifying contexts for the operation of cognitive, conative and decision processes. Operationally, this implies that segments will be used as moderators and interaction terms when assessing the bivariate relationships among constructs in the model.

Table 7 displays the constructs in the model in matrix form with brief notations of the substantive issues addressed by the various bivariate relationships displayed. We can discuss some of these relationships in more detail.

#### Exposure/Media Habits and Recall

Some of the media habits measures operate as proxies for exposure, especially those asking whether the respondent regularly views/reads/listens to vehicles in which the Army disproportionately advertises. The correlation between these measures of exposure and recall of Army advertisements is of substantive interest to Army advertising managers. If the relationship is linear, the correlation gives some sense of how much exposure to the vehicle translates into what level of cognition of the advertisement. If the relationship has a "step" form (i.e., at some point, an increase in exposure yields a nonlinear increase in recall), this result would indicate a threshold for cognition of Army advertising. The correlations between other media habits measures and recall give a sense of what the marginal utilities of various kinds of vehicles are in terms of recall. The correlations between TV, print and radio consumption and recall will provide measures of the differential success of media in securing cognition of Army advertisements.

The correlations of the exposure proxies and the media habits (overall and by media) with knowledge, perceptions, propensity and behavior can be interpreted analogously as above, in yielding thresholds, marginal utility and differential success insights.

#### Recall and Knowledge

Recall (both aided and unaided) is a commonly used measure of cognition, "top of the mind" awareness and as a surrogate for advertising impact. In ACOMS, this latter assumption of impact will not be required, since independent measures of attitudinal and behavioral change will be collected. In order to assess the relationships between recall and related attitudes and behaviors, bivariate correlations between recall and the other measures will be produced. For example, the relationship between recall and knowledge of Army offers is a measure of comprehension of the information content of the Army's advertising. We would expect that respondents better able to recall advertising would have better knowledge of the Army's offers, although this may not be true generally or in some markets. If recall cannot be shown as linked to knowledge, or to related attitudes and behaviors, its usefulness as a measure of impact might be questionable.

The relationship between recall and perceptions is more difficult to interpret, since recall may cause perceptions (cognition leading to attitude change) or be caused by perceptions (selective attention to favorable objects). We can begin to tease out the causal direction both by path analysis and by panel analysis in the second and following years. The issue of causality is similarly confounded for intentions and behaviors.

Table 7  
 Bivariate Relations between Modules in the  
 Hierarchy of Effects Model

Recall	Knowledge	Perceptions	Intentions	Behaviors
Media Habits	COGNITION	ATTITUDE FORMATION		
Recall	COMPREHENSION			
Knowledge of Offers		DIRECTED ATTITUDE CHANGE		
Perceptions			CONATION	
Intentions				MOTIVATED BEHAVIOR

### Exposure/Recall/Knowledge and Importance/Perceptions

Since change in the perceptions of Army attributes is of fundamental importance for ACOMS and to the Army's communications programs, bivariate relationships between perceptions and the cognition measures are of particular interest. To the extent that the Army's advertising program is one of directed attitude change focused on particular aspects of Army offers, it is in these bivariate relationships that initial evidence of advertising impact can be uncovered.

We expect that exposure to, recall of and knowledge of the contents of Army advertising will be associated with more favorable perceptions of the Army. ACOMS will, however, be able to assess much more than this minimal result.

First, the Army's trimester advertising plan, supported by the dual market theory, allows fairly precise targeting of expected impacts of advertising effects. For example, in the fall the main advertising emphasis is on skill training, and the major prospect audience is high school graduates. Thus, as we noted in Chapter 2 (Gaertner, et al., 1988), if the advertising is effective, we should expect to see increased knowledge of skill training aspects of the Army's offer among high school graduates. To the extent that skill training is an effective sales point for this segment, we would further expect that knowledge of skill training options would produce favorable perceptions of Army skill training programs. In the winter and early spring, similar predictions would be made regarding college-oriented high school seniors and appeals emphasizing college funding. Thus, we would expect, if targeting were operating as hoped for, that particular directed knowledge-based appeals would be differentially effective for different markets in different seasons.

The issue of causal direction impedes unequivocal interpretation, however. It could be that favorably disposed respondents would have greater knowledge or recall of appeals of particular relevance. Thus, respondents favorable to Army skill training appeals would pay particular attention to them. As with recall, panel analyses should help to untangle the issue of causal direction.

### Perceptions/Importance and Intentions/Behaviors

In any assessment of the effectiveness of advertising, this set of relationships is arguably the most crucial. The hierarchy of effects model clearly suggests that if respondents are made aware of favorable aspects of the Army along dimensions of importance to them, they will become more favorable to enlistment in the Army and, other things being equal, be motivated to do something about enlistment.

Empirically, the hierarchy of effects model predicts that the product of perceptions and importance, summed over all attributes, will be the best predictor of behavioral intention and that neither perception nor importance would be as efficient as predictors. The model further suggests that segmentation will occur through systematic differences among youth in terms of importance (or perceptions) which

will identify markets. Thus, the college-oriented youth would place high importance on money for college, while the work-oriented youth would be expected to place emphasis on skill training. To the extent that each sees the Army as fulfilling his/her respective needs, the product (importance times perception) would be large, and a high behavioral intention predicted.

A simple example should suggest some of the issues involved in testing this model. Assume that there are really two markets: college-oriented prospects who are interested basically in money for college, and work-oriented prospects who are interested in skill training. To simplify things a bit, assume that the prediction equation for behavioral intention to enlist is:

$$BI = P_m * I_m + P_s * I_s \quad (1)$$

where  $P_m$  is the perception that the Army offers money for college,  $I_m$  is the importance of money for college,  $P_s$  is the perception that the Army offers skill training, and  $I_s$  is the importance of skill training. Fishbein and Azjen (1975) generally assume that no additional weights are required to reflect the differential impact of different perceptions. Rather, the importance scores are expected to substitute for additional weights. If the Fishbein and Azjen formulation is correct, equation 1 should have high predictive accuracy. However, consider some further assumptions. Assume that the youth market divides into two segments-- $S_m$ , youth interested in money for college, and  $S_s$ , youth interested in skill training. For youth in  $S_m$ , we can postulate that  $I_s$  will be small and  $I_m$  will be large, so that equation 1 becomes

$$BI = a_1 + I_m * P_m \quad (1a)$$

and for youth in  $S_s$  the equation is

$$BI = a_2 + I_s * P_s \quad (1b)$$

Empirically, the results would imply an interaction effect of segment on the association between perception and behavioral intention, particularly if importance were not explicitly entered in the equation. In fact, a segmentation based on importance of attributes is likely to yield results similar to 1a and 1b if equation 1 is correct. Thus, given appropriate assumptions about segmentation in the market and the bases of that segmentation, equations 1, 1a and 1b are all reflective of the same dynamics at work, in spite of being specified in quite different ways.

One goal of the bivariate analyses involving perceptions and intentions/behaviors will be to test the predictions of the Fishbein and Azjen formulation. A broader goal will be to develop explanations for the various forms the results might take.

### Intentions/Propensity and Behavior

The relationship between intentions and behaviors relating to enlistment is the jumping off point for the examination of goal-directed search. While this element is not a major initial concern of the ACOMS analysis, the examination of patterns of search behavior relating to propensity can provide useful marketing results. It may be, for example, that certain types of prospects engage in search behaviors in different ways, or that propensity is associated with search behavior for only some types of respondents. These results could help to target the Army's limited marketing resources on especially likely prospect markets.

### Multivariate Models of the Effects of Advertising

The Fishbein-Azjen (1975) hierarchy of effects model displayed in Chapter 1 has three main parts--a cognitive element, relating to media habits, exposure and knowledge/awareness; an attitude formation element, relating to perceptions, importances and attitudes toward enlistment; and a conative element, relating to intentions and behaviors. Building toward a more inclusive test of the model as a whole, the third major analytical activity in modeling the effects of Army advertising will be to construct smaller submodels of these cognitive, attitude formation, and conative processes.

Statistical methods are expected to involve path analysis and traditional regression and correlation analyses for the main submodels in the first year. To assess differences among segments, or between parents and youth, two alternative methods may be useful. First, we anticipate testing the sub-models separately in the various segments, searching for marked differences among them. Analyses of covariance can then be conducted to test for significant differences among segments.

Second, we expect to utilize the method of mean substitution, developed by Duncan, Featherman and Duncan (1972) to assess the impact of aggregate differences among segments resulting from differences in path coefficients. An example may clarify the procedure.

Assume we discover that even though high school students and graduates have roughly the same magazine readership patterns (i.e., the same levels in roughly the same magazines), but that high school graduates seem to gain more knowledge of Army offers from their reading than the students. Empirically, this would be reflected in a larger correlation (or steeper slope) relating levels of magazine readership to knowledge of offers for graduates than for high school students. We discussed this relationship between exposure and knowledge earlier in terms of comprehension. This difference in comprehension could be assessed directly by an analysis of covariance. However, a second method would be to substitute the mean level of readership for high school graduates in the standardized equation predicting knowledge from readership derived from high school students. If there were no difference between high school students and high school graduates in terms of the path coefficient, the predicted mean knowledge of

high school graduates would be equal to the observed mean. Since by assumption there is a difference--graduates will have more knowledge than expected assuming comprehension rates identical to high school students--the difference would reflect the additional knowledge gained by high school graduates from their greater rate of comprehension. This method yields results which can more easily be presented and explained than the more complex analyses of covariance, but are equally rigorous.

In the next sections we discuss the four submodels proposed for cognition, attitude formation, the combination of the two, and the model linking the combined sub-models with conation/ behavior.

#### Cognition of Army Communications Objectives

Measures in this part of the model include media consumption patterns, proxy exposure, recall (aided and unaided), knowledge of offers, slogan recognition and main message comprehension. The initial submodel to be tested is depicted in Figure 19.

Four classes of variables are displayed in the figure: media consumption, exposure to vehicles in which the Army advertises heavily, recall, and knowledge. The model displays minimal paths. Consumption of a particular medium is expected to result in exposure to the vehicles utilizing that medium, resulting in recall and knowledge. Further, the model depicts a fairly simple causal chain: consumption affects recall only through exposure, and exposure affects knowledge only through recall. In spite of its apparent simplicity, the model can address several issues of interest.

First, to the extent that there are differences by medium in the effects of consumption on exposure, the findings imply differential efficiency of ad placement for the various media. For example, if consumers of print media generally do not report exposure to Army-utilized vehicles at the same rates as consumers of television, there is reason to believe that the television placements are more effective than the print placements.

Second, if there are differences in the relationships between exposure to Army-utilized vehicles and recall (aided or unaided) by medium, these differences would reflect differences in impact of the various vehicles by medium, an area of obvious interest.

Third, if there are effects of consumption patterns on recall or knowledge, independent of exposure to heavily utilized vehicles, these effects might be interpreted as impacts of advertising in vehicles other than those explicitly queried. These effects could reflect unreliability in reporting of exposure to vehicles. They might also reflect the spurious effects of unmeasured variables. If these effects are large, the results might suggest a different selection of heavily utilized vehicles.

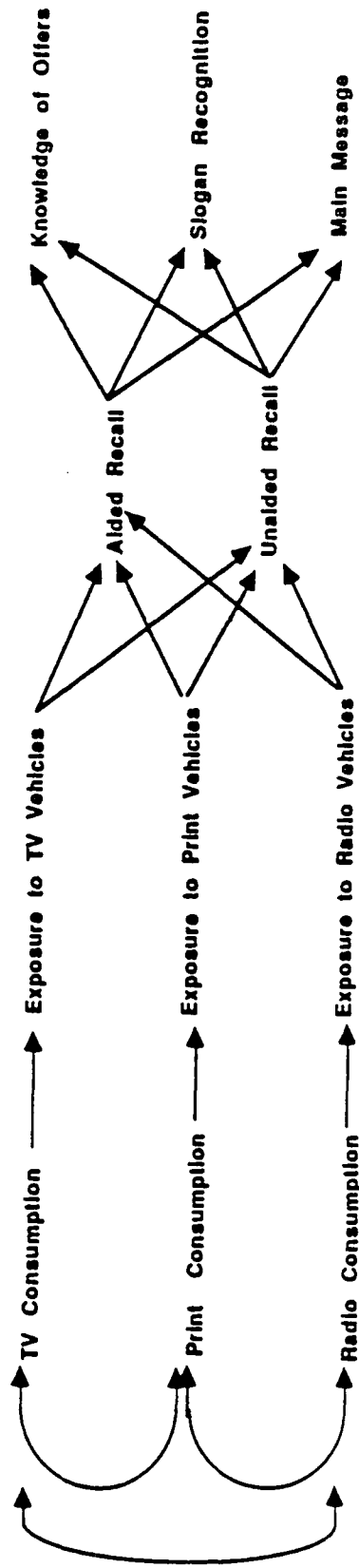


Figure 19. Cognition of Army advertising.



Fourth, if consumption or exposure affect knowledge, main message comprehension or slogan recognition independent of recall, the results would argue in favor of a pervasive process of communication, either interpersonal or not consciously perceived. Alternatively, the results might argue against the validity of recall measures in assessing advertising impact. To the extent that aided and unaided recall operate differently in this connection, the results might suggest the utilization of one or the other in subsequent analyses.

In addition to reviewing findings from the cognition sub-model taken as a whole, we can also replicate these results in the various segments and for the various components. The various segments are likely to have different levels of consumption of TV, print and radio, and therefore different levels of exposure to different Army-utilized vehicles. To the extent that their vehicle choices are different, the various segments are likely to have differential rates of exposure even with similar rates of consumption. Thus, the efficiency of different vehicles in reaching prospect youths might vary by segment. Further, it may be the case that specific levels of exposure for some medium may translate into various levels of recall for different segments. Thus, college-oriented recall may vary most by print exposure, while work-oriented recall might vary more by radio or television exposure. A similar case might be made for differences among segments in relating recall or exposure to knowledge, main message and slogan recognition.

The multivariate results for other Army components are more limited than those available for active Army. None of the other Army components advertises extensively on television or radio so that the proxy exposure measures will be less useful. We do, however, have exposure to print vehicles and aided and unaided recall for the various components, as well as knowledge questions directed to their specific offers. The analyses of print exposure, recall, and knowledge can therefore be conducted both overall and within and across segments.

#### Attitude Formation

Measures in this part of the model include perceptions of Army attributes, perceptions of the attributes of other services, perceptions of college and civilian jobs, the importance of attributes to the youth, attitude toward enlistment, and propensity to enlist in the Army or its components. We noted earlier that the hierarchy of effects model implies that attitude toward enlistment is a function of the products of importance and perceptions, summed over relevant attributes. We further noted that if market segments were specified in terms of importance, this model resolves into an interaction effect of importance on the relationships between perceptions and attitudes/intentions. This latter formulation may produce more useful results, as displayed in Figure 20.

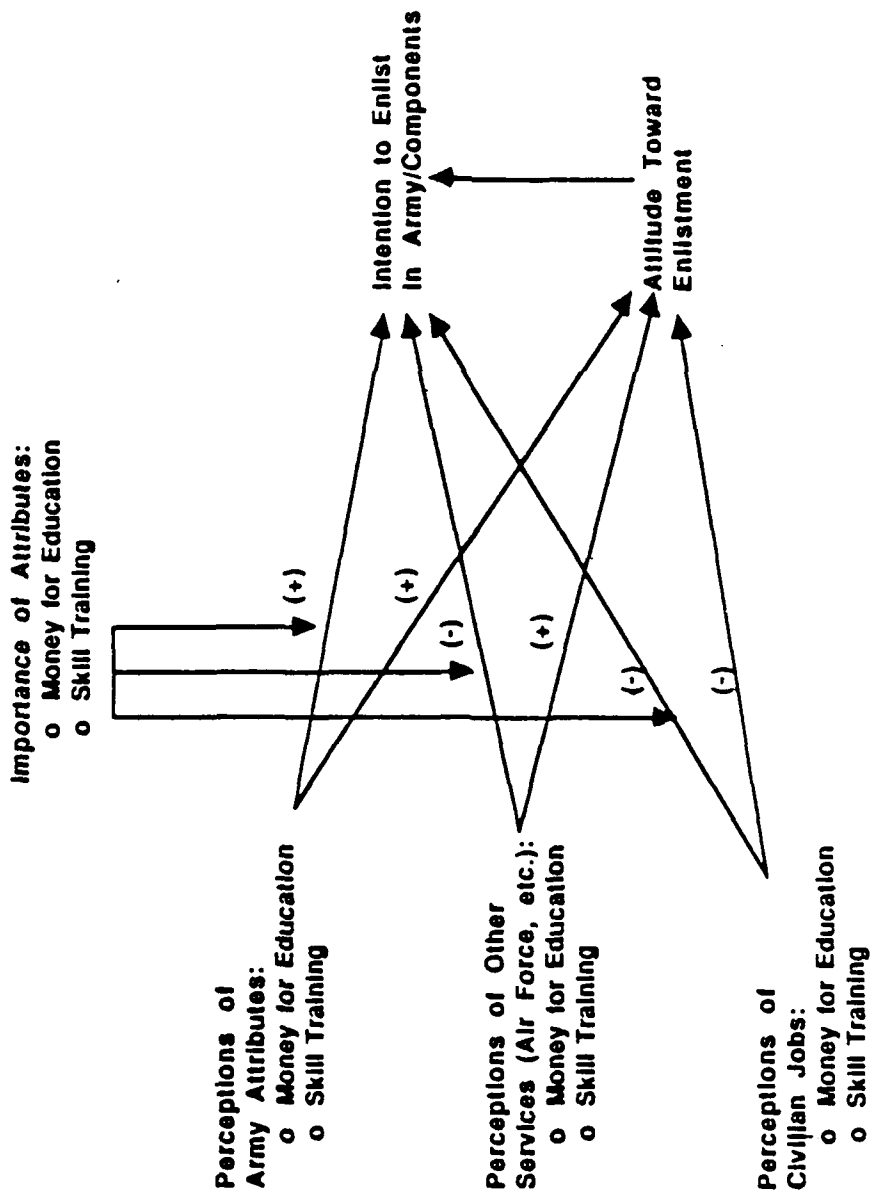


Figure 20. The attitude formation process.

Figure 20 presents a simplified model involving the prediction of intention to enlist in the Army and its components and attitude toward enlistment, as predicted by perceptions of the Army, of other services, and of civilian jobs, moderated by the importance of attributes. The direct paths connect variables expected to be associated; interactions are displayed by a path linking a variable to a path. The model is simplified in several senses. First, we assume only two perceptions/importances are relevant: money for education and skill training. In fact, there are likely to be several other dimensions of interest. Second, we show only those paths associated with money for education. (For purposes of this example, we ignore perceptions of college, since it seemed tortuous to argue that college offers opportunities for college funding.) Third, for purposes of clarity we do not show importance of attributes moderating the relationships between perceptions and attitude toward enlistment, although we expect to find this empirically.

In words, the model expresses the following expectations. The greater the importance of money for education to youth, the more his or her perception that the Army offers such money will influence his or her intention to enlist in the Army. However, the same is true for other services, so that the greater the importance of money for education, the more influence the perception that other services offer such money will have on the youth's intention not to enlist in the Army. A similar case can be made for civilian jobs. By implication, for education-oriented youth, the intention to enlist is the outcome of the relative weight of perceptions that the Army offers opportunities for funding college balanced against the belief that other services and civilian jobs offer the same opportunities.

The dynamics of attitude toward enlistment generally should be similar with one exception: the attitude toward enlistment is the outcome of the perceptions that the Army and other services offer the attribute of interest, weighed against the perception that civilian jobs offer a similar benefit.

The path-connecting attitude toward enlistment and intention to enlist in the Army can have two interpretations. It may reflect the fact that youth who favor enlistment tend to enlist in the Army simply because the Army enlists more youths than other services. It may also mean that any attitude to enlist favors the Army by virtue of its greater education benefits, job opportunities and the like.

While the model as displayed in Figure 20 emphasizes money for education, parallel interpretations could be made for skill training. For example, the model (properly diagramed) would argue that for skill-oriented youth, the intention to enlist in the Army is a outcome between the perception that the Army offers skill training weighed against the perceptions that other services or civilian employment offer similar opportunities. Further, the model could be expanded to include analysis of the perceptions of the various Army components.

The model makes no assumptions regarding the relationship between the importance of money for education and the importance of skill

training. It may be that they are negatively related (youth desiring money for education may tend not to want skill training), independent, or positively related. Similarly it may be that perceptions of attributes are negatively intercorrelated (indicating a specialized market position), or positively correlated (indicating a powerful image which diffuses discrimination among attributes).

Further, the model makes no assumptions regarding the relations among perceptions across services. It may be that youth who see the Army as offering money for college are more or less likely to see other services as offering similar benefits. Similarly, the model makes no assumptions regarding the relations among perceptions of Army components. They may be positive, indicating a strong brand image, or negative, indicating attitudinal niches for the various components.

This model of attitude formation allows us both to utilize the conceptual and empirical basis of the Fishbein and Azjen (1975) utility model of attitude formation while emphasizing competitive positioning and brand differentiation for various classes of offers (among services and compared with jobs, college, etc.) It further allows us to analyze the internal structure of perceptions and needs to determine areas of image and offer strength and weakness. This aim is furthered by linking the models of cognition and attitude formation, as we discuss in the next section.

#### Combined Models of Cognition and Attitude Formation

By linking the models in Figures 18 and 19, we can begin to assess the effects of Army (and other service) advertising on perceptions and intentions. A simplified version of the linked submodel is depicted in Figure 21. As with previous models, only minimal paths are specified. According to the model, we expect exposure to and recall of Army advertisements to affect knowledge of Army offers and main message comprehension. Further these can be expected independently to affect perceptions of Army attributes. They also may affect importance of attributes by heightening youth awareness of various opportunities (for skill training, educational benefits, etc.).

Paralleling this influence process, however, we also have measures of recall of other services' advertising, and indirectly, youth knowledge of other services' offers. For example, we have measures of respondent knowledge of whether Army educational benefits are greater or less than those offered by other services, and which services offer the GI Bill. By implication, we have information on youth knowledge of other services' offers relative to those of the Army. Finally, we have measures of other services' main advertising messages and the perceptions of other services. Thus, we can model the parallel influence process for other services, with recall leading to knowledge and main message, and both leading to perceptions.

The first step in testing this linked model will be to verify that the hypothesized paths relating exposure and recall to knowledge and main message comprehension, and then in turn to importance and perceptions, do exist. We will look more specifically at which

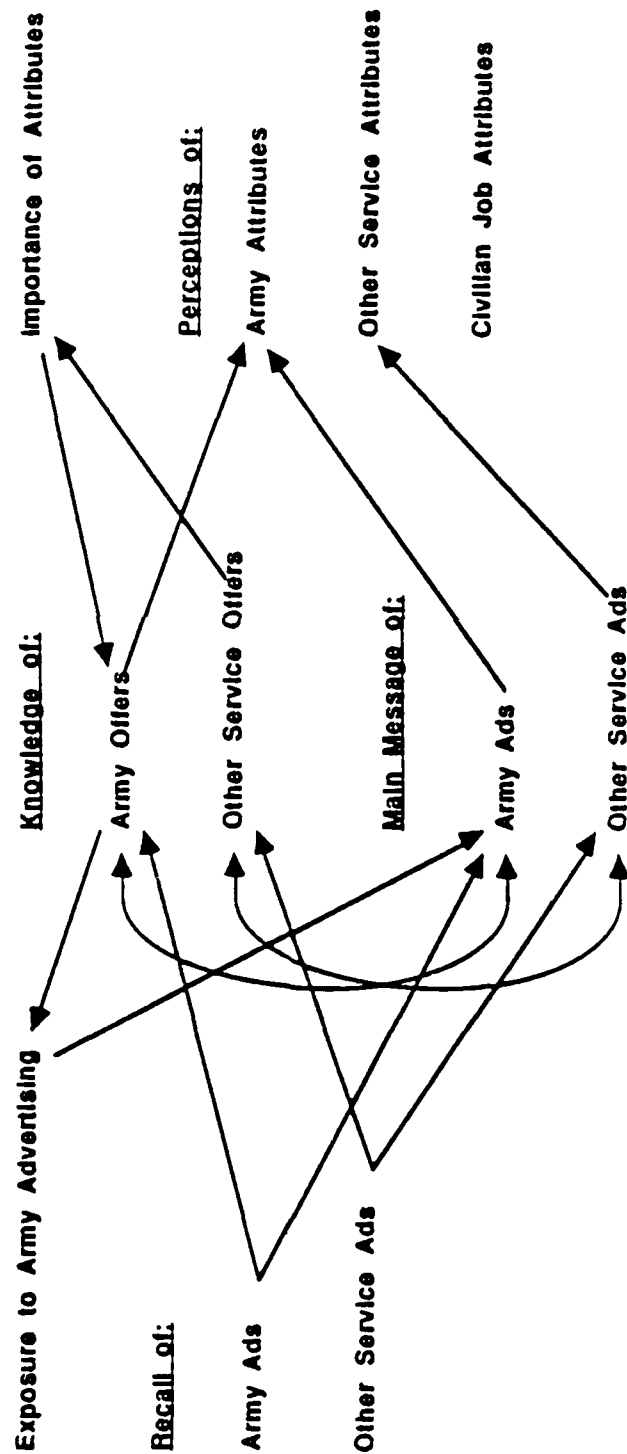


Figure 2L. Linked models of cognition and attitude formation.

perceptions are affected by advertising recall and exposure. In this first step, we expect to model the influence process separately for the Army, its components and for the other services.

The second step will be to compare the coefficients in the model across services, deriving measures of the relative effectiveness of Army and other services advertising. Thus, for example, we could say that main message comprehension of Army advertising affects perceptions of Army attributes a given amount, measured by the path (or regression) coefficient relating them. A similar coefficient can be derived linking other service main message comprehension to other service perceptions. If the coefficient for Army advertisements is larger than that for other services, we can infer that the Army message was more effective at influencing respondent perceptions.

A third step will be to assess whether paths not specified in the model do in fact exist. For example, is recall of Army advertising associated with perceptions of the other services, net of recall of the other services' ads? This would be evidence of either misidentification of viewed advertising or a diffusion of advertising influence. Diffusion might occur if viewers took the Army's advertising message to be applicable to all of the military services.

#### A Linked Model of Cognition, Attitude Formation, and Conation/Behavior

The fourth submodel to be examined links the measures of intentions, propensity and behavior and produces the model presented in Figure 22. This model approaches the full model described in the next section. Here, we would direct our attention specifically to the effects of advertising and perceptions on intentions and behavior. These latter measures would be derived from questions regarding the respondent's attitude toward enlistment, whether he or she is likely to enlist (and in which service or component), and what behaviors he or she has undertaken to that end.

This model asks whether attitude toward enlistment and intention to enlist in the Army and its components is dependent on perceptions of Army attributes, alone or in combination with the importance of those attributes. Using the results from Figure 20, we would go on to examine which perceptions are most important in predicting attitude and propensity. We can then move forward in the model, asking whether propensity and attitude are associated with behaviors (and which behaviors). We can also move backward by asking whether exposure to and recall of advertising predict attitude and propensity independently of perceptions, or whether the effects of advertising are filtered through intentions. Assuming that exposure to advertising results in positive attitudes toward enlistment, a predominantly indirect effect would argue that the Army attributes encompass the predominant buying motives of enlistment-minded youth. A direct effect of advertising exposure (unmediated by perceptions and/or importance) would argue for enlistment as an "impulse purchase," or as operating through mechanisms or attributes unrelated to measured attribute perceptions.

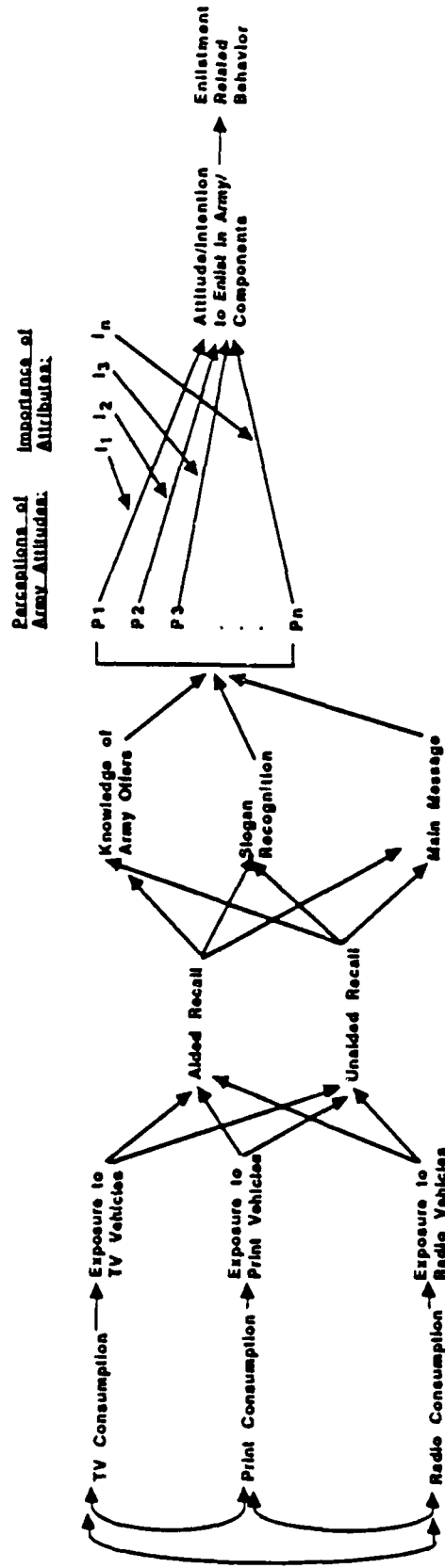


Figure 22. Linked cognition, attitude formation, and conation/behavior models.

Perhaps most importantly, we can observe which of the two- (or three-) step paths from advertising cognition through perceptions have the strongest indirect effects on intentions and behaviors. The model's assumption that the effects of advertising are mediated by perceptions and importance has several important implications. Some perceptions which (in combination with importance) might be expected to have strong influences on intentions may not be easily influenced by advertising (e.g., patriotism). Other perceptions which might be relatively easily influenced by advertising may not be important motivations for enlistment. The analyses of the two-step paths should uncover those perceptions which both can be influenced and are important for enlistment.

In fact, because the two-step path through perceptions involves an interaction term, it may be that the most critical advertisements are those that influence perceptions which interact strongly with importance for a large population segment. Thus, for example, advertisements emphasizing college funding are effective if, for a reasonably large youth segment, (a) the importance of college funding opportunities (b) interacts strongly with the belief that the Army represents a source of funding (c) on enlistment intention. In other words, the advertisements are effective if a large segment is motivated to enlist in the Army by college funding, and if advertising can influence the belief that the Army represents a source of college funds.

Further analyses will be directed at the paths not specified in the model in Figure 22. As noted above, it may be that recall measures do not mediate the effects of exposure on knowledge and subsequent variables. This would mean that the paths between exposure and the dependent attitudes and perceptions are direct.

Finally, the model will be replicated among segments and components and over time. As outlined above, the method of mean substitution and analysis of covariance will be utilized for these replications.

#### A Path Analytic Model for the Effects of Advertising

One of the major analytic activities in modeling the effects of Army advertising will be the testing of the full Fishbein and Azjen hierarchy of effects model. The testing of the full model represents an advance beyond the previous discussion of sub-models in a number of respects.

First, the discussion of submodels has emphasized the top row of constructs in the model, those pertaining to youth processes of cognition, attitude formation and conation. However, the hierarchy of effects model includes second and third rows of constructs specifying the social and parental influences on the youth's decision-making. Thus, testing the full model will allow the estimation of the effects of perceived norms (emanating from parents and others) regarding



enlistment, and the inclusion of the parallel processes of parental cognition, attitude formations, and influence behavior related to Army enlistment.

Variables incorporated in the social influence process include the numbers of friends and/or relatives of the youth who have served or are serving and what their branch is (questionnaire item SI-2 and following), the youth's assessment of what the attitudes of peers and authority figures (e.g., parents, friends, counselors, teachers, fellow students, employers and co-workers; derived from SI-1), the youth's assessment of his or her parent's influence (PL-2) and the youth's assessment of whether people like him/her are joining the Army (PE-15). While considerations of interview length did not allow a complete test of the Fishbein and Azjen elaboration of social influence processes, we have included several constructs of theoretical interest. We can, for example, correlate perceived attitude of peers and authority figures with the youth's perception of norms regarding enlistment (measured by PE-15). The differences in size among these correlations will give some indication of differential congruence between perceived attitudes and perceived norms. Further, correlations between norms and peer/authority attitudes on one hand, and attitudes toward enlistment on the other, will indicate the relative importance of social influences on youth attitudes. Finally, the correlations between service experience of peers and relatives and the youth's perceived attitudes, norms and intention to enlist will indicate the importance of other's actual military experience in the social influence process.

As noted in Chapter 5 (Baxter, 1988) on the analysis of the parental influence process, we have extensive information on the media habits, exposure, recall, perceptions, importance and behaviors of parental influencers for the parental-linked youth sample. These variables and the results of the analyses described in Chapter 5 can be integrated in the full model as time and resources permit.

A second advance of the full path model testing over the sub-models described earlier is that the full model allows systematic tests of the correlational adequacy and statistical implications of the model in an integrated framework. Correlational adequacy will be assessed several ways. First, using the first two quarters of data collected, path coefficients can be calculated for the hypothesized relations in the model. Since the model as specified is comparatively parsimonious (i.e., many potential paths are not included), the model will not fit the matrix of zero order correlations exactly. Thus, one early test of the model will be to assess what additional paths need to be included (or existing paths deleted) for the path model to be adequately descriptive and still parsimonious.

A second test of the correlational adequacy of the model will be to perform the mean substitutions among segments described above, as well as analyses of covariance as required. The purpose here will be to determine whether the model is appropriate for all of the various segments or whether different models will be required for different segments. A parallel procedure can be conducted for the various

components to determine whether the overall model is descriptive of the decision-process for the Army Reserve, Army National Guard and Reserve Officers' Training Corps (ROTC) as well as the active Army. Again, the model will then be re-specified in as many versions as necessary.

A third test of the correlational adequacy of the model is permitted (and in fact required) by the scheduling of the first year. Preliminary analyses will have to be conducted well in advance of the annual report--we have proposed to conduct these analyses on the first two quarters of data. At the same time, the annual report should include data from the full year of data collection (in this case, through June 30, 1987). Thus, the scheduling allows a split-half design to test the stability of the observed correlations and the overall adequacy of the model. This activity will begin July 1.

Beyond the tests of correlational adequacy of the model, we can assess the statistical implications of the path analysis for advertising decision-making. As is well-known (Land, 1969) in the path analytic context, the zero order correlation between two variables can in non-recursive models be decomposed into three components: (a) direct; (b) indirect; and (c) spurious (i.e., noncausal). Direct components are represented by the path connecting the variables, indirect components by the products of the n-step paths through intervening variables, and spurious components by the products of paths through causally prior variables, with some exceptions (see Duncan, 1975). Computationally, the direct effects component is the beta from the full regression involving all the predictors. The indirect effect is the partial beta between the predictor and the dependent variable controlling for all causally prior variables minus the direct effect. The spurious component represents the zero-order correlation minus the partial beta controlling for causally antecedent variables. For an example, see Gaertner (1983).

This decomposition has fairly direct implications for advertising policy. For example, it may be that measures of awareness of advertising are correlated with attitudes toward enlistment or intentions, but that the decomposition shows the effect mainly to be spurious due to background factors. This result suggests that at a certain life stage, youth begin to pay attention to Army advertisements and begin to form attitudes toward enlistment or make enlistment plans. It would be hard to argue, given this set of results, that advertising has created the awareness. As another example, we might expect recall of advertising to have comparatively weak direct effects if it has little direct causal force. Further, where and how parental influence enters into the overall decision process is as yet an open question, as is whether advertising to parents has much effect either on parental attitudes or indirectly on youth attitudes.

A final step in the path analysis will be to assess the relative sizes of the various paths in order to draw policy implications. As noted above, it is possible (or even likely) that some perceptions may have greater overall effects on attitudes than other perceptions. Comparisons of these effects, net of prior variables in the model,

should suggest directions for future advertising executions. (The statistically minded reader may note that it is difficult to incorporate interactions in a path analysis, but that much of the previous exposition was directed to the interaction effects of importance on perceptions. The simplest way to handle these difficulties is by developing different models for different segments, but other alternatives will be considered.)

These analyses should encompass the modeling effects activities during the first year of data collection. In fact, it is likely that not all of the above analyses can or will be conducted. In-progress briefings and interim papers and reports should allow the Special Advisory Group (SAG) and the U.S. Army Research Institute (ARI) opportunities to give Westat guidance on directions for the research. We discuss scheduling for these interim work products in Chapter 8 (Gaertner, 1988).

#### Analysis Steps (Year 2)

We will treat proposed activities for the second and following years in more cursory fashion for several reasons. First, much of the analytical activities of the second year will depend on what is discovered in the first year of data collection. Second, the second year's activities can and should be shaped by the reactions of the SAG to content and methodological strategies in the research, as well as collaborative research efforts with Army analysts. Finally, as new contexts for the communications objectives (and perhaps new objectives or markets) are developed, the research plan should be altered to accommodate them. Nonetheless, some activities for the second year seem likely to have high priority.

The second year of data will be used to stabilize the tracking components and to replicate the basic model arrived at in year 1. In this sense, some activity will be devoted to consolidating the analytic results of the first year. Using a split-half method, second year data can be used to retest the path model. Further, the data (if no changes in correlations over time can be detected) can be pooled to produce increased precision in estimates overall and by segment and component.

We can include new segmentation and brand differentiation strategies developed in year 1 in the basic model. These new segmentation strategies can also be used to modify the quarterly reports, as discussed in Chapter 2 (Gaertner et al., 1988). Further, with the second year of data collection, gross estimates of seasonality can be made and trend analyses can be extended for tracked measures and scales.

Perhaps most importantly, the second year of data collection begins the longitudinal component of the analysis. As described in Chapter 1 (Gaertner, 1988), one quarter of the Primary Male Sample (PMS) and Primary Female Sample (PFS) youth will be reinterviewed annually, for a total of more than 2500 reinterviews in the first

year. This longitudinal component provides a critical element in the overall ACOMS measurement and analysis system in several respects.

First, while the path analytical results can show what sets of causes and events are plausible and consistent with the cross-sectional results, the determination of whether advertising exposure actually leads to enlistment-oriented perceptions, attitudes and behaviors can only be assessed over time. Longitudinal analyses can examine how exposure in earlier times leads to "top-of-mind" awareness of Army offers and perceptions favorable to enlistment as youth prepare to make commitments to work, college, and/or service. We propose to use cross-lagged panel correlation analysis (Cook & Campbell, 1979) to assess the causal efficacy of relationships drawn from the longitudinal data.

Second, the longitudinal data should allow the charting of enlistment histories and milestones for enlistment-related attitudes and behaviors. The questionnaire contains measures of behaviors undertaken as youth explore their career options. These data, assessed longitudinally, can show how youth progress toward enlistment (and/or college/ career choice) and what the major barriers appear to be. The generic form of this analytic approach has been described as event history analysis. Event history analysis is a generic label for analyses of longitudinal data having as their principal characteristic, the occurrence or nonoccurrence of some event (e.g., death, marriage, arrest, enlistment, etc.). Among the wide variety of regression models suitable for event history analysis are logistic regression, parametric models such as the exponential, Weibull and Gompertz regression models, and semiparametric models such as the proportional hazards model. Event history analysis has been utilized in the description and prediction of employment histories (Rossi, Berk, & Lenihan, 1980), the effectiveness of various treatment regimens (Crowley & Hu, 1977), juvenile delinquency (Wilson, 1981), and the development of political attitudes (Tuma, Hannan, & Groeneveld, 1979). Westat researchers have utilized event history analysis to describe the process of Army Delayed Entry Program loss and accession under contract with ARI. The analytic technique has been discussed at length in our original proposal, and subsequent instrument design has been guided in part by an interest in pursuing this analysis in the second year.

It should be noted that annual reinterviews may not be ideal either for event history analysis or for establishing causal sequences. The critical events in postadolescent career choice are not necessarily annual, or even uniformly spaced over the period from 16- to 24-years of age. Rather, it seems likely that junior and senior year of high school will be particularly eventful for sampled youth, particularly with respect to enlistment decision-making. For this reason, it may be sensible to reinterview some or all of these youth more frequently than annually, and to reinterview younger and older respondents less frequently. These issues will become part of the design of the longitudinal component of ACOMS in the upcoming months.

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## 7. PLAN FOR THE INTEGRATED ANALYSIS OF FIT, EXPOSURE, AND CHANGE

Gregory H. Gaertner and Sandra J. Baxter

### Introduction

The Statement of Work for the Army Communications Objectives Measurement Survey (ACOMS), as amended, asks for a comprehensive analysis of:

- (1) how the Army's existing advertisements embodied the Army's communications objectives;
- (2) how the Army's advertising placements reflected the communications objectives; and
- (3) how changes in the Army's advertising content and placement were reflected in the knowledge, attitudes and behaviors of the Army's target markets.

The first analyses can be referred to as examining the "Fit" of advertisements to communications objectives; the second as examining the "Exposure" of Army advertising; and the final segment as referring to the examination of "Change" in youth attitudes based on exposure to the themes embedded in Army advertising.

Chapter 6 (Gaertner, 1988) outlined a course of analytical activities relying only on the main ACOMS interview data. In this chapter, we extend this proposed analysis plan to include data on Fit and Exposure and its relations to Change in attitudes. Since the current chapter also includes descriptions of proposed data collection for the Fit and Exposure data, we provide only an outline of the proposed overall analysis of Fit, Exposure and Change. A more detailed analysis plan is anticipated during Phase IV, as issues in the acquisition of necessary data are clarified and resolved.

We begin this chapter with a proposed strategy for the acquisition of data to assess the message content of Army advertising. We then discuss issues in the measurement of exposure to Army advertising and propose a strategy for the acquisition of syndicated data measuring exposure to Army advertising. Finally, we provide an outline of the plan for the integrated analysis of Fit, Exposure and Change.

### Message Content Analysis

The message analysis will be based on intercept interviews conducted with youth in shopping malls in five cities. While several respondent selection criteria will be used (as described below), there is no intention for the youth to constitute a representative sample producing nationally generalizable results.

Unlike copytesting, used by the Army's advertising agency as a developmental tool, the message analysis will employ finished advertisements. Fifteen 30-second television ads and 13 print ads

(see Figure 23) will be tested at each of the five sites. Each youth will be shown one Army ad buried in the middle of four "clutter" ads for audio equipment, a car, financial services, and insurance. The clutter ads were selected as typical of advertising shown during the same television programs or appearing in the same magazines as the Army ads. After several questions assessing unaided and aided recall of ad sponsors, the Army ad will be shown again and the respondent asked to indicate how much the ad carries each of 14 possible messages regarding Army service (listed in Figure 24).

#### Sample

Interviews will be conducted with 4,200 youth 16-to 24-years-old who have no more than two years of college education and are without military experience. Three questions in the screening portion of the questionnaire in the appendix insure that the respondents meet these age, education, and military experience criteria. Interview supervisors will be instructed to select respondents to approximate the following desired sampling proportions:

- (1) 35% are 16- to 18-years-old, and 65% 19- to 24-years-old,
- (2) 75% are men and 25% are women (except for ads directed to women, for which the gender percentages will be reversed), and
- (3) 75% are White, 15% Black, and 10% of other ethnicity.

#### Sites

The shopping malls will be located in five cities--New York, Chicago, Atlanta, Dallas, and Los Angeles--chosen to represent the major geographical regions of the country. At each site 30 youths will be interviewed for each of the 28 advertisements, generating 840 respondents per site, for totals of 150 respondents per ad and 4,200 respondents in the study. The interviews will be conducted by subcontractors who routinely perform mall-intercept surveys.

#### Stimulus Packages

Each Army television and print ad will be packaged in the same set of clutter ads in the identical order. For the television ads, respondents will be shown a video tape (using a 3/4" tape VCR and color television set) with the following content:

- (1) Title board showing sequence number of ad (5 sec.)  
(pause: 5 sec.)
- (2) Clutter ad #1 for a car (30 sec.)  
(pause: 5 sec.)
- (3) Clutter ad #2 for a financial service (30 sec.)  
(pause: 5 sec.)
- (4) Army ad (30 sec.)  
(pause: 5 sec.)



<u>Television Ads</u>		<u>Print Ads</u>
1.	The Letter	(similar) 1. The Letter
2.	MLRS	(similar) 2. MLRS
3.	TACSAT	(similar) 3. TACSAT
4.	Promises Kept	(similar) 4. Promises Kept- 2 yr.
		(similar) 5. Promises Kept- 4 yr.
5.	Father & Son	(similar) 6. Father & Daughter
6.	Computer Expert	7. Get Technical
7.	Theme	8. Hi-tech Aviation
8.	Visibility Poor Rev.	9. Black WOFT
9.	Choices Rev.	10. Hispanic WOFT
10.	9 AM Rev.	11. We Were There
11.	Ranger Pride	12. 2+2+2
12.	Apache	13. College Preparation (Black GI Bill)
13.	Light Fighter	
14.	Alpha Team	
15.	Flight School	

Figure 23. List of Army ads by medium and sequence showing those with similar content.

SORT BOARD CARDS

SHORTHAND LABEL  
FOR ANALYSIS PURPOSES

[The Army offers:]

- |    |   |                         |
|----|---|-------------------------|
| A. | A wide variety of opportunities to find a job you can enjoy.                    | "job can enjoy"         |
| B. | A physically challenging environment.   | "physical challenge"    |
| C. | An experience you can be proud of.  | "experience proud of"   |
| D. | An advantage over going right from high school to college.                      | "pre-college advantage" |
| E. | An opportunity to develop leadership skills.                                    | "leadership skills"     |
| F. | The chance to work with the latest high tech equipment.                         | "high tech equipment"   |
| G. | A great value in your civilian career development.                              | "civilian career"       |
| H. | An excellent opportunity to develop self-confidence.                            | "self-confidence"       |
| I. | The opportunity to develop your potential.                                      | "develop potential"     |
| J. | A mentally challenging experience.  | "mental challenge"      |
| K. | An opportunity for you to become more mature and responsible.                   | "mature/responsible"    |
| L. | Many opportunities for training in useful skill areas.                          | "useful skill"          |
| M. | Many chances to work with highly trained people.                                | "trained people"        |
| N. | An excellent opportunity to obtain money for a college or vocational education. | "education money"       |

Figure 24. Fourteen attributes of Army ads for Sort Board cards, and shorthand labels.

- (5) Clutter ad #3 for audio equipment (30 sec.)  
(pause: 5 sec.)
- (6) Clutter ad #4 for insurance (30 sec.)
- (7) Title board reading "End of Ads" (5 sec.)  
(pause: 15 sec.)
- (8) Army ad reshown (30 sec.)
- (9) Title board reading "End of Sequence" (5 sec.)

The Army television ads will be edited into 15 stimulus packages (numbered 1 to 15) and then put in sequence on one master video tape. Each site will receive copies of the master tape, thereby standardizing the order of presentation of the video stimulus packages.

The 13 Army print ads will also be positioned after print ads for a car and financial services, and before ads for audio equipment and insurance. Another copy of the same Army ad will then follow. Each of the original 13 stimulus packages will be reproduced on a color photocopying machine, placed in plastic page protectors and compiled in a three-ring binder. Printed pages will be used in lieu of the beginning and middle title boards to indicate the sequence number (1 to 13) of the stimulus package and the end of the five ads initially shown. Interviewers will be given copies of the binders and instructed to use them in the sequential order of the ads, standardizing presentation order as with the video stimulus packages.

#### Materials

In addition to the questionnaires, the survey will require preparation of a screening card to be handed to potential respondents (see page 10 of the questionnaire), and sort boards and cards listing the 14 attributes of Army service plus another attribute ("The Army offers a good opportunity to show one's patriotism.") to demonstrate for respondents how the sort board is used. We will also produce five signs (one per site) and numerous 5" x 8" cards to be handed out, all containing the Privacy Act Notice (shown in Figure 25). Training materials for interviewers and their supervisors will also be needed.

Finally, we will have to prepare appropriate numbers of copies of the two stimulus packages, the video tape and binders containing the print ads. The mall-intercept survey firms differ in the number of 3/4" VCR machines they use. The New York firm has three, the Los Angeles firm has two, and the Atlanta, Dallas and Chicago firms have only one. Each site will be sent twice as many tapes as they have VCRs and twice as many binders as they expect to use on a daily basis to allow for damage to the stimulus packages.

#### Pilot Test

To test the full set of survey procedures, including the training materials, we will conduct a very small pilot test. The pilot test will be conducted at Springfield Mall in Virginia, using the supervisors and interviewers hired by The Opinion Centers, a mall-intercept survey firm based in northern Virginia. It is important to conduct the pilot test in an actual mall setting for two reasons: (1) it

PRIVACY ACT NOTIFICATION

(NAME OF FIRM)

- You are being requested to participate in research on advertisements aimed at young adults.
- Your answers are voluntary and confidential, and you may choose not to answer any question.
- The information you give us will only be used in combination with the answers from many other young adults.
- This research is authorized by law (10 USC 503 and 10 USC 2358) and the information you give us is protected by an Act of Congress called the Privacy Act of 1974.

Figure 25. Privacy Act notification to be used on signs and hand-out cards.

provides the opportunity to observe a data collection method new to most of us, and (2) it allows us access to training materials used by a mall-intercept firm which can serve as models for our own.

Eight respondents will be given the video tape stimulus packages, and eight the print ad packages. The video tape respondents will be given only seven of the fourteen cards listing Army attributes to sort following the second exposure to the Army ad. The print ad respondents will be given the remaining seven cards.

### Analysis

The analyses outlined in this chapter are based solely on the message survey data; the analyses which integrate the message data with those from the ACOMS survey and syndicated exposure data sources are outlined next.

The stand-alone message analysis will be conducted in three phases, each focused on different issues. During each phase, the initial analyses will answer a number of research questions focused on the Army ads and the messages and attributes ascribed to them. Subsequent analyses will look for patterns in the first analyses, such as long-running versus newer ads and ads with similar versions in both media versus those without (see Figure 23). The final set of analyses will explore response differences by demographic characteristics of respondents (gender, age, education, and ethnicity), by geographical area (the five sites), and by unaided (questionnaire item 6) and aided (items 15 through 18) career intention, i.e., work, school, military service, or active Army duty.

In Phase I, the ads will be analyzed in terms of recall to answer a series of research questions:

- (1) What percent of the respondents mentioned the Army ad first on the unaided recall question (item 7 in the questionnaire)? What percent mentioned the Army ad anytime with unaided recall, and what percent required aided recall (item 9)?
- (2) Which Army ads had the most frequent mention with unaided recall? Which the least?
- (3) What percent of the respondents did not recall seeing the Army ad at all?

In Phase II, the ads will be assessed according to the messages they conveyed to the respondents, both main message (item 10) and secondary messages (item 11):

- (1) What is the main message communicated by each ad according to the respondents who, unaided or aided, recalled it? What is the full set of messages they derived from each ad?

- (2) Summarizing across the television and print ads in turn, what are the major messages conveyed by Army advertisements in each medium?
- (3) Do the ads fall into distinctive groups within media? Do these groups coincide with actual campaigns?

The Phase III analyses will focus on the 14 attributes (queried in questionnaire item 12 and shown in Figure 24) of Army service and the respondents' descriptions of each ad as having more or less of a given attribute. The questions addressed in this phase include the following:

- (1) What is the mean score of each attribute across all television ads? Across all print ads? Which individual ads have scores above the mean for each attribute in turn?
- (2) What are the primary attributes ascribed to each ad?
- (3) How do the ads cluster on each attribute?
- (4) When clustered according to main attribute(s) (e.g., code value seven to ten), do the ads fall into distinctive groups within media? Do these groups coincide with actual advertising campaigns? Are the groupings similar to those based on main message analyzed in Phase II?

#### Schedule

The schedule for completion of the message analysis, shown in Figure 26, is premised on receipt of OMB clearance in mid-April. Arrangements and materials for the pilot test will be readied in early February for actual piloting the third week of the month. Following revision and reproduction of the materials, they will be distributed to the five sites in mid-March. Training of supervisors and interviewers will be held at the sites over a two-week period during the end of March and beginning of April.

Interviewing will begin immediately after OMB clearance is received thereafter and extend for nine weeks. The length of this period is due to the relatively low incidence of potential respondents in shopping malls and the fact that most firms conduct interviews only Thursday through Saturday, days when the most shoppers are in malls.

Data preparation will follow the interviewing period by one week but will continue for four weeks after the end of the fielding. Analysis will begin in mid-July, 1987, for six weeks. Drafting of the report will begin three weeks into the analysis and end, with analysis, in late August. The report will be put into final form during September and early October.

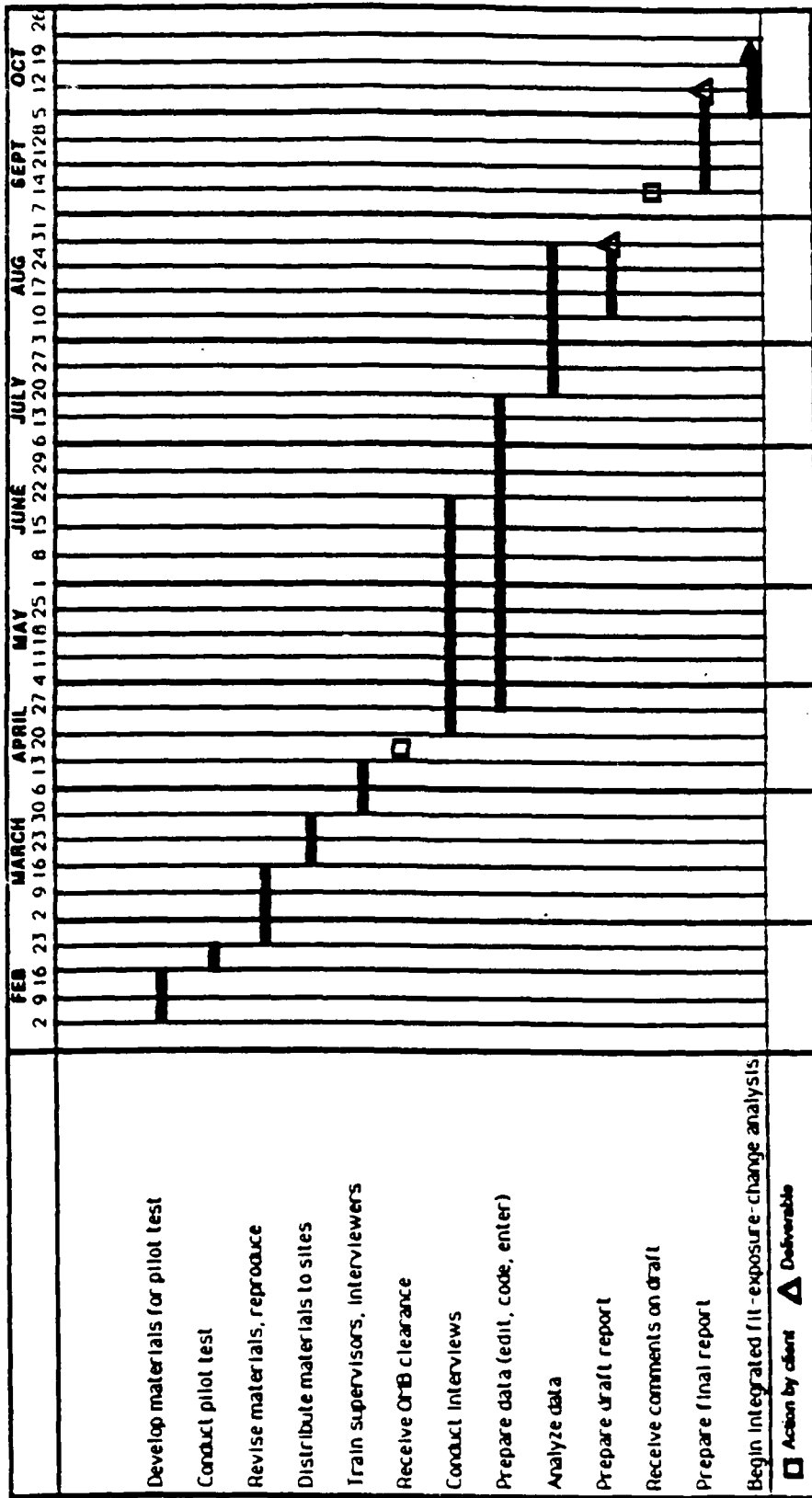


Figure 26. Schedule of activities for message analysis.

### Exposure to Army Advertising

The message content analyses will tell us what messages are seen by youth in Army television and print executions, but not how frequently youth are exposed to these messages. Ideally, of course, we could ask youth surveyed in the main ACOMS interviews how many Army advertisements they had seen, but they are unlikely to be able to say with any accuracy. We could, alternatively, ask them when they had watched television in some previous period and match up their reports against advertising airings to see whether they had been exposed to Army advertisements, but this inquiry would take up too much of the interview. Instead, what we propose is to learn how much exposure to Army advertising was received by other youth who are very similar to the interviewed youth, during the same period as the interviews. Then we will assume that both groups of youth were exposed to about the same amount of advertising. In fact, we will append these exposure estimates to the ACOMS respondents' data files. We outline these technical procedures next.

The more closely the group providing the exposure estimate matches the survey respondent, the more accurate this estimate will be for the survey respondent. Unfortunately, as might be expected, the closer the match, the more expensive the data.

Day-part estimates of television audience published by Arbitron or Nielsen give numbers of people viewing a given station in a small geographic area in quarter-hour intervals broken out by sex for ages 2 to 17 and 18 to 24 (and older, which does not concern us here). Local geographic areas for Arbitron are defined as Areas of Dominant Influence (ADIs); for Nielsen, these are called Dominant Marketing Areas (DMAs). While these sources are comparatively inexpensive they have two drawbacks. First, we would need to match the advertisements aired (by ADI or by DMA) to the day-part schedule to see whether the sex/age group of interest was likely to be watching. Second, the published groupings are fairly imprecise, allowing only very approximate imputation of likely exposure. In practical terms, we would have to assume that all males 18 to 24 in a given ADI (or DMA) would be equally likely to have seen a particular Army advertisement aired at a given time on a given station.

We would like, therefore, to be able to draw more directly on the data from which the published reports are derived. Unfortunately, these data are proprietary. Further, even if we could get them, they are so extensive (100,000 diaries of viewing by the quarter hour collected four times annually) that the analysis of them would be very expensive.

There is, however, a compromise which partly circumvents the two noted drawbacks of published reports at a reasonable expense. Arbitron offers a customized report, Arbitron Information on Demand (AID) which operates in this manner: we send them the affidavits produced by television stations stating that a particular advertisement was aired at a particular time, and they furnish, for the sweep period, the diary estimates of audience per ADI broken out in terms of six



categories. The categories can be genders, races and age breaks. We have proposed cuts which produce estimates for 1) Males, 16- to 17, 2) Males, 18- to 19, 3) Males, 20- to 24, 4) Females, 16- to 24, 5) Blacks, 16- to 24, and 6) Total, 16- to 24.

These data would also provide data useful to the U. S. Army Recruiting Command (USAREC) in evaluating advertising targeting, coverage and effectiveness. They provide at low geographic levels, the market segments of interest in evaluating reach and frequency for Army advertising.

Figure 27 shows the form of the data to be purchased for a sample schedule. (The data will be purchased from Arbitron in machine-readable form.) The rows of the figure (labelled with a "7") describe the schedule of spots for a particular ADI (one table will be obtained for each ADI, yielding 214 in all for a given sweep period). Each row is a spot (i.e., channel and time combination which contains an Army advertisement in this ADI). The columns of the figure (labelled with a "5") are the demographic cuts ordered -- in our case, the age/sex/ethnic groups delineated above. Looking at the first row and the first column (labeled with an "8") we see that this spot delivered 85,000 of the total of 1,523,000 of this kind of household, or 5.6%, identical to the rating shown.

These exposure data (the rating in particular) will be appended to the ACOMS data base by matching the respondent's demographic characteristics to those of the aggregate exposure data (age, sex, race, and ADI). For example, an ACOMS interview respondent interviewed in May who is a white male 17-years of age in Wilkes-Barre, PA, will receive the ratings and message weights of the white male 17-year-old column of the Wilkes-Barre ADI for May. The exact procedures for this matching operation are described below.

Figure 28 portrays the steps involved in acquiring and appending exposure data to the ACOMS data base. The first step will be Young and Rubicam advertising agency (Y & R) providing affidavit banks indicating date, time (within the quarter hour), and ADI (geographic location) of aired commercials. Next, Westat or Arbitron will match commercial by ADI to day-part schedule (i.e., date and within a quarter hour) (see far left-hand column in Figure 27). The third step is for Arbitron to provide Westat with the population characteristics of viewer/listening audiences exposed to the commercials within the quarter hour during which the Army commercials were aired. Population characteristics are reported by specific strata, i.e., by ADI (geographic region), sex, age category, and race. Next, Westat will categorize aired commercials into the 15 general commercials (e.g., College steps, Light infantry, etc.), each having specific message attributes (e.g., stepping stone, challenge, variety of experiences). Finally, the aggregated exposure data (by ADI, age, sex, and race) will be appended to the ACOMS Computer Assisted Telephone Interviewing (CATI) data base by matching respondent characteristics in ACOMS data base with those characteristics in the exposure data.

# DIARY RAF REPORT

1  
JOB SALEDAVE  
2  
SCHEDULE A  
3  
DATE 7/18/85  
4  
ARBITRON DIARY DATA - MAY 1984  
5  
ARBITRON (INFORMATION ON DEMAND IN THE TELEVISION MARKET)  
ADIVILLE  
THE ARBITRON RATINGS CO. • • •  
COPYRIGHT 1983

	COST (1)	A D I		A D I		A D I		FEMALE		FEMALE		FEMALE	
		10000 / RTS / RMR CPM	10000 / RTS / RMR CPM	10000 / RTS / RMR CPM	10000 / RTS / RMR CPM	10000 / RTS / RMR CPM	10000 / RTS / RMR CPM	10000 / RTS / RMR CPM	10000 / RTS / RMR CPM	10000 / RTS / RMR CPM	10000 / RTS / RMR CPM	10000 / RTS / RMR CPM	10000 / RTS / RMR CPM
POPULATION	6	1523	10	1099	501	622	491	226					
W888 MON 7:51P-7:57P	100.00	85	8	23	3.3	17	3.3	36	5.8	12	2.5	5	2.3
W888 TUE 11:30P-11:45P	75.00	24	1.6	15	1.2	4	0.9	9	1.4	3	0.5	2	0.8
W888 WED 7:07P-7:13P	100.00	141	9.2	78	7.1	43	8.6	34	8.6	29	6.0	19	6.4
W888 THU 10:45P-11:00P	223.30	80	3.2	24	2.2	11	2.1	28	4.5	12	2.5	7	2.9
W888 FRI 7:15P-7:21P	175.00	163	10.8	87	7.9	36	7.2	72	11.2	40	8.2	15	6.8

## HOW TO READ YOUR DIARY RAF REPORT

### Spot-by-Spot Analysis /

- 1▶ The eight-character job name (SALEDAVE) is created by combining the ACINFO and JOB NAME.
- 2▶ Schedule A is analyzed.
- 3▶ The date the report is printed.

- 4▶ Survey date and market.
- 5▶ Demographics selected; a maximum of six are allowed per AD request.

- 6▶ The population base corresponding to the selected demographic. The ADI household population is 1,523,000.

- 7▶ Five quarter-hours are in Schedule A. A maximum of 60 spots (quarter-hours) or up to spot number 660 is allowed in each AD schedule.

- 8▶ The first quarter-hour for WAAA on Monday, 5:15PM delivers an audience of 85,000 households or a rating of 5.6.

- 9▶ The cost for the Monday 5:15PM spot on W888 was \$100. The cost per thousand delivery was \$1.18.

- 10▶ This is the third ranking spot in the schedule.

Figure 27. Sample data form for characteristics of listening audiences.

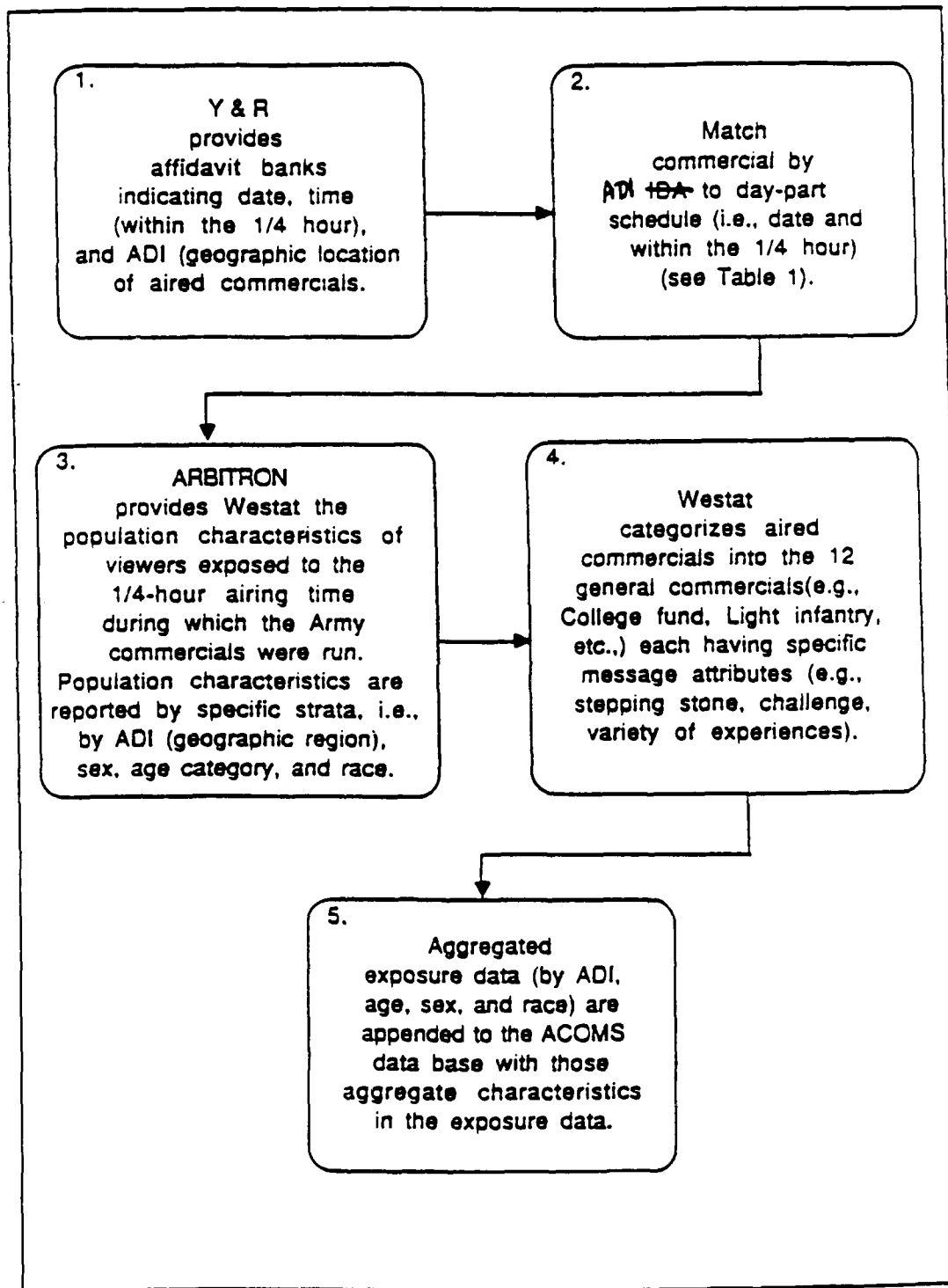


Figure 28. Flow of activities to acquire and append exposure data to the Army Communications Objectives Measurement Survey (ACOMS) data base.

Data in the ACOMS CATI data base are collected continuously; therefore ideally, data on exposure also should be acquired continuously. However, exposure data are collected in all ADIs four times a year (February, May, July, and November), with continuous data collection in a limited number of ADIs. Because of cost constraints, we propose to acquire exposure data for the sweep periods and to assign the exposure estimates to the interview data collected one month before and after the sweep period in order to provide comprehensive data for the quarter.

The dates, times, channels, and ADIs of aired Army commercials will be needed from Y & R. In addition, the form of which such data will take is important to know. For example, data on tape will facilitate the ease with which data are merged with the ACOMS data base.

Two general assumptions underlie our proposed exposure analysis. First, Arbitron audience data are accurate estimates of those who see aired programs. For example, the diary method as opposed to meter method provides only household demographic data, whereas the meter method requires specification of actual viewer characteristics. The second assumption is that aggregate data can be used to reflect the probability that an individual respondent in the ACOMS CATI data base has seen a commercial. This assumes that all persons in a given subpopulation stratum had an equal probability of viewing a television commercial.

While we recommend sweep exposure data, we may wish to request exposure data over continuous time periods to more accurately reflect television viewing. This, however, would entail greater costs.

Another issue is the appropriate demographic breaks for the exposure data. Arbitron allows only six demographic stratification criteria to be requested. We recommend the following criteria for stratification: Males, 16- to 17-years of age; males, 18- to 19-years; males, 20- to 24-years, females 16- to 24-years; blacks, 16- to 24 years; and Hispanics 16- to 24-years of age. These categories are useful allow calculating the sum of the viewing audience, and the difference between categories allow further specification of subpopulations, e.g., the difference between females 16- to 24- and males 16- to 17-years of age gives the number of females 18- to 24-years of age as the viewing audience, etc.

#### Plan for the Analysis of Fit, Exposure and Change

In this final section of this chapter, we specify how data from these various sources will be drawn together in support of an integrated analysis of the effects of advertising. Drawing from the previous discussion of the exposure data, we can give the following overview of the proposed procedures:

The ratings for time periods for a demographic group represent a likelihood that a youth in that group was exposed to a particular Army advertisement at a particular time. Summed over all of the exposures of that execution in that ADI, we have the duplicated reach of that

execution for that demographic group in that sweep period and ADI. From the message content analysis, we will know the content profiles of the various Army advertisements. When the distinctive profile of a particular advertisement is associated with its rating for that demographic group, we will have the expected message content of that spot in terms of the 14 active Army attributes for that ADI/demographic group. Summed over all the spots in that ADI, we would have the message emphases and likely exposures (expected message content) of all Army television advertising for that time period, ADI and demographic combination, again in terms of the 14 Army attributes. These 14 expected message content variables can then be associated with the respondent matching that ADI/demographic category.

A more detailed discussion of procedures for assembling the integrated data set is organized around the production of several matrices, displayed in Figures 29 through 32.

The first set of matrices, labeled (1), Attribute by Site Matrix (Figure 29), will be produced from the message analyses. The cell entries are the mean ratings of advertising attribute content (responses to question 12 in the message analysis questionnaire) for each message analysis site for one advertisement (college steps). We expect to produce one version of this matrix for each advertisement. Our goal in the production of these matrices will be to produce a single mean weight for each attribute for each advertisement, indicating the extent to which that advertisement emphasizes each of the attributes. Thus, we hope that the sites do not differ in terms of the mean weights per attribute. The column variable can also be ethnicity, gender, propensity, etc. Again, our hope is the same, but we expect to have to run analyses of variance to show that no significant differences among sexes, ethnicities, propensities or sites need to be considered in producing matrix (2).

Matrix (2) (Figure 30) is the Attribute by Advertisement matrix, assembled from the left hand columns of the 15 versions of matrix (1), and representing the mean message weights of the advertisements. This matrix is of some use by itself, since it displays a profile of the message content of the Army's advertisements. Its main use for ACOMS, however, is in combination with matrix (3).

Matrix (3) (Figure 31) will be constructed from the syndicated data. For each advertisement, we will have exposure in terms of ratings for 6 demographic breaks within each ADI, quarterly. Since there are 214 ADI's (at last count), the matrix has 6 X 214 or 1284 columns, and 15 rows. This matrix has independent information value, as it contains the basic information on advertising exposure over the quarter. Its main use for ACOMS, however, comes when it is postmultiplied with matrix (2) to produce matrix (4).

Matrix (4) (Figure 32) is the matrix multiplication product of matrices (2) and (3), and will have 14 rows and 1284 columns. It will present the mean message weights by attribute exposed to each ADI/demographic combination for the quarter. Thus, the matrix will be produced four times annually, corresponding to changes in matrix (3).

Advertisement #1: College Steps

Attribute	Sample Size	Mean Weight	Analysis of Variance*					
			Chicago	Atlanta	Dallas	Los Angeles	New York	
(1) Physically challenging environment	2250	3	2	2	4	4	3	
(2) Develop leadership skills	2250	6	6	4	5	7	8	
.	.	.	.	.	.	.	.	
.	.	.	.	.	.	.	.	
(14) Earn money for college	6000	10	10	10	10	10	10	

\*Cell entries are mean weight per site.

Figure 22. Matrix 1: Attribute by site matrix (14 attributes X 6 sites) involved in computing message weights.

Attribute	Advertisement				
	(1)	(2)	(3)	...	(15)
(1) Physically challenging environment	3	8			
(2) Develop leadership skills	6	3			
.	.	.			
.	.	.			
(14) Earn money for college	10	3			

(Cell entries are message weights per advertisement.)

Figure 30. Matrix 2: Attribute by advertisement matrix (14 attributes X 15 advertisements) involved in computing message weights.

Advertisement	ADI #1		16-17		18-19		20-24		BLACK		HISP		ADI #2		16-17		18-19		...
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
(1) College Steps			5.6																
(2)			2.9																
.			.																
.			.																
(15)			8.0																

(Cell entries are gross ratings points.)

Figure 31. Matrix 3: Advertisement by Area of Dominant Influence (ADI)/ethnicity matrix (15 advertisements X 1284 ADIs) involved in computing message weights.



Attribute	ADI #1		16-17		18-19		20-24		BLACK		HISP		ADI #2		16-17		18-19		
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
(1) Physically challenging environment																			
(2) Develop leadership skills																			
(14) Earn money for college																			

(1) Physically challenging environment

(2) Develop leadership skills

(14) Earn money for college

(Cell entries are gross ratings points.)

Figure 32. Matrix 4: Attribute by Area of Dominant Influence (ADI)/ethnicity matrix (14 attributes X 1284 ADIs) involved in computing message weights (product of matrices 2 and 3).

Like the previous matrices, it has independent information value, as it represents the contents of messages exposed to various geographic and demographic groups in the quarter. However, its main use in ACOMS is as a large reference document. We expect, for each respondent in the main ACOMS sample, to look up which column in matrix (4) s/he belongs to (given ADI and demographic characteristics) and to assign him/her the mean message weights for that quarter corresponding to the entries in that column. (In fact, the procedure will be a bit less straightforward. The demographic cuts within ADI in matrix (3) are not mutually exclusive, and will need to be made so before producing matrix (4).) This process will yield 14 new variables, quarterly, for the main ACOMS data file which can be used in any of the analyses for ACOMS.

Several comments are in order. First, the process will apply only to television advertisements, and not to print. There does not appear to be any reliable source of print exposure available currently.

Second, the process may not be as straightforward as it appears. We have assumed that there will be no differences by ethnicity, propensity, etc., in attribute weights derived from the message analysis. This is probably a reasonable assumption, since the message analysis task for respondents is assessing advertising content, not judging artistic merit or personal relevance. If strong differences are found, however, the resulting computational complexity ripples through the process. Assume we found that high propensity message analysis respondents perceived different message emphases than low propensity respondents in the same advertisement. We would then need to produce two versions of matrices (1) and (2) for each ad, for high and low propensity respondents respectively. There would then be two versions of matrix (4), and  $2 \times 1284 = 2568$  possible slots for an ACOMS survey respondent to fall into. Matrix (3) would remain the same. Even if there are good reasons to believe that high and low propensity respondents have different media habits, Arbitron doesn't ask about propensity. Questions of media habits are adequately covered in the main ACOMS interview in any case.

Third, it should be apparent that advertisements for which no message analysis information are available present difficult, but not intractable, problems. We can, for example, simply assign them the mean message weights for all advertisements, taken from the row averages of matrix (2). If however, the untested advertisement presents a distinctive message profile, its comparative impact would be lost in subsequent matrix products and in ACOMS. This may argue in favor of using a similar message analysis strategy in testing new advertising executions, and further, in favor, of retesting some ads to assess changes in perceptions of their message contents over time.

#### Analysis

As noted above, the exposure data can be analyzed usefully from several different perspectives. First, the exposure data, by themselves, represent the best available measures of the exposure of

target markets to Army advertising, both overall and per advertisement and message, both for youth as a group and for ethnic, gender and age subgroups of interest. Second, as variables in the ACOMS data file, the message weights can be correlated with attitudes toward the Army, toward recall of advertising, knowledge of offers, and behaviors with respect to enlistment. In the most straight-forward sense, the message weights represent additional layers of analytical power in the initial stages of the models presented in Chapter 6 (Gaertner, 1988). However, given the uncertainty of acquisition, we will defer more detailed analysis plans for these data until Phase IV.

#### Summary and Conclusions

This chapter has reviewed sources of Fit and Exposure data available in the ACOMS system, and how these can be integrated with the main survey responses to provide an overall assessment of the content and impact of Army advertising. In combination, the data sources of the ACOMS system provide a tracking and modeling capability of formidable power.

## REFERENCE

Gaertner, G. H. (1988). Modeling the effects of Army advertising. In G. H. Gaertner & T. W. Elig (Eds.), The Army Communications Objectives Measurement Systems (ACOMS): Survey analysis plan (ARI Technical Report 786). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

## 8. WORK PRODUCTS, DELIVERABLES AND SCHEDULES

Gregory H. Gaertner

As originally conceived and subsequently modified, Army Communications Objectives Measurement System (ACOMS) is intended to offer a variety of different kinds of support to the Army's communications programs, involving different work products for a diverse audience in a mix of short and long time frames. In tracking the Army's communications objectives, for example, timeliness is crucial, requiring focused reporting in a succinct format. In assessments of advertising strategy, deeper analyses are necessary to produce segmentations, analyses of the dynamics of advertising influences, and models of fit, change, and exposure. These analyses will inform the tracking reports and provide basic insights to Army advertising managers and to the professional community. In all cases, briefings and documentation are required to fully communicate the methods and results.

Analytical work products from ACOMS will include:

- (1) Design documents (such as this analysis plan) which propose or summarize decisions for data collection and/or analysis;
- (2) Documentation reports summarizing procedures for data collection or analysis having a limited, technical purpose and audience;
- (3) Quarterly reports, providing tabular and narrative summaries of results of immediate interest on a quarterly basis;
- (4) Quarterly results briefings, providing the basic information contained in the quarterly reports in briefing form;
- (5) Annual reports on subjects defined by the analysis plan;
- (6) Progress briefings on areas covered in the annual reports, providing opportunities to discuss progress on annual report content areas and allow the SAG (and others as appropriate) to assess directions of particular promise; and
- (7) Papers and presentations for eventual publication in the professional community.

This listing reflects the diversity of ACOMS products, audiences and schedules: (a) relatively narrow technical documents and broadly interpretive analyses; (b) short succinct reports and lengthier analyses with fundamental insights; (c) summary briefings and extended narratives; and (d) quarterly and annual schedules.

The decisions of the Special Advisory Group (SAG) and the Contracting Officer's Representative (COR) have resulted in a flexible yet closely monitored process for developing and presenting research products. The initial schedule for this process is depicted in

Figure 33, which indicates schedules for analytical activities, draft/progress deliverables, and final deliverables.

We began tracking audience response trends at the beginning of interview data collection on October 13, 1986. After two months of data had been collected, we began measurement development, an anticipated four-month activity. Following this period, major effort will be directed to the construction of scales for the quarterly reports and for subsequent analytic products. We anticipate the replication of existing scales from the Army propensity and quality in the Youth Attitude Tracking Survey (YATS II) (Research Triangle Institute, 1985) and the development of new scales (knowledge recall, knowledge awareness, perceptions, importance, behavioral propensity). See Chapter 2 (Gaertner et al., 1988) for details. Then we begin work on segmentation and brand differentiation in Chapter 3 (Wilson, 1988) and Chapter 4 (Wilson, 1988), on parental influence (Chapter 5) and on modeling the effects of advertising (Chapter 6). The message content data collection underlying the Fit analysis will be undertaken in the early part of 1987, and exposure data described in Chapter 7 (Gaertner & Baxter, 1988) will be collected at the turn of the year. No studies on advertising in areas of dominant influence (ADIs) are anticipated in FY 1987.

The first quarterly tracking report was presented in narrative and briefing form in mid-February, 1987, covering data from October, November and December. This report did not include scale summaries, although the third quarterly report (mid-August) should include scale score summaries of results. Contents of the quarterly tracking reports are described in Chapter 2 (Gaertner et al., 1988).

FY 1988 will begin the collection of the longitudinal data, allowing for more detailed investigation of the causal processes underlying the model, the cumulation of behaviors relating to enlistment and developing an event history of the enlistment process. Thus, the new fiscal year will mark the beginning of integrated Fit-Exposure-Change analyses.

YEAR 1

Track Audience Response Trends  
 Measurement Development  
 New Segments/Brand  
 Differentiation  
 Fit of Advertising Objectives  
 Exposure of Army Advertising  
 Modeling Effects of Ads  
 Quarterly Tracking Rpt/Brief  
 Annual Tabulation Volumes  
 Annual Interpretive Report

YEAR 2

Replicate Path Model  
 Analysis of Influence Process  
 Establishing Causes of Change

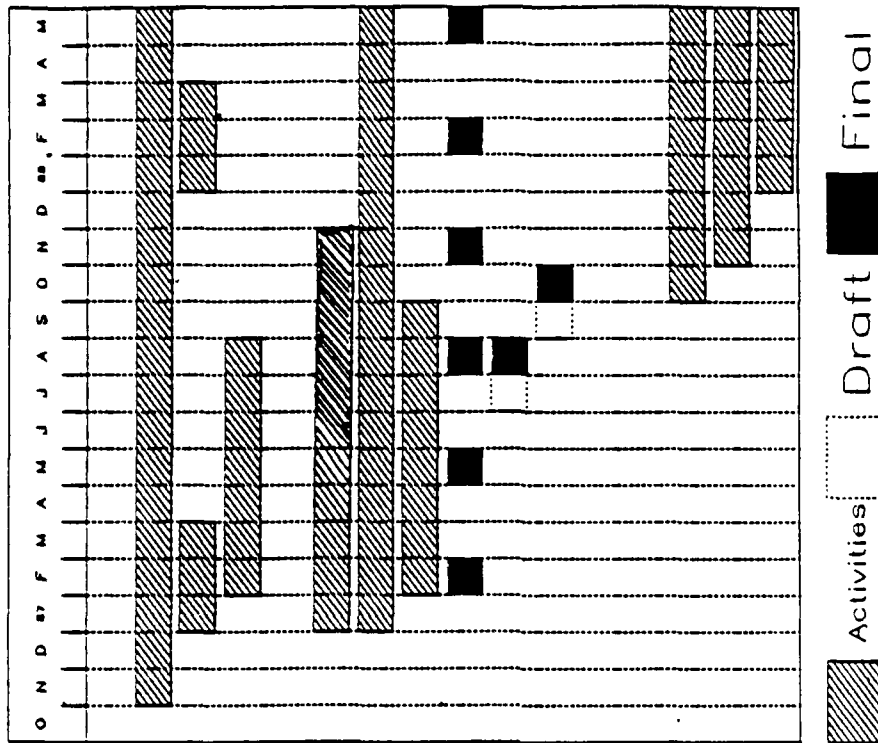


Figure 33. Initial schedule for data collection activities.

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Appendix

MESSAGE ANALYSIS QUESTIONNAIRE

---

	ID# _____	(1-5)
Mall/Shopping Center: _____		(6)
Date: _____	Sex of respondent: Male 1	(7)
	Female 2	

---

**INTRODUCTION:** Hello. I'm \_\_\_\_\_  
from Crossley Surveys, a marketing research company, and we are  
conducting a survey today regarding advertising. We are  
interested in how young adults like certain commercials.

First, I have several questions to see if you fit with the  
sample we are interviewing today.

(HAND RESPONDENT CARD #1)

1. Which age category are you in: (8)
- |                    |   |
|--------------------|---|
| 15 years and under | 1 |
| 16 to 18 years     | 2 |
| 19 to 24 years     | 3 |
| 25 years and over  | 4 |

**TERMINATE:** Thank you, but you do not fit with  
the sample we are interviewing today.

(RETRIEVE CARD #1)

2. Have you completed more than two years of college? (9)
- |     |   |
|-----|---|
| Yes | 1 |
| No  | 2 |

**TERMINATE:** Thank you, but you do not fit with  
the sample we are interviewing today.

3. Have you ever held a full-time job? (10)
- |     |   |
|-----|---|
| Yes | 1 |
| No  | 2 |

4. Have you ever joined or served in any military service? (11)

Yes 1  
No 2

**TERMINATE:** Thank you, but you do not fit with the sample we are interviewing today. We will not use the answers you have given in any analysis. Thanks again for your time.

You qualify for our sample. I would like you to participate in a brief study on (television/magazine) advertising. It will only take about 10 to 15 minutes.

5. Will you come with me to the interviewing station where we have the ads I want to show you? (12)

Yes 1  
No 2

**TERMINATE:** Thank you for your time. We will not use the answers you have given in any analysis. Thanks again.

**(TAKE RESPONDENT TO THE INTERVIEWING STATION. DO NOT INTERVIEW IN THE MALL.)**

Your answers to this survey are voluntary and confidential, and you may choose not to answer any question. The information you give us will only be used in combination with the answers from many other young adults. This research is authorized by law, and the information you give us is protected by an Act of Congress called the Privacy Act of 1974. Our pledge of confidentiality is posted on the sign over there (POINT TO THE SIGN).

**(AFTER THE RESPONDENT HAS READ THE NOTICE, CONTINUE WITH THE NEXT INSTRUCTION.)**

Before we get started, I'd like to ask you a question about your future career plans, and the kind of things you expect to be doing, that will help us interpret your reactions to the advertisements.

6. What do you think you might be doing for the next few years?  
(PROBE: Anything else?) (RECORD ALL THAT APPLY) (13-17)
- GOING TO SCHOOL . . . . . 1
  - WORKING . . . . . 1
  - DOING NOTHING . . . . . 1
  - JOINING THE MILITARY/SERVICE. 1
  - OTHER . . . . . 1
  - REFUSED . . . . . 7
  - DON'T KNOW. . . . . 8

Please look at this (videotape/booklet). When you are finished, I'd like to ask you a few questions about it.

(ALLOW SUFFICIENT TIME FOR RESPONDENT TO DIGEST THE MATERIAL.  
THEN TAKE BACK THE BOOKLET IF TESTING PRINT MEDIA.)

7. Can you recall any of the names of the advertisers or sponsors of the ads you just (saw/heard)?

(CONTINUE ASKING UNTIL RESPONDENT CANNOT RECALL ANY OTHERS.  
WRITE IN VERBATIM RESPONSES.)

- FIRST MENTION: \_\_\_\_\_ (18)
- SECOND MENTION: \_\_\_\_\_ (19)
- THIRD MENTION: \_\_\_\_\_ (20)
- FOURTH MENTION: \_\_\_\_\_ (21)

We don't want to take too much of your time, so we're going to focus on just one ad.

8. (INTERVIEWER: WAS THE ARMY RECALLED AS THE SPONSOR OF THE ARMY AD?) (22)

Yes 1  
No 2

Skip to Q.10

9. Do you recall seeing an ad sponsored by the Army? (23)

Yes 1  
No 2

Skip to Q.12

10. Other than trying to get you to enlist, what was the main message you got from the Army advertisement? (RECORD VERBATIM RESPONSE; PROBE ONLY FOR CLARITY AND DETAIL) (24-26)

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11. What other messages did the ad communicate to you? (27-35)

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12. Please look at the Army advertisement again.

(SHOW ARMY ADVERTISEMENT. FINISH PLAYING VIDEOTAPE/  
TAKE BACK PRINT AD BEFORE PROCEEDING.)

I am going to give you a deck of 14 cards. Each card contains a message that might have come across to you from the Army ad. I want to know what messages did come across and which did not. I'm only interested in learning your opinion. There aren't any right or wrong answers.

We are going to use a 0 to 10 scale for this, as shown on this sort board. (HAND SORT BOARD TO RESPONDENT) As you can see, the "0" position at the left side of the board is labeled "message not carried at all", the "5" position in the middle is labeled "message carried to a medium extent," and the "10" position at the right is labeled "message carried to very great extent."

What I'd like you to do is sort each card into one of the 11 piles, based on the how much you think the message on the card was carried by the ad you saw. After you have sorted through the entire deck, I'll ask you to look back through every pile to make sure each card really is in the pile you want.

Let's use an example to show how this works. Here's a card that says "the Army offers a good opportunity to show one's patriotism." (HAND CARD TO RESPONDENT) If you think the ad you just saw carried this message a little bit, you might want to put the card by the "2." If in your opinion the ad carried the message to a medium extent, you might want to put the card by the "5", or "6". If you thought the ad carried the message about patriotism to a great extent, you might want to put the card by the "9 or "10" pile. Do you have any questions about the scoring scale?

After sorting all of the cards, you may decide that the patriotism message was less strong, compared to others, than you originally thought. You might take the card out of the "5" pile, say, and put it in the "4" pile.

Are you ready to begin? (SHUFFLE THE CARDS) Here are the cards.

12. (Continued)  
(INTERVIEWER: AFTER COMPLETION OF INTERVIEW, ENTER TWO-DIGIT NUMBER OF TABLE CARD WAS PLACED IN. CODE 97 IF RESPONDENT REFUSED TO SORT A CARD, CODE 98 IF SAID DON'T KNOW.)

The Army offers:

- A. a wide variety of opportunities to find a job you can enjoy. \_\_\_\_\_ (36-7)
- B. a physically challenging environment. \_\_\_\_\_ (38-9)
- C. an experience you can be proud of. \_\_\_\_\_ (40-1)
- D. an advantage over going right from high school to college. \_\_\_\_\_ (42-3)
- E. an opportunity to develop leadership skills. \_\_\_\_\_ (44-5)
- F. the chance to work with the latest high tech equipment. \_\_\_\_\_ (46-7)
- G. a great value in your civilian career development. \_\_\_\_\_ (48-9)
- H. an excellent opportunity to develop self-confidence. \_\_\_\_\_ (50-1)
- I. the opportunity to develop your potential. \_\_\_\_\_ (52-3)
- J. a mentally challenging experience. \_\_\_\_\_ (54-5)
- K. an opportunity for you to become more mature and responsible. \_\_\_\_\_ (56-7)
- L. many opportunities for training in useful skill areas. \_\_\_\_\_ (58-9)
- M. many chances to work with highly trained people. \_\_\_\_\_ (60-1)
- N. an excellent opportunity to obtain money for a college or vocational education. \_\_\_\_\_ (62-3)



The last few questions ask for some information about you.

13. How old are you? \_\_\_\_\_ (64-5)

14. What is the highest grade or year of school or college that you have completed and received credit for? (66-7)

LESS THAN 8TH GRADE. . . . .	7
8TH GRADE. . . . .	8
9TH GRADE. . . . .	9
10TH GRADE . . . . .	10
11TH GRADE . . . . .	11
12TH GRADE . . . . .	12
1ST YEAR OF A 4 YEAR COLLEGE . . . . .	13
2ND YEAR OF A 4 YEAR COLLEGE . . . . .	14
1ST YEAR OF A JR OR COMMUNITY COLLEGE. . . . .	15
2ND YEAR OF A JR OR COMMUNITY COLLEGE. . . . .	16
1ST YEAR OF A VOCATIONAL, BUSINESS OR TRADE SCHOOL	17
2ND YEAR OF A VOCATIONAL, BUSINESS OR TRADE SCHOOL	18
REFUSED. . . . .	97
DON'T KNOW . . . . .	98

15. How likely is it that you will be going to college in the next few years? Would you say... (68)

Definitely. . . . .	1
Probably. . . . .	2
Probably not, or.	3
Definitely not? .	4
REFUSED . . . . .	7
DON'T KNOW. . . . .	8

16. How likely is it that you will be working in a civilian job? Would you say... (69)

Definitely. . . . .	1
Probably. . . . .	2
Probably not, or.	3
Definitely not? .	4
REFUSED . . . . .	7
DON'T KNOW. . . . .	8

17. How likely is it that you will be serving in the military? Would you say... (70)

Definitely. . . . .	1
Probably. . . . .	2
Probably not, or.	3
Definitely not? .	4
REFUSED . . . . .	7
DON'T KNOW. . . . .	8

18. How likely is it that you will be serving on active duty in the Army? Would you say... (71)

Definitely. . . .	1
Probably. . . .	2
Probably not, or.	3
Definitely not? .	4
REFUSED . . . .	7
DON'T KNOW. . . .	8

19. Please tell me whether you are: (72)

White. . . . .	1
Black. . . . .	2
Asian or Pacific Islander, or	3
American Indian or Alaskan Native	4
REFUSED. . . . .	7
DON'T KNOW . . . . .	8

20. Are you Hispanic: (73)

Yes	1
No	2

Finally, my supervisor will be calling some of the people I talk with today to make sure I asked the questions correctly. No one else will call. May I have your name and telephone number?

Name: \_\_\_\_\_

Area code: (        ) Telephone number: \_\_\_\_\_

That is all the questions I have. Let me remind you that the information you have given us is confidential. Thank you for your participation.

CARDS TO BE HANDED TO RESPONDENT

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CARD #1

1. Your age category:      15 years and younger  
                                 16 to 18 years old  
                                 19 to 24 years old  
                                 25 years and older
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CARD FOR DEMONSTRATION OF SORT BOARD

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The Army offers a good opportunity  
to show one's patriotism.

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