NEW PRODUCT PLANNING: THE CASE FOR CONCEPT PRETESTING (A METHODOLOGY FOR EVALUATING THE EFFECTS OF A CONCEPT'S EXECUTION ON RESPONDENTS' PREFERENCE)

by

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Abstract

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Concept testing is used in product planning to screen new product concepts. It is based on the assumption that a physical product does not have to be developed in order to test the product's concept. Concept testing uses the Gestalt of the product in order to obtain respondents' preferences.

A variety of designs, data collection procedures, and sample make-ups are used in concept testing. Too, concept testing administrators, by and large, assume that the concept is independent of its execution.

This study provides a methodology called the concept pretesting model. This model pretests several executions of a given concept in order to determine the relationship between a concept and its execution. If both of these are independent, traditional concept testing can follow. If both are dependent, additional testing is called for. Potential new

concept repositioning and refined target markets can emerge from the additional testing. An example is carried out with an actual product concept.

Benefits from this study include:

A. A model for screening product ideas.

B. An extended replication of three studies which investigated interaction between the concept and its execution.

C. Elimination of a fallacy currently responsible for mistakes in decision making, i.e., the fallacy of the independence of a concept from its execution.

D. Increased use of concept testing and pretesting as a "Marketing Oriented" tool early in the product's life cycle.

The product concept used in the example is ALEAVE, developed by Chesebrough Pond's Inc. Twenty seven executions of the concept were tested, using the model. No dependence between the concept and its executions was found. Further testing of the concept identified two product attributes which can be used for product repositioning. Product related attitudes were identified as good discriminators between respondents who indicated they would buy the product and respondents who indicated that they would not buy the product.

To My Wife, Rivka,

"Many Women Do Worthily, But You Excel Them All"

Proverbs 31:20.

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CHAPTER 1 INTRODUCTION

1.1 OVERVIEW

Company growth is a measure of company performance. An important component of company growth involves product innovation (Kotler, 1975). New products are tomorrow's potential profit makers. Every company which thinks ahead is concerned with new products, and with procedures for evaluating product lines (Adler, 1967). New products are constantly evaluated so that promising ones can be developed to replace unprofitable ones. Existing products are scrutinized and weak ones are pruned from the company's product line. Increased competition, fast product imitation and technological developments shorten product life cycles and force constant company evaluation and change.

Existing product planning procedures rely heavily on checklists for product evaluation. When the product is new, evaluators face lack of data. While existing products have sales records, cost data, and related information, new products have estimates at best. The need to rely on estimates increases the risks associated with introducing new products. Statistics on new product failure indicate that high failure rates are common (The Conference Board, 1973).

A particularly sensitive area with respect to needed estimates is the demand forecast. Whereas most of the estimates needed for a new product can be generated from within the company, consumer demand requires outside research. Market testing involves exposing the product to

respondents. In a competitive market situation, companies are reluctant to make such exposures early in the product development process for fear of imitation. Consequently, checklists for new product screening emphasize company related criteria, i.e., criteria requiring inside information and estimates. John T. O'Meara (1960) has a checklist of seventeen criteria, fourteen of which are related to company resources, product lines, distribution, etc. This is a case where 'Production orientation' overrules 'Marketing orientation' (McCarthy, 1975). This situation contributes to the high rate of new product failure. Better demand estimates are definitely needed.

Consumer votes on the new product are frequently cast in the market test phase. By this time the new product has often cost the firm a good deal of money, since R&D costs, coupled with the costs of initial production set-up and tooling, executive time and related expenses have been invested (see section 2.1). It is, therefore, understandable why a product's failure in the market test phase is expensive. Unfortunately, no magic formulas exist for reducing these expenditures. However, companies involved with new product development have turned to concept testing, as an additional aid in estimating consumer demand, and, consequently, in reducing somewhat the costs of development.

Concept testing precedes the market test phase. A new product concept is tested before the product itself is produced. If the concept fails to generate acceptance at this point, the concept is dropped. If the response to the concept is favorable, it is passed on to the laboratories, and

resumes the usual course for a new product.

An advantage of concept testing is reduced cost. The cost of interviewing small groups of respondents is a mere fraction of the cost involved in actual development of the product. A disadvantage of concept testing is its heuristic nature. There are no decision rules for acceptance or rejection of concepts, based on response to concept testing. The company which conducts concept testing trades off the heuristic nature of the method with its low cost.

Concept testing tests are conducted by industry and are proprietary. The literature published on the subject is sparse and the number of articles barely exceeds three dozen. Over half the articles were written in the last decade. It is somewhat surprising, given the small number of articles, to find such a divergence in views, definitions, uses and research designs under the umbrella name: concept testing. (Section 2.4 covers definitions, section 2.5 uses and functions, section 2.6 research designs). Too, differences exist in data collection methods and sample sizes.

Haley and Gatty (1971) tested the effect of the copy writer on ratings of the concepts. Overton and Armstrong (1971) tested the effect of the quantity of information supplied on the concept's ratings. Tauber (1972) tested the effect of the presentation form on ratings. Verbal statements vs. verbal statements with a picture were tested in a split-run test.

Results from the above studies indicate that there is no clear cut conclusion. Haley and Gatty (1971) conclude: "....Most concept tests are not testing only the relative value of different concepts: they are actually comparing the relative value of different executions." (p. 232). Armstrong and Overton found no significant differences in product choice when both comprehensive and brief amounts of information were used to present the product concept. Tauber (1972) found that: "...analysis revealed that absolute scores are higher for all three product ideas when they are communicated by the advertisement than when communicated by a written factual description. In relative terms, Product C stands out as superior product regardless of the manner of communication." (p. 36).

All the above researchers tested one variable at a time: Copy-writer, copy length, or form of presentation. In these studies, the researcher assumed that all other variables were constant. Interaction effects between these variables and others could not be studied. Respondents in a concept testing test reacted to the combination of execution elements as well as to the concept itself. No study thus far has tried to combine more than one execution element in one investigation.

1.2 DESCRIPTION OF THE MODEL

This study offers a methodology for evaluating the effect of the execution of a concept on respondents' preferences. Several executions for a given product concept are presented to respondents. Respondents' preferences for each execution are obtained and compared. If significant differences are found between preferences indicated for different concept executions, the executions have affected respondents' preference. Conversely, if no significant differences are found, the executions do not affect respondents' preference.

A model called the "concept pretesting model" is used in this study. The model is described in chapter three. A flow chart of the model is presented in Figure 3.1. The concept pretesting model uses a factorial design in order to assess the affects of concept executions on respondents' preferences. Several elements of a concept's execution are combined in a factorial design. The N-Way factorial design allows simultaneous testing of several combinations of concept executions.

In this study, the different executions are presented to respondents and their preferences for the concept are determined. Analysis of variance is used to determine whether respondents' preferences are significantly different for the different executions. If no significant differences are found, it can be concluded that the executions do not affect respondents' preferences. The executive using concept pretesting can continue to examine the merits of the concept. He is assured that the concept and its execution are independent. If, on the other hand, preferences

indicated for different executions are significantly different among each other, the concept and its executions are interdependent. In this case, additional analysis is required before resuming the traditional evaluation of a concept done by concept testing.

The conventional concept testing procedure does not test different executions. Only one concept execution is tested. Preferences for the concept are obtained and an overall score is computed. The higher the score, the more acceptable the concept. What constitutes a high or low score is determined by different companies in different ways.

Traditional concept testing implicitly assumes that the concept and its execution are independent. A low score for the concept is interpreted as if the concept were unacceptable to respondents. A high score for the concept implies that the concept is acceptable to respondents. This decision rule is correct, however, if and only if the concept and its execution are independent. When the two are interdependent, it is possible that a good product concept may get a low overall score if it is presented with a 'bad' execution. Conversely, a bad product concept will get high overall score when presented with a 'good' execution. Since concept testing does not use concept pretesting, it can at times lead to erroneous decisions. Concept pretesting complements concept testing. It provides explicit testing of the independence between the concept and its execution. Additional analyses are recommended when the product concept and its execution are interdependent.

The model and its implications are presented and an example of an actual product concept is carried out. If this model contributes to the predictive value of concept-testing, this study will more than achieve its goals.

1.3 VALUE OF THE STUDY

This study offers a model dealing with the relationships between a concept, its execution, and respondents' reaction. Although the example given, ALEAVE, is an actual product concept, many non-product concepts can be investigated using this model. The model can be successfully employed by a policy maker, a candidate for public office, or anyone seeking to market an image or an idea. The model provides for a generalized investigation of functional relations. The applications are many and varied.

The example, using a factorial design, investigated the effects of different executions on consumer response. Three execution elements—copy writers, copy lengths, and pictorial treatments—were chosen because the literature on concept testing has identified them for investigation. Other elements can also be chosen, however. For example, one can test the differences between print advertising, a radio spot commerical and T.V. exposure on concept testing results. Similarly, one could test the effect of different data-collection modes on response. For example, the effects of a focused group interview vs. a mail questionnaire vs. an individual interview might be determined. Similar studies can involve concept-testing a product in different phases of its production. In this case, a rough description, a prototype, and a final product can be presented.

This model, the concept pretesting model, provides a general framework for testing the dependence or independence of executions and concepts.

The product market situation and the available budget can determine which of several execution elements should be used. Over a period of successive experiments, a company will gain experience with the execution element it wants to pretest. Studies from different sources can be compared and analyzed so as to yield some generalizations for categories of products, and not just for specific product situations.

Another benefit is the attempt to segment a market based on responses to the concept testing test. Frank, Massy and Wind, (1972) write: "Another case in which intentions to buy are frequently used as a basis for segmentation is for new products. In this case consumers' reactions to a new product concept can be expressed as a basis for grouping consumers into various segments... Most studies utilizing this measure are proprietary and have not been published. The use of intentions to buy as a basis for segmentation... is simple and, in conjunction with other relevant customer characteristics, can provide a useful approach to segmentation." (p. 85)

The authors, summarizing the state of the art in the area of market segmentation, specifically point out the potential of concept testing with regard to segmentation. An additional support for this use comes from Tauber, (1972). Tauber claims that the predictive value of a concept testing test increases if perceived benefits exist. A consumer who perceives a potential benefit from a concept is more likely to become a user than a 'yea-sayer' who merely indicates a positive intention to buy. Applying benefit segmentation to respondents in concept testing can

result in better heuristics for the businessman. Linking intentions to buy with additional measures of preference can increase the predictive value of concept testing.

The concept pretesting model complements concept testing. The concept's ratings are likely to be a function of the execution of the concept as well as of the concept itself. A good concept wrapped in a 'bad' presentation will receive marginal ratings. Although the opposite may be correct as well, various studies in the field have established that the tendency is to discard potentially good products rather than to accept bad ones. Accepting a bad idea is a mistake that is likely to be discovered. Rejecting a good idea is not, however, as likely a mistake to be discovered.

As a result of the above, E. Patrick McGuire(1973) calls the new product group "The Death Committee." The tendency of product screeners to minimize risk was pointed out in a study conducted by Arthur D. Little and The Industrial Research Institute for the National Science Foundation. These findings were reported in Marketing News (May 1, 1974).

Concept testing can lead to wrong conclusions if the execution is assumed to be independent from the concept itself. It is postulated, therefore, that concepts must be pretested in different executions. This will allow evaluation of the relationship between the concept and its execution.

The executive whose intuition supports a product concept which has received a marginal rating can retest it using different executions. Failure

to achieve higher ratings in subsequent testing should convince the executive that his intuition may be wrong. If the concept's score improves, a real winner may be saved from extinction. This procedure may be implemented in different companies using different tentative cut-off points for the overall product score. These cut-off points will always be a function of the executive's subjective utility function and the company's expected payoffs.

A company can determine cut-off points by estimating the costs of Type 1 and Type 2 errors. If the cost of committing a Type 1 error is high (as for example in medical research), the company may establish deliberately high benefits for discovering good products. In order to increase the probability of correct decisions, concept pretesting can be used. This will increase the likelihood of discovering potentially good concepts 'wrapped' in the 'wrong' executions.

1.4 DESCRIPTION AND LIMITATIONS OF THE EXAMPLE

The model uses a K-way factorial design, testing R factors at r levels each. The example tested three factors at three levels each. A total of 27 combinations of executions were developed (i.e., 3 x 3 x 3 design). Each execution was given to a class of students with a self-administered questionnaire. The executions were written by three different copy writers. Each copy writer wrote a short copy statement, a medium-length copy statement and a long copy statement. The length of the statement was a full page in the long statement, a half-page for the medium, and three or four sentances for the brief, or short, description. The mean number of characters was 210 for the long copy, 122 for the medium, and 68 for the short copy.

Each copy writer developed his copy based on information about and a description of the product contained in a sample package of the actual product. The new product used was ALEAVE, developed by Chesebrough Ponds. This product is currently being market-tested in Evansville, Indiana. It is advertised as an "Anal cleaning lotion and foam, from the makers of famous Vaseline^{R} products." Secondary medical sources indicate that two out of every three adults are potential sufferers from bathroom discomfort. In the preliminary testing by Chesebrough Ponds, one out of every three adults admitted to suffering from this discomfort.

Copy writers were also given copy statements for competing products, namely, PREPARATION-H, NUPER-CAINAL, PAZO, and ANUSOL. No attempt was made to otherwise direct the writing of the statements, or to criticize

the outcome. Content analysis was not undertaken to see whether in fact the copy statements differed from one another.

The copy statements were typed in capital letters. Pictorial treatments were photocopied from actual advertisements. The color photocopy is somewhat different from the color pictures and projects an impression of a 'rough' rather than a finished advertisement. Likewise, the black and white picture, reproduced using photo offset, has a 'matt' rather than a 'glossy' finish. Consequently, the executions were not identical with final advertisements.

Respondents were a judgment sample from evening classes at Rutgers, The State University of New Jersey. Classes with over thirty registered students were chosen, and treatments were randomly assigned. All respondents, whether sufferers or not, completed the questionnaire, which ended with a screening question. The target respondents were defined as those who admitted to suffering from either bathroom discomfort or hemorrhoids. The target group, the sufferers, were found to constitute 26.6% of the entire sample, which is somewhat less than the 33% obtained in the Chesebrough Ponds study. This difference can be attributed to the lower age of the sample (average thirty years). Respondents were told that the questionnaire was part of a study on new products currently being market-tested in other parts of the country. They were asked to complete the questionnaire even if they thought that the product was not relevant for them. The number of target respondents per cell was limited to 5. This was the minimum number of target respondents found per class (cell). A

total of 135 target respondents was used in the analysis, (i.e., 27 classes x 5).

It may be noteworthy that the only questionnaires returned with unanswered questions were received from people who were non-sufferers. No missing values (unanswered questions) were found in the target group, which may indicate believability and interest.

"Intention to Buy" was used as the dependent variable in the ANOVA employed to test for significant differences among the different executions. "Intentions to Buy" (a seven-point scale) were used as an indicator of respondents' preference. No validation of this scale was carried out. The scale was adopted from a questionnaire of the market research company of National Family Opinion, Inc. Several additional criteria variables can be used when the test involves more than one product concept, or when respondents are exposed to more than one execution. A monadic-test is used in this study. Validation of intention-to-buy scales was carried out for major purchases only (cars, houses) and was found to be valid for short time periods (Katona, 1957). (See section 3.2.1.3)

All the questions and scales used in this study were adopted from questionnaires dealing with new products. All but two of the predictor variables used ordinal scales. In order to improve decision-making in concept testing, more use should be made of scales measuring response on interval scales. These lend themselves to better analysis.

The example carried out for this model is product-specific. Too, the method used in this study for gathering data is only one of several data collection modes that could be used. The factors used were arbitrarily chosen. Although copy length differed in the number of characters and different copywriters were used, it is possible that respondents did not perceive these differences. This can be one reason for the independence of treatments and response found in the example. Future work in this area can correct these limitations.

Evidence in the literature (McGuire 1972) indicates that product screeners tend to commit a type two error. Screeners would rather discard a potentially good concept than pass to development a bad concept. The concept pretesting model is designed to minimize type one errors. The model is therefore of particular value in situations where every product idea is important and worth exploring. Medical research is one example of such an area.

1.5 ORGANIZATION OF THE STUDY

Chapter 2 surveys the literature which has been published on concept testing. It also contains a brief description of the more general framework within which concept testing falls. The innovation process, the business planning system, and the product planning system are some of the facets discussed.

Chapter 3 presents the concept pretesting model and explains it. Chapter 4 describes the example and the results of the exploratory survey that was conducted. Too, Chapter 4 presents the methodology, the research design, and the questionnaire design. The different treatments that could be used are explained. A description of the execution of the example follows. Results of the ANOVA and DISCRIMINANT ANALYSIS used for the example also follows.

Chapter 5 concludes the study with a critical review and summary. Suggestions are presented for future work in the area.

C H A P T E R 2 SURVEY OF THE LITERATURE

This chapter reviews the literature on concept testing. Concept testing is one of several product screening methods used in new product planning. The first half of this chapter provides an overview of product planning, its environment and several product screening methods. The second half deals with concept testing procedures and various issues raised by the literature on concept testing.

2.1 NEW PRODUCT PLANNING: THE MACRO ENVIRONMENT

Innovation in business has been attributed to various causes. Schumpeter (1939) cites the quest for profits. Robertson (1972) cites excess capacity, shrinking profit margins and shorter life cycles for established products. Kotler (1975) and Wasson (1974) emphasize competition as stimulating innovation. Innovation is important to company growth and future profits. An important component of innovation in business is the new product.

While many new products are introduced every year, few turn out to be commercial successes. Data on failure rates of new products suffers from a lack of uniformity. Different definitions and different data collection modes result in different figures. Booz,Allen and Hamilton (1965) found a 70% failure rate of new products. Buzzel and Nourse (1967) peg the rate at 96.5%. Angelous (1969) quotes a study reporting 80%, and so does O'Meara (1960). It is clear that the failure rates are high, although the figures vary considerably.

The cost of failure is high, too. In terms of money spent, Angelous (1969) reports figures ranging from $75,000 to $20 million for a single product. Dupont reportedly lost $100 million with Corfam (Fortune, Jan. 1971) and Ford lost more with the Edsel. Alternative costs are high, in terms of time lost on developing new products. Thus, Adler (1966) found time lags ranging from six months (for a new brand of gasoline) to 55 years (for television).

The quest for innovation, coupled with high failure rates and high price tags, leaves something to be desired. An improvement in the product development process, which will minimize costs and maximize probability of success, can contribute significantly to better product-planning and development processes.

2.2 NEW PRODUCT PLANNING: THE BUSINESS ENVIRONMENT

The overall business plan deals with the future of the company, its environment, and guidelines for action. (Mockler, 1972). A subsystem of the business plan is the marketing plan. The business plan is taken as a premise from which the marketing plan originates. Marketing philosophy, markets, products, prices, promotion, distribution, etc. are components of the marketing plan.

The product plan is an important component of the marketing plan. Sales volume, price, relation to other company products and to competing products, production, schedules, and promotion are analyzed for each product (Kline, 1955).

The new product planning process is presumably a subsystem of the product planning system. However, there are some differences. When new products are planned, the marketing department of a company finds it necessary to use additional expertise. New product planning teams differ from schemes consisting of the product manager or product planner (Hopkins, 1974). The new product planning team usually consists of higher-echelon executives. It is not uncommon to find the Vice Presidential level involved in new product decisions. In reality, new product decisions are sufficiently important to involve high-level executives from additional departments in the company. This involves new product planning in a rather unique organizational structure, and not merely a subsystem within a subsystem.

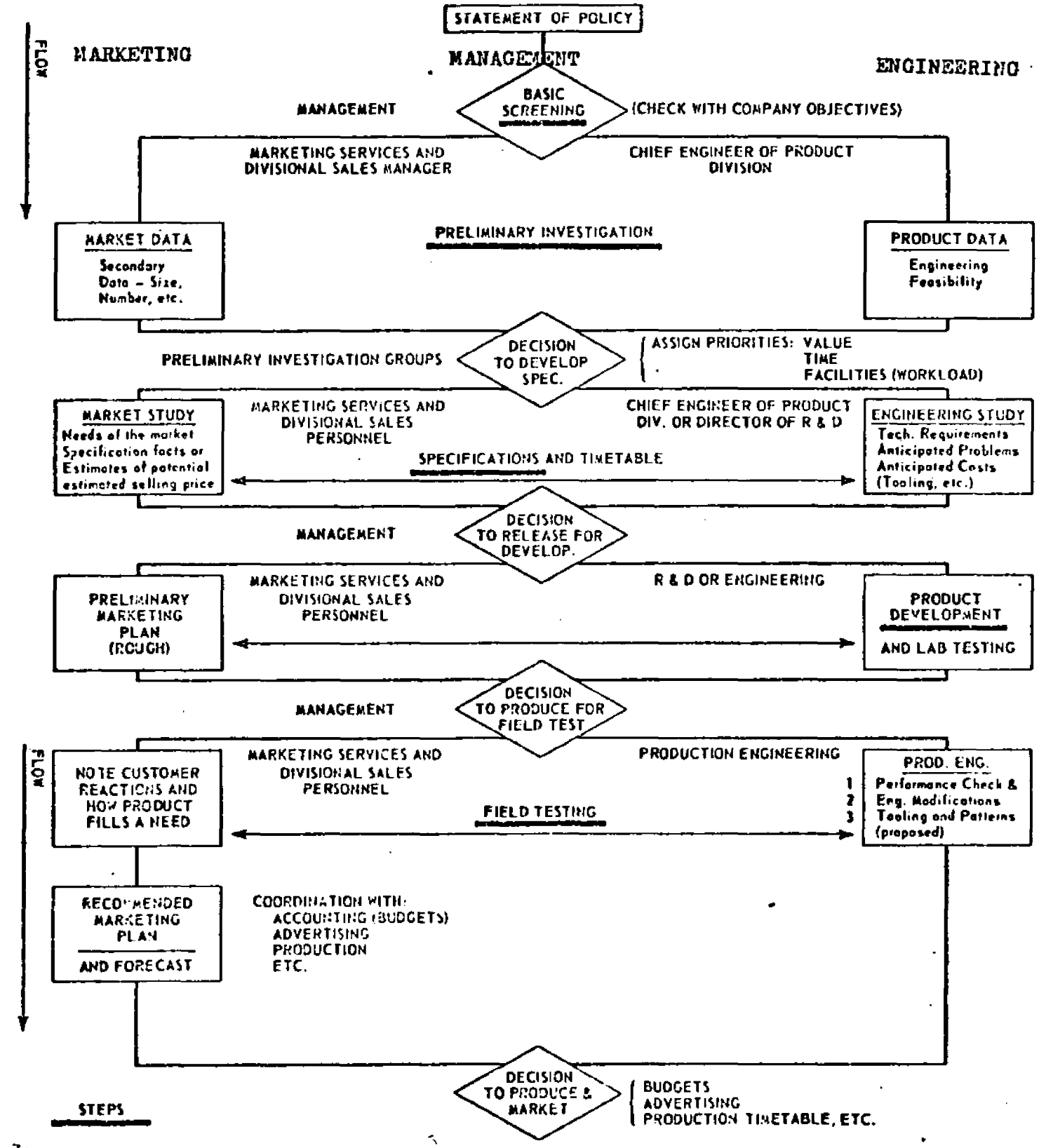
Several organizational forms are used for new product development. Hopkins (1974) mentions new product committees, new product departments,

a vice president for new products, etc. Figure 2.1 portrays the Development of A Product in an Industrial Firm. In this case several departments are directly involved with developing the new product: R&D, production and marketing.

Recent literature seems to favor the venture team approach when high risks are involved: (Hill & Hlavacek, 1972; Hanan, 1969; Slocum, 1972). The basic philosophy behind the venture team approach is the creation of a business within the organization, whose sole product is the new venture. The venture is responsible for carrying this product from conception through development to market introduction. Then, it is turned over to the product manager.

FIGURE 2.1

DEVELOPMENT OF A NEW PRODUCT, IN AN INDUSTRIAL FIRM.



Source: E. Patrick McGuire, Evaluating New-Product Proposals, (New York:

2.3 NEW PRODUCT PLANNING: THE SCREENING PROCESS

The various stages of new product planning are concerned with constant evaluation of the potential of the product. Figure 2.2, reproduced from Steiner (1969), depicts the New Product Screening Process, undertaken by the corporate planning group. A new product concept undergoes sequential screenings. Each subsequent screening is more thorough than the previous one.

Alternatively, Haas (1965) portrays the process in a decision model format. Figure 2.3, reporduced from Haas, shows the new product decision as a function of two choice criteria: acceptability to the firm and acceptability to consumers. As the product progresses through the screening process, its probability of rejection decreases while the scale of salvageable value increases. Haas explicitly puts consumer satisfaction criteria above the firm's other criteria. How consumers' wants are examined is not made clear in his book.

Most of the literature on product screening has traditionally offered checklists for the execution of this process. The emphasis in the idea generation stage is on producing as many ideas as possible regardless of quality. Methods such as brainstorming and buzz-groups are used. (Flouroy, 1969; Whiting, 1958; McGuire, 1972).

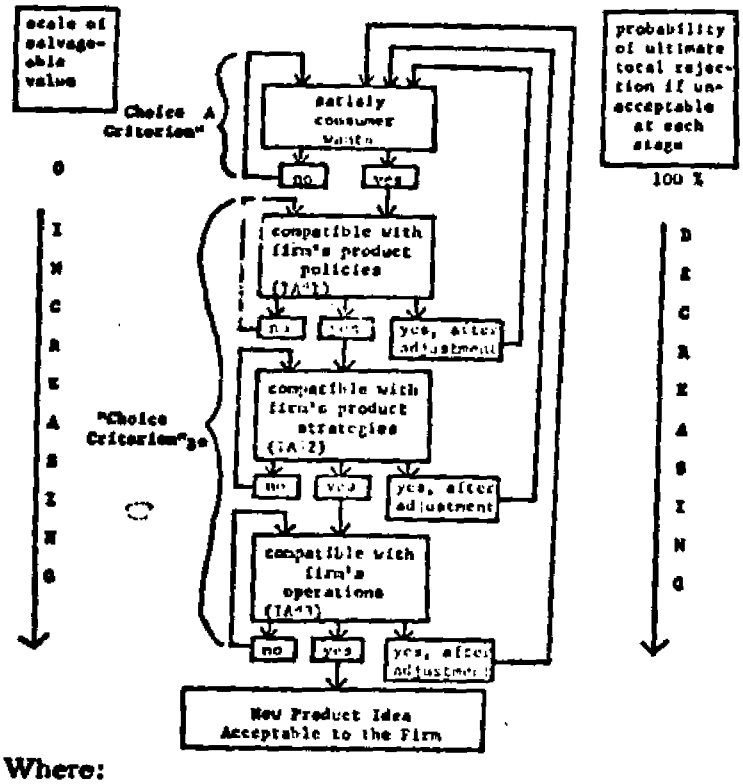
Once the ideas have been generated, the screening process starts. Reynolds (1968), Talley (1965), O'Meara (1960), Harris (1961), and Marvin (1972) are some of the writers who address themselves to screening new product ideas.

FIGURE 2.2
NEW PRODUCT SCREENING PROCESS

eprinted with permission from: Top Management Planning, by George A. Steiner, opyright © 1969, The Trustees of Columbia University in the City of New York, : 502.

FIGURE 2.3

A MODEL OF THE INTRAFIRM THEORY OF CHOICE AS BETWEEN POTENTIAL NEW PRODUCTS



Where:

Choice Criterion B = Satisfaction of the Firm's Wants

IA#1, IA#2, IA#3 = Indicators of Acceptability of Choice Criterion B

*Note: For purposes of illustration, Choice Criterion B, "Satisfaction of the Firm's Wants," has been broken down into its indicators of acceptability.

Source: Raymond M. Haas, Long Range New Product Planning (Virginia: West Virginia University Foundation, 1965 p.64

Figure 2.4 is a comprehensive checklist combining eight different checklists. Figure 2.5 compares the sources of these eight checklists with the comprehensive checklist of Figure 2.4. Two thirds of the questions in Figure 2.4 are company-related criteria. No demand estimates are required to answer questions such as: Is the product technically practicable? Can the product be manufactured from easily obtainable materials? etc. One third of the questions require demand estimates and are market-related criteria.

In a few instances (O'Meara, 1960; Harris, 1961), the criteria are combined to form a profile chart. This is done by providing a scale of four to five points for ranking the product on each criterion. The profile chart simplifies the evaluation process. Once developed, profile charts can be used by laymen.

It should be noted that the scales used in profile charts are ordinal scales. The combined product score, on the other hand, is compiled by treating the profile chart as interval data. This problem is not acknowledged by the authors discussing profile charts.

All profiles follow a similar pattern. In one way or another the score is a weighted average of the form: (Montgomery & Urban, 1969).

$$S_i = \sum_{i=i}^{f} W_j r_{ji}$$

Where: S_i = product i's total score

FIGURE 2.4

FACTORS COMMONLY CONSIDERED IN EVALUATING PRODUCT IDEAS

1. What purpose will the product serve? Will it improve our quality, lower our costs, etc?
2. Would the product fit logically into our existing line of products?
3. What is the anticipated market demand? Are the potential applications for the product broad or restricted? Will the product be a large volume item or a minor item in the line?
4. Will it be possible to sell the product through our established sales force and channels of distribution? If not, what will be the cost of promoting and establishing new channels?
5. Can the product be sold, in general, to the consumer in the same class of trade as our existing products?
6. Can the product be manufactured and sold competitively?
7. How long would it take the competition to copy or imitate the new product?
8. Is the product technically practicable?
9. How long would it take to develop the product for market?
10. Can the item be patented?
11. Could the product be manufactured by utilizing our existing plant facilities, or to what extent would these facilities have to be expanded?
12. Can the product be manufactured from easily obtainable materials?
13. What sizes and types would be required

FIGURE 2.4 (CONTINUED)

14. Can the product be packaged in containers that are generally used in the business?
15. What effect will the introduction of the product have on engineering schedules?
16. Does the company have the manpower available or reasonably obtainable to develop, manufacture and introduce the product.
17. What would the development cost be?
18. Could these development costs be absorbed over a reasonable period of time?
19. What is the estimated return on the investment?
20. Is the item a long-profit or a short-profit item?
21. How much profit should the company be able to make and how soon?
22. What effect will the product have on our "break-even" point?
23. Are we financially able to develop and introduce the product?
24. What are the prospects for the product on a long-range basis?
25. What is the probability of successful development and introduction of the product?
26. Is the proposed venture large enough?
27. What is the change required in consumer behavior?
28. What is the expected share of the market to be captured by the new product?
29. How fast can this share of the market be captured?
30. What are the effects of the new product on our existing line?
31. What are the product characteristics?

FIGURE 2.4 (CONTINUED)

32. What is the growth potential of the new product?

33. What are the characteristics of the sales pattern (seasonal, cyclical, etc.)?

34. What technical service requirements does the new product idea possess?

FIGURE 2.5

COMPARISON OF SOURCES

	SOURCE							
Question No.	NICB 1950	Peterson 1967	Reynolds 1968	Talley 1965	O'Meara 1960	Harris 1961	Darby 1957	Marvin 1972
1	X			X	X	X		
2	X	X	X	X	X	X		
3	X		X	X	X	X	X	
4	X		X	X	X	X		
5	X		X	X	X	X	X	
6	X			X	X		X	
7	X	X	X		X		X	X
8	X		X	X	X	X		
9	X			X	X	X	X	X
10	X	X	X					
11	X		X	X	X	X		
12	X				X	X		
13	X				X		X	
14	X				X			
15	X							
16	X		X	X	X	X		
17	X			X	X	X		X
18	X				X	X		X
19	X	X		X	X	X		X
20	X			X	X	X		X
21	X			X	X	X		X
22	X							
23	X		X					X
24	X							X
25	X				X			X
26		X	X			X		
27			X				X	
28							X	X
29							X	X
30					X	X		
31					X	X		
32					X	X	X	
33					X	X		
34						X		

[a]The numbers on the left correspond to the questions in Figure 2.4.

W_j = weight associated with subfactor j, where $0 \leq W_j \leq 1$, and

$$\sum_{i=1}^{f} W_j = 1.$$

F_{ji} = Product i's score on the scale (good, poor, etc.).

Most profile charts and checklists suffer from several shortcomings:

1. Weights are subjectively determined by the scorers (Pessemier, 1966).
2. Weighted factors may not be independent, or mutually exclusive.
3. Factor weights may not be independent of the product's score on various other factors. The raters are assumed to have a considerable amount of of knowledge.
4. Although checklists provide the screener with a list of needed information, they do not tell the screener how to obtain this information.

The quality of the checklist depends on the quality of the information which can be input by the product screener. While estimates about a company's resources are generated by company experts, estimates of consumer demand must be generated by other means. Concept testing has been offered as a tool for generating consumer interest information and possibly demand estimates.

At an early stage in the product development cycle, full-fledged market tests are premature. They are both expensive and time-consuming. Too, market tests require a large quantity of product samples. Concept testing seems to be a suitable alternative tool at this early phase of the product's development cycle. With this prooedure, a concept rather

than a physical product is exposed to consumers. They react to the concept, and their reactions are input into the screening process. The next section further discusses the method of concept testing.

2.4 NEW PRODUCT PLANNING: CONCEPT TESTING

Although concept testing is a relative newcomer in the product planning literature, it is being practiced by a growing number of firms. David K. Hardin (1966) writes: "Management's expectations for test marketing results are rapidly changing. No longer are test markets used to identify very successful and very unsuccessful products. Management is no longer willing to risk the cost (up to $500,000) and competitive warning (up to two years) that a traditional test market represents. Instead, the test market is becoming the first phase of national distribution." (p. 396). Management uses concept testing to identify future products. Test marketing is used for prediction of the level of demand, characteristics of buyers, etc. Companies such as General Foods, General Mills, Pet Milk, and Pillsbury go into national distribution with 75% of their test-marketed products. This means that a decision has been reached beforehand, i.e., during the product screening process.

Various definitions have been forwarded for concept testing. In a monograph by Market Facts Inc. (1961), concept testing was defined as "a means for defining initial consumer interest in a product idea." A similar definition by National Family Opinion Inc. (1963) is: "Concept testing is that area of marketing research which attempts an initial probe to pre-test the consumer appeal of new ideas in products or services." A different approach was taken by Walter A. Woods (1969) in defining the concept first: "A concept from the point of view of the creator, the laboratory man, or the manufacturer, is a preconception of

what a product should be like, including its physical and imputed characteristics and its benefits. A concept from the point of view of a perceiver or consumer, is an expectation of what the product will be like, in terms of its physical characteristics and of the benefits it will provide or the satisfaction which will follow from trying it." These definitions all point up the fact that concept testing is viewed differently by different writers. The same is true of the specific methods and procedures used to conduct concept testing. A survey of the different procedures used is described in the next section.

2.5 CONCEPT TESTING PROCEDURES

Several methods for performing product concept testing are found in the literature. The methods are:

2.5.1 Rank Order Method or Omnibus Testing (Axelrod, 1964)

This method involves presenting consumers with a few concept statements for evaluation. Respondents are asked to rank the various concepts in accordance with their preferences. The concepts ranking best are used in further investigation. Respondents are probed for what they like or dislike about each of the higher ranking concepts. The method assumes that the various concepts are comparable, and that they can, in fact, be rated along a continuum. This general framework has two different variants:

A. Paired Rankings (Market Facts 1961)

The number of concepts in this technique is limited to two. This simplifies the effort of ranking, and may be conducted with somewhat greater precision. The problem inherent in this variant is that it is rarely similar to the actual market situation, where there are always more than two products (concepts). The ratings given to each of the concepts in this method may therefore be misleading.

B. Multi-Stage Approach (Market Facts 1961)

This technique utilizes the same general approach. A sample of respondents are mailed a few concept statements. After they have selected the rankings, the top six rankings are picked and mailed again. This time, more information is enclosed. In the third stage, pictures are sent to

respondents, and they are asked to rank them. The fourth stage consists of a group interview, in which the respondents discuss the merits of the concept. Questions such as 'Why did you make this selection?' are asked. An additional stage may be incorporated, whereby a sample of the product is presented along with a statement about it. Since this stage is beyond the screening process, it is not described here.

2.5.2 Heuristic Ideation Technique (Tauber 1972)

This technique is based on the assumption that each product can be described in combinations of two words. If one wishes to test the desireability of aerosol butter, boil-in-bag gravy, catsup jar, etc., a multicell table will emerge. Respondents are simply asked to circle the combinations (cells) which they like, and which they would use if available. After they complete this, they are asked questions about each combination. This technique has the advantage of substantially reducing the burden of image-formation on respondents. Additional clear advantages are the comparability of concepts, and the ability to introduce 'dummy' concepts as a check on the results. It is limited, however, in the scope of possible applications.

2.5.3 Monadic Testing (Axelrod, 1964)

In this method, the respondent is presented with a single concept statement, and asked for his reaction to the product, as compared to the one he is currently using. The advantages of the paired ranking are foregone, but the single concept is explored in depth. Respondents are requested to rank the product on various scales, or to choose those statements

which best describe the product. The likelihood of the respondent's buying such a product is then determined by using various "intention-to-buy" scales. Variations of this test can include questions regarding price expectations of consumers (respondents). Other questions relate to levels of future use. These variations are applicable only in cases of respondents who are favorably impressed with the product.

2.5.4 Combination of Monadic/Omnibus Testing:

Monadic/Omnibus Testing is a combined version of both testing methods. The respondent is asked to evaluate more than one product in depth. Several concept statements are presented to the respondent, who is asked for his reaction to each of the concepts. One must bear in mind that this procedure is rather lengthy, and respondents' fatigue may influence results. Respondents are also far less likely to be interested in the product than researchers (National Family Opinion, 1963). These drawbacks and others are often overlooked by test administrators.

2.5.5 Custom Tailored Testing:

Some practitioners feel that a concept testing procedure is "an art and not a science."* The confidential nature of the concept requires close ties between the initiating company and the research contractors. The

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*Statement of Mr. Michael L. Printz, Vice President and Co-Owner of The Concept Testing Institute, New York, May 11, 1973, personal interview. The same remarks concerning the time dimension of concept testing (i.e., concept testing as a series of tests can be found in: Budd G. Wolfsie, "Market Research in the Development of a New Typewriter". Journal of Marketing Research, Vol. 1, (February 1964), pp. 35-37.

concept testing procedure is carried out over a long period of time, accompanying the product with commercialization. Concept testing is not a one-time omnibus test or a monadic test. Rather, it is a custom tailored test which varies with the progress of the product idea. In the early stages, concept testing may serve as a means of obtaining initial interest. Only channel members, suppliers, salesmen, etc., are interviewed. Finally, consumers are only approached when a prototype exists and a figural or pictorial image is available. This is changed, of course, if the client insists.

Other versions of concept testing methods are: content analysis, anchoring techniques, and combinations of these (Market Facts, 1961).

In the content analysis method, open-ended questions are asked so as to let respondents answer freely. The answers are then classified into stereotyped answers ("looks good", "I'd like to try it", etc.) and positive elements. Positive elements may be either specific references to need, or statements showing involvement (specific references to usage).

In the anchoring technique, a definition can describe two extreme points. The extremes would be an "ideally bad" and an "ideally good" product. After the extreme points are defined, the products may be placed on a continuum between the two points:

"Ideally Bad" "Ideally Good"

Concept	Concept A	Concept B	Concept
X	X	X	X

2.5.6 Scaling and Response Measurements

A few remarks about scaling procedures are in order. All the aforementioned designs use scales as a rating device. Ralph L. Day (1968) identified three basic approaches to scaling:

A. Ratings on hedonic scales (five to seven points).

B. Statements of relative preference (naming the particular test item involved as preferred).

C. Expressions of attitudes or feelings about the product, using the semantic differential.

Day offers some generalizations with respect to the use of scales in testing. As a general rule, the simpler the test situation, the more complex the evaluation procedure, and the vice versa. In some cases a combination of scales is used.

2.6 CONCEPT TESTING; ISSUES IN REVIEW

2.6.1 Decision Rules

The main contribution of concept testing to the new product screening process is the input of consumer reaction to the product at an early stage. Checklists for new product screening emphasize company-related criteria, such as those requiring inside information and inside estimates. This situation contributes to the high rate of new product failure. Consumer vote on a new product being offered is cast in the market test phase. By this point, the new product has gone through a good portion of company resources: R&D costs, initial production set-up, tooling, executive time, and related expenses. Therefore, failure of the product in the market test phase is expensive.

In concept testing, the product concept is submitted to consumers for appraisal before the physical product actually exists. If the concept fails to generate acceptance at this point, it is dropped. If the response to the concept is favorable, it is then passed on to the laboratories. It then resumes the usual course for a new product. A disadvantage of concept testing is its heuristic nature. There are only a few decision rules for acceptance or rejection of concepts in a concept testing test (Market Facts, 1961). It is likely that executives use concept testing as a tool for screening products 'out' rather than 'in'. A product must receive high ratings in order to be accepted by the screener. Thus, 90% favorable response might insure the product of further considerations, while a 40% favorable response might assure the screener that

the product merits no further consideration. The wide range between these two arbitrary cut-off points is probably left to the screener to accept or reject. The screener's handling of the decision is a function of the expected cost/benefits and his own personal utility function. If the company tends to punish executives whose new product venture fails, the executive would rather discard a good product idea than accept a bad one. In other words, the executive would rather commit a Type I error than a Type II error. When a good potential product is discarded, there is little or no chance of its resurfacing. When a bad potential product is passed on for further development, however, the error will be obvious sooner or later. By the time such product is discontinued, the company has lost time and money. The executive responsible for the 'lemon' will bear the consequences. The reluctance of screening executives to risk themselves is pointed out in a study conducted by Arthur D. Little and The Industrial Research Institute for the National Science Foundation. The findings were reported in Marketing News (May 1, 1974).

2.6.2 Design and Function:

A good portion of the literature on concept testing is less than ten years old. The total number of articles barely exceeds three dozen. One reason is probably the confidential nature of the concepts involved. It is quite surprising, given the small number of articles, to find such a divergence of views on the subject. Market Fact's definition of concept testing (1961) is generally accepted (see section 2.4), but many writers modify or add to it. Figure 2.6 presents some of the different uses/

FIGURE 2.6

DIFFERENT USES AND FUNCTIONS ASSIGNED TO CONCEPT TESTING

1.	Reduce risk of advertising failure, via copy testing	Axelrod	(1971)
2.	A method for product positioning	Clancy & Carsen	(1969)
3.	Defining interest in a product idea	Market Facts Inc.	(1961)
4.	A method for refining product concept	N.I.C.B.	(1967)
5.	Assessing ideas around which new products will be built	Skelly & Nelson	(1966)
6.	Generating new product ideas	Tauber	(1972)
7.	Attempting to predict number of first-time users	Tauber	(1973)
8.	Identifying market segments	Wind	(1973)
9.	Identifying characteristics of market segments	Wind	(1973)

FIGURE 2.7

DIFFERENT DESIGNS UTILIZED IN CONCEPT TESTING TESTS

A.	Omnibus Testing:		
	1. More than two concepts to be evaluated	Wind	(1973)
	2. Paired ranking	N. Fam. Opinion	(1963)
	3. Multistage rankings	National Family	(1963)
	4. Heuristic Ideation Technique	Tauber	(1972)
B.	Monadic Testing:		
	1. Assessing future success and probing	Most writers	
	2. Assessing and probing as phase II of ranking	Market Facts Inc.	(1961)
C.	Other Designs:		
	1. Non-structured and "custom tailored"	Market Facts Inc.	(1961)
	2. Comprehensive and structured	Wind	(1973)

functions assigned to concept testing by various writers. These functions include generating new product ideas (Axelrod, 1971 & Tauber, 1972), evaluating those ideas (Market Facts, 1961), and assessing market segments and product positioning (Wind, 1973).

A similar situation exists with respect to the research designs used to conduct concept testing. Figure 2.7 presents some of the different designs used. A description of the methods is presented in section 2.5. Various additional differences exist. Different samples, data collection methods, questioning procedures, etc., are utilized by different writers.

Various studies in the literature report the conduct of concept testing tests using different data collection methods. Mail questionnaires (Market Facts Inc., 1961), interviewers (Tauber 1972, and Wind 1973), and focused group interviews are being used (Yoell, 1974). The number of respondents varies from a minimum of 10 - 15 respondents in focus group interviews, to larger samples of 200 - 400 respondents. (Market Facts Inc. 1961 and National Family Opinion 1963 in the small sample vs. Tauber, 1972 and Wind, 1973 for the latter). On certain occasions, respondents are directly asked about the concept (Tauber 1972, Wind 1973). On other occasions, the objective is concealed (Dichter, 1964). No rules were found concerning the methods used for choosing respondents. Should they be articulare, a convenience sample, or a random sample? Should respondents be innovators, company employees, or a part of the intended sample? These questions are still unanswered in the literature.

2.6.3 Concept Execution

Most of the academic writers concerned with concept testing focus on execution problems. Russel I. Haley and Ronald Gatty (1969) tested the effect of the copy writer on the concept's ratings. (i.e., response). The starting point of Haley and Gatty is that concept and execution are not independent of each other. Respondents react to both. It is therefore possible that: "The concept may be good and the execution bad, or vice versa" (p. 231). Taking a sample of 400 housewives in ten different cities, they examined the copy writer's effect. Each housewife, identified as a prospect for the product, was asked to rate the product on a six-point hedonic scale. Using ANOVA, they found that out of 24 copy statements, written by three different copywriters, one copy writer was preferred. As a result, Haley and Gatty conclude: "...Most concept testing tests are not testing only the relative value of different concepts: they are actually comparing the relative value of different executions." (p. 233).

The implication is that concept tests are not different from copy tests. Under this heading (copy testing) we have a fairly well-developed body of knowledge (A.R.F., 1972). On the other hand, Market Facts (1961) point out in their monograph that the relationship between the concept test and the product is not distinct. It is a continuum, and is thus differentiated by degree. When the concept is submitted to respondents in rough form, it is concept testing; when submitted to respondents in a finished form, it is an advertising test (or copy test). When an actual product is submitted to respondents for trial, it is a product test.

finally, when a market area is tapped for reaction, it is considered a market test.

Scott Armstrong and Terry Overton (1971) tested the effect of the amount of information (brief vs. comprehensive) given respondents on their intentions to buy. A transportation service concept was tested on a sample of 214 'screened' prospects. Those were chosen by systematic sampling from Philadelphia telephone books, and screened for their willingness to cooperate and for having jobs in downtown Philadelphia. The brief statement was a mailed questionnaire sent to the selected respondents. The more comprehensive statement required respondents to walk through an exhibit of the transportation system. Compensation to respondents was $1 for responding to the brief mail questionnaire and $5 for taking part in the comprehensive statement (an exhibit at the University of Pennsylvania). Armstrong and Overton found no significant differences in the concept's ratings with respect to the two different presentations. They conclude "The choice between them — brief vs. comprehensive — might be made on the basis of costs and the ability to generalize, to the population. On the basis of these criteria the brief description proved to be much superior." (p. 117).

A comment is in order about Armstrong and Overton's conclusion. Although they tested two different sets of information, two other variables were not held constant. Compensation to respondents was different (Kanuk, 1974). Also, data collection modes were different — a strong testing effect.

Edward Tauber (1972) tested the effect of a picture on consumers' response to a concept. A convenience sample of 400 females over 21 years of age was contacted in four shopping areas around Los Angeles. Concepts were presented in rotated form. The first respondent was shown a pictorial advertisement. The second was shown a written statement. Three concepts were tested altogether. Results: "...analysis revealed that absolute scores are higher for all three product ideas when they are communicated by the advertisement than when communicated by a written factual description." (p. 36). Nonetheless, concept 'C' rated superior to the other two regardless of the presentation form. Tauber concludes with a comment favoring an experimental design which will separate the effects of the various factors.

All the above researchers tested one variable at a time: copy writer, copy length, and form of presentation. In these studies, the researcher assumed that all other variables were constant. When Tauber tested the presentation form, he assumed that copy length and copy writer do not affect results. While a written statement may be less effective than a statement combined with a picture, this relationship is also a function of the copy length as well as of the copy writer. Thus a long copy statement can be more effective than a short statement combined with a picture.

The respondents in a concept testing situation react to both concept and execution. The effect of the execution on respondents is crucial. When measuring one variable at a time, interactions between concept and execution cannot be inferred. It is that interaction that product planners

should be concerned with.

When a product concept is concept-tested, testers are concerned with the preferences indicated by respondents. In order to insure that the execution will bear a minimal effect on respondents, it should be tested before the concept is tested. After analyzing results, the executive will understand the interaction between a concept and its execution.

2.7 SUMMARY

The relatively few articles directly dealing with concept testing imply that the topic is a new one. Many articles and sources deal with concept testing indirectly. Concept testing is not new. The focus on the method as a procedure for new product planning, however, is new. The revived interest shows that linking concept testing with the new multidimensional research tools (Wind 1973) opens up new horizons. Concept testing may be the same old method with a new name, new focus and new applications.

Concept testing is part of the new product planning system. It is an additional heuristic tool whose contribution to new product planning may be significant. In a field where losses are large, and success probabilities small, even a small contribution is substantial. Relying on managerial intuition is the rule and not the exception in new product planning. The models and simulations used are secondary for many managers. Concept testing provides the executive with important feedback from consumers. This complements his intuition.

The methodology developed in the next section complements concept testing. A concept's execution is pretested prior to conducting concept testing. The interaction between the concept and its execution are studied. Dependence or independence of the two is established. Executives gain insight into the concept and respondents' reactions. The methodology is presented in the next chapter.

CHAPTER 3

A MODEL OF CONCEPT PRETESTING

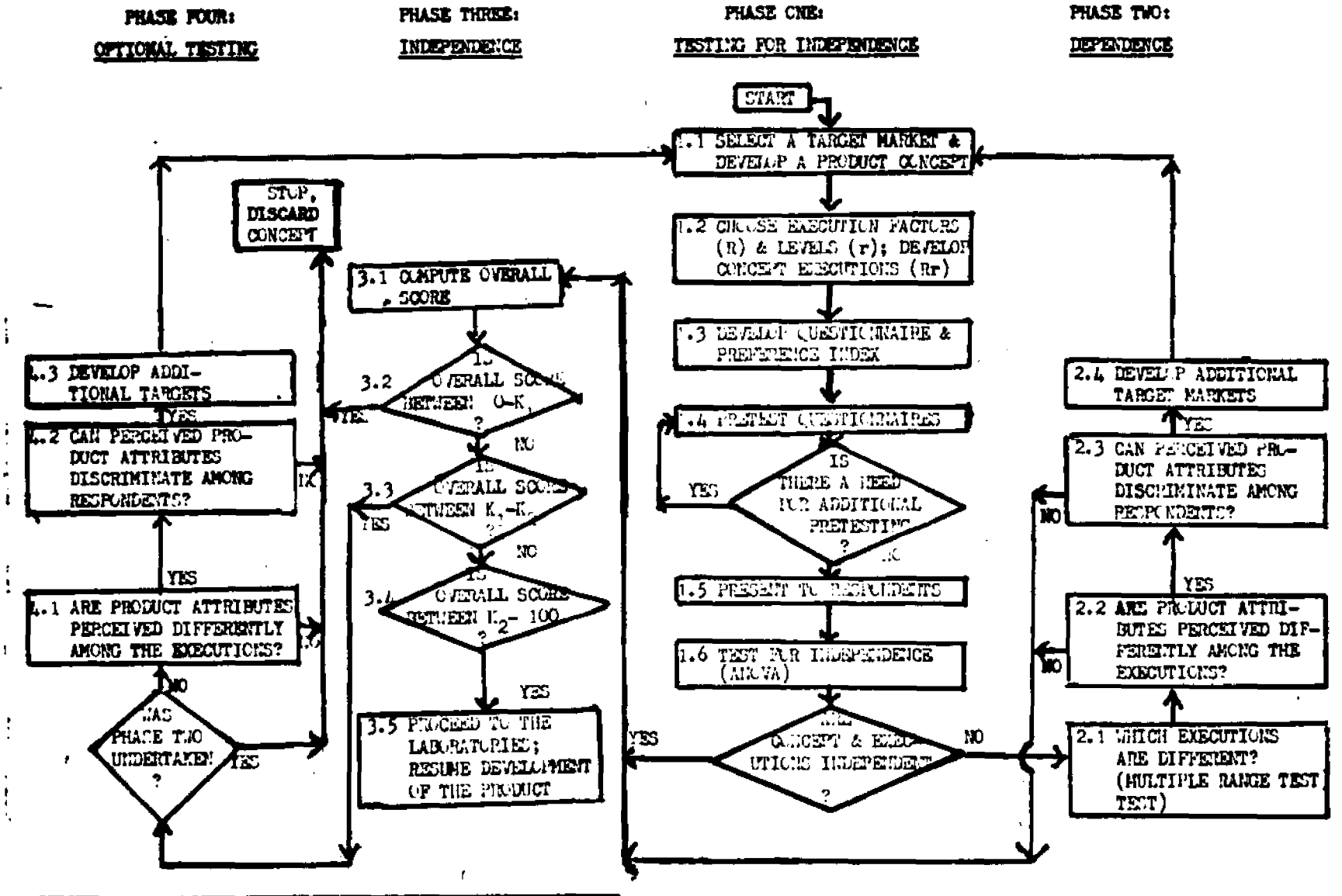
3.1 INTRODUCTION

The methodology suggested, called a concept pretesting model, complements concept testing. The concept pretesting model investigates interactions between a concept and its execution. Traditional concept testing assumes that a concept is independent from its execution. This assumption can lead to erroneous decisions. Low ratings for a concept can result in its being discarded. High ratings will lead to its being developed further. However, low ratings can indicate a 'bad' execution of a good concept. Too, high ratings can indicate a 'good' execution of a bad concept.

Concept pretesting offers a methodology which can help reduce such mistakes. The concept is pretested in several executions. This allows investigation of interactions between the concept and its executions. If the two are independent, the ratings reflect reaction to the concept. If they are not independent, ratings are a function of both concept and execution. Low ratings in the first case signify a bad product. Low ratings in the second case signify the need for further testing.

Figure 3.1 depicts the four phases (columns) of the model. In phase one, concept executions are developed, along with a questionnaire. ANOVA is used to determine whether the concept and its executions are independent. If the two are independent, phase three is followed. If the two are

FIGURE 3.1: CONCEPT PRETESTING FLOW CHART[a.]



[a.] TRADITIONAL CONCEPT TESTING BEGINS WITH PHASE ONE, STEPS: 1.1; 1.3; 1.4; 1.5. IT PROCEEDS TO PHASE THREE, STEPS: 3.1; 3.2; 3.4; 3.5. ($K_1 = K_2$). K_1 & K_2 ARE CUT-OFF POINTS, DETERMINED BY THE COMPANY: $K_1 \leq K_2$.

dependent, phase two is followed.

Phase two is undertaken when the concept and its executions are found to be dependent. It is possible that the executions may have affected perceived product attributes in addition to having affected the preference indicated for the concept. When product attributes are perceived differently according to different executions, a new product positioning is identified. This new positioning (based on perceived differences in product attributes) is used for developing new product concepts. These new product concepts re-enter phase one for a second time for concept pretesting. If no new concepts are identified, phase three is undertaken.

Phase three is used when the concept and its execution are found to be independent, or when phase two does not reveal new product concepts. An overall score is computed for the product. Based on this score, it is decided whether the product should be developed, forwarded for further testing (phase four), or scrapped. The higher the score, the higher the probability of continued development. Phase three is similar to traditional concept testing. The concept and its executions are assumed to be independent, and the computed score serves as a screening device. Traditional concept testing does not test more than one concept execution; neither does it provide for further optional testing when the product's score is within the middle range. Traditional concept testing defines an acceptance region and a rejection region. Concepts are

either rejected or accepted. There is no middle range to indicate optional, additional, testing. The concept can have no additional testing, in traditional concept tests.

Phase four offers optional additional testing. The testing is similar to the procedure used in phase two. The product attributes are investigated. If new positioning potential emerges, it can re-enter phase one for a second round of concept pretesting. This can reduce Type one errors in product screening. Rejection of a potentially good concept is minimized by a provision for additional testing of the concept. If no new positioning is possible, the concept is discarded.

Each of these phases is described in the following sections.

3.2 PHASE ONE: TESTING FOR INDEPENDENCE

The first phase of the model deals with the concept, its executions, and a test for independence of the two. Phase one has six steps (see Figure 3.1). Each is described in detail in the following sections.

3.2.1 Step One: Select A Target Market and Develop a Product Concept.

The first step of phase one involves the selection of a target market and the development of a product concept. The sequence implied by first choosing a target and then developing the mix is consistent with the marketing concept (McCarthy, 1975). This is not the only sequence possible. A product concept can emerge from seemingly unrelated research in other fields. Research and development efforts can generate ideas for other areas. In such instances, consumer needs are investigated after the concept has been developed.

Most authors who deal with screening processes begin their discussion with existing product concepts. These concepts are solicited from various sources within and without the company (Kotler, 1975). For example, sales people, consumers, laboratory technicians and other creative people can generate new product ideas.

Special techniques for stimulating creativity and idea generation are used by companies (Whiting, 1958; Flournoy, 1969; McGuire, 1972). The emphasis in these techniques is on generating a large quantity of ideas, regardless of their quality. The quest for quality is the subject of the screening process. In these cases, concepts can emerge before

consumers' needs have been established. Other methods rely on identifying consumers' perceptions of existing products. These perceptions are mapped and gaps in the map indicate locations of potentials for new products (Johnson, 1971).

Regardless of the sequence used, step one requires the existence of both a product concept and a target market.* Whichever emerges first, the other must follow in development. It should be noted that selection of concepts for concept testing must be guided by a cost benefit measure as well. There is little justification for pretesting concepts which do not show sufficient profit potentials.

3.2.2 Step Two: Choose Execution Factors (R) and Levels (r) and Develop Concept Executions (Rr)

This step involves choosing the factors and the levels of the concept's execution. The concept is an abstract, mental construct. The Random House Dictionary defines concept as: "1. A general notion or idea: conception. 2. An idea of something formed by mentally combining all its characteristics or particulars; a construct. 3. A directly conceived or invited object of thought." The concept is presented to respondents in an execution. The execution of the concept can be a verbal description, a written description, a pictorial description, or a combination of the above. Different factors can be isolated in an

*A preliminary investigation of respondents who did not constitute part of the target market (in the ensuing example) shows significantly different results for the target market respondents and the non target respondents.

execution. Some possible factors (and corresponding levels) are:

1. Copywriters (different copywriters)
2. Amounts of information (brief, medium, comprehensive)
3. Existence of a picture (no picture, color picture, black and white picture)
4. Kind of medium conveying the concept (print, radio, T.V., etc.)
5. Method of data collection (personal interview, mail survey, telephone, etc.)
6. Rough vs. finished advertising (different stages of completeness).

Different combinations of the above execution factors define different executions. The choice of factors depends on company objectives and the product-market situation. A company which plans to use a print advertising campaign will choose factors relevant to print advertising. If broadcast advertising is contemplated, other factors will be selected.

Budgetary constraints limit the number of factors and corresponding levels. If four factors are selected, each with four levels, sixty-four executions emerge. This means a factorial design with sixty-four cells (i.e., four x four x four design). If the number of respondents is limited to ten per execution, a sample group of 640 is required. Obviously, discretion must be used in choosing the factors and levels for concept executions.

Once the factors and levels have been selected, the executions can be developed. This is done by systematically combining the different

elements into different executions. Each execution incorporates a unique combination of execution factors and levels. In some cases it may be advisable to test the executions for differences. When factor levels are arbitrarily determined, such as in the case of amounts of information the difference between a small amount of information and a medium amount should be established. This prevents some waste in testing executions that are not different from each other.

After the different executions have been developed, step three is undertaken.

3.2.3 Step Three: Develop Questionnaire and Preference Index

Developing a questionnaire and a preference index is done after developing the executions. The questionnaire should include several sections dealing with the several aspects of the pretesting involved. The following sections should be included:

1. Classification questions, for description and demographic segmentation.
2. Psychographic questions, for psychographic segmentation.
3. Product attributes, for product positioning.
4. Preference questions, for determining preference for the product.

The first section suggested above deals with background questions about demographic and socio-economic characteristics of respondents. Section two suggests a battery of psychographic measures. Respondents' characteristics, possibly determined by means of A.I.O. questions (Wells,

1971), can be used for this section. Section three of the questionnaire deals with the product concept. Rating the product on several product attributes can serve as a segmentation tool. A list of product attributes with a rating scale can be used. The last section suggested above requires use of various preference questions. These can include intention-to-buy questions, comparisons with other products (in Omnibus testing), and other ranking devices.

The above sections need not be ordered as they have been here (Evans, 1975), nor are they the only sections that might be used. The exact sections to be used in the questionnaire depend on the specific situation encountered. Screeners may wish to add or delete to the above list.

Most of the questions (other than those relating to demographic and socio-economic characteristics) use scaling techniques (see section 2.5.6). A survey and analysis of available scaling techniques is presented in Green and Tull (1975). Special consideration must be given to the type of analysis desired and the appropriateness of the scale.

Similar care must be exercised when developing a preference index. The preference index serves as the independent variable when comparing several concept executions. When the concept test involves omnibus testing, ranking of the concepts is desired. Greenberg (1958, 1963) and Day (1969) discuss problems associated with paired comparisons, specifically position bias. Little is found in the literature with respect to preference indices used in monadic testing (testing one concept).

When only one concept is tested, ranking the concept requires different methods. Intentions to buy serve as a measure of preference in monadic testing (Market Facts, 1961). This is frequently supplemented by additional heuristic measures. For example, in a focused group interview, these measures can be verbal expressions of enthusiasm about the concept. Facial expressions are frequently used as well (National Family Opinion, 1963; Market Facts, 1961).

Various articles dealing with concept testing do not address this question at all. Haley and Gatty (1969), Tauber (1972), and Armstrong and Overtone (1971) do not discuss the issue directly. Armstrong and Overtone (1971) used intention to buy as an indicator. It is not clear whether other measures of preference were also used.

Most of the literature on intentions-to-buy scales deals with durable consumer goods, e.g., appliances, cars, houses.

Green and Tull (1975) define "intention to buy" as "...presently planned actions to be taken in a specified future period." (p. 109). Most studies which compare intention to buy with actual purchasing behavior were done by the Michigan Survey Center. Studies conducted by companies have been considered proprietary and were not published. Weiss, Smith and Fleschig (1960), Juster (1964, 1966, 1969) and Byrnes (1965) examined the validity of intentions to buy. They found that intentions to buy are valid. Unfortunately, in all cases, the items to be purchased were durable consumer goods. Juster analyzed the validity of intentions to buy houses. Byrnes (1965) examined the Michigan Survey Research Center

data (large consumer durables), as did Juster (1966).

Green and Tull summarize their discussion of intention-to-buy scales with the following comment: "Many judgments and expectations are bound up in a concurrently valid statement of intention to buy. Such variables as expected changes in financial status, price expectations, general business forecast, and prediction of need, all contribute to the final intention decision. Since each of these is (to some extent at least) a random variable, it seems plausible to suppose that the intender views them as such and that his stated intention to buy is really a subjective probability of purchase." (p. 111). Green and Tull add: "This and other evidence has apparently been persuasive to the Bureau of the Census as it moved toward the greater use of buying probabilities" (p. 112).

The Bureau of the Census decided to terminate its series of Consumer Buying Expectations (CBE) in October 1973. The reasons for this decision have been debated by McNeil, (1974), Adams (1974) and Juster (1974). The C.B.E. used an intention-to-buy scale consisting of ten points. This was advocated by Juster (1968) and heavily pretested in a cross-section analysis. McNeil (1974) claims that the series had low predictive value, which caused their termination. Juster (1974) claims the termination was caused by budget cuts, and that the low predictability resulted from bad interviewing (specifically a lack of control and re-interviewing). The debate still goes on.

Validation of verbal scales (as opposed to probability scales) of intentions to buy has not been found in the literature. The Michigan

Survey Research Center continues to produce the Quarterly Survey of Buying Intentions (QSI), which started in 1959. This survey uses a verbal intention-to-buy scale and supplements it with a 'sentiment' index. It seems that the verbal scale is being preferred to the probability scale at the present time. The intention-to-buy-scale that has been used in the concept pretesting model is therefore a seven-point verbal intention-to-buy scale. (McNeil, 1974).

3.2.4 Step Four: Pretest Questionnaires

Step four calls for pretesting the questionnaire. The pretest is used in order to discover ambiguous questions, unclear wording, and related problems. The questionnaire is presented to a small group of respondents who are asked to complete it. Comments and questions about the questionnaire itself are solicited. The comments and questions are examined and, where necessary, changes are made in the questionnaire. If necessary, this procedure is repeated until the researcher is satisfied with the questionnaire.

3.2.5 Step Five: Present to Respondents

Once pretests are completed, the actual survey takes place. The different executions are incorporated into the questionnaires and presented to respondents. Each group of respondents is exposed to one treatment (execution). A factorial design is used.

The K-way factorial design used in the model has several advantages. Cox (1958) writes: "factorial designs have, compared with the one

factor at a time approach, the advantages of giving greater precision for estimating overall factor effects, of enabling the interactions between different factors to be explored, and of allowing the range of validity of the conclusions to be extended by the insertion of additional factors". (p. 95)

This design controls additional sources of external and internal invalidity:

1.	History	the effect of history is controlled by using a single measurement.
2.	Maturation	questionnaires take a relatively short time to complete.
3.	Testing	only a single test is being used.
4.	Instrumentation	respondents are exposed to identical questionnaires, each respondent completing only one questionnaire.
5.	Interaction Effect of Testing	there will be no such effect, because there is only one measurement in the model.
6.	Reactive Effects of the Experimental Procedure:	the effects of the experiment on the non-experimental settings of respondents is virtually negligent.
7.	Multiple Treatment Inference	there is only a single treatment.

The above factors justify the use of a factorial design within the concept pretesting model. As was mentioned in section 3.2.2, budgetary and time constraints determine the number of factors and factor levels to be used.

Several data collection methods have been used in conjunction with concept testing tests (see section 2.6.2): Mail questionnaires, private interviews, and focused group interviews. The method for collecting the information should be determined prior to proceeding with the data collection. The literature does not provide guidelines as to which of the methods should be preferred by researchers, in concept testing.

A related problem is that of the required sample size. The literature of concept testing provides little guidance (see section 2.6.2). Data collection methods affect sample size. In the focused group interview, small groups of respondents are used (10–15 respondents per group). Here, the data collection method affects the size of the sample. Statistical decision theory provides additional guidance for determining sample sizes.

A sampling procedure must be chosen as well. Most of the samples used in concept testing tests are judgmental samples or convenience samples. The heuristic nature of concept testing coupled with the emphasis on speed and low cost undermines usage of random samples. Nonetheless, the sampling procedure must be decided upon prior to conducting the test.

Step five deals with the actual collection of data, and with the preparation of the data for the following analysis. Such necessary steps as coding, editing, keypunching, and verification must be undertaken. In focused group interviews, editing and coding require a substantially greater effort. Step six begins the analysis.

3.2.6 Step Six: Test for Independence

Step six calls for an investigation of the relationships between the concept and its executions. An ANOVA is concucted to see whether the preference indices indicated for the different executions differ significantly from one another. If significant differences exist, the executions affect the preference index. Therefore the concept and its execution are interdependent. If, on the other hand, no significant differences exist among different preference indices, the executions do not affect the preference index. The concept and its execution are independent.

The ANOVA model used in step six is:

$$Y_i = \mu + \theta_i + \varepsilon_i \qquad i = 1, 2, \ldots, n$$

Where

Y_i = The i-th observation

θ_i = Effects due to the different executions

i = Number of executions

μ = A common effect for the entire experiment

ε_i = Error term, assumed to be normally and independently distributed with a mean of 0 and a variance common to all executions.

The hypothesis tested in step six is:

H_o: $\theta_i = 0$

H_1: $\theta_i \neq 0$

In verbal form, the hypothesis is:

H_o: There are no significant differences between the preference indices indicated for the different executions.

H_1: There are significant differences between the preference indices indicated for the different executions.

As indicated in section 2.6.3, several writers have investigated this relationship. It should be noted that in their investigations, the execution had only one factor. The concept pretesting model allows simultaneous testing of several execution factors at the same time.

The writers who have tested this hypothesis differ in their findings. Haley and Gatty (1971) found H_1 to be correct, whereas Armstrong, Overton (1971) and Tauber (1972) found H_o to be correct. If H_o is rejected as was established by Haley and Gatty (1971), Phase Two should be undertaken. If H_o is accepted as was established by Armstrong and Overton (1971) and Tauber (1972), Phase Three is undertaken.

Step six ends Phase One of the model. Phase Two is described next.

3.3 PHASE TWO: DEPENDENCE

Phase two is undertaken when the concept and its executions are found to be dependent. Phase two has four steps (see Figure 3.1). The four steps involve investigation of the executions, product attributes, potential discrimination among respondents (based on the preference index), and further segmentation. These steps are described in detail in the following sections.

3.3.1 Step One: Which Executions are Different?

If the executive wishes to know which executions are different, an a-posterior contrasts analysis is called for. This analysis is a procedure for comparing all possible pairs of group means. The groups are divided into homogeneous subsets, within which the differences among means are not significant at some prescribed level. The various available tests differ in their definition of the error rate of type one.

The Duncan Multiple Range Test (Hicks, 1963) can be used to carry out this step. The preference index mean of the execution can be used as the group mean. Then group means are compared for significant differences. If significant differences exist, the corresponding executions are different. If no significant differences exist, the corresponding executions are not different.

In the Duncan Multiple Range Test, the means of preference indices are arranged in order from low to high. The ANOVA table is entered, and the error mean square is taken with its degrees of freedom. A standard error of the mean for each treatment is obtained. The significant

ranges are obtained from Duncan's table of significant ranges at the alpha level desired. The ranges are then multiplied by the standard error of the mean for each treatment. The ranges are tested for significance. The procedure is repeated for the n-order interactions. On the one hand, all the means which are not significantly different are grouped together. Several different executions can be included in this group. On the other hand, the executions for which preference indices are significantly different form other groups.

The above analysis results in a ranking of the different executions along a continuum based on their preference index means. The executions for which the preference index means are not significantly different will be close to one another. This will allow the executive better understanding of the effects that different executions have had on preferences indicated for them.

3.3.2 Step Two: Do Product Attributes Differ Among Executions?

Step two investigates whether there are significant differences in product attributes among the several executions. This step analyzes the effect of execution factors on variation in product attributes. An N-WAY ANOVA can trace the variation in product attributes to a specific factor and/or to interaction between factors. This information is important to product screeners. Product attributes can serve as measures of perceived benefit. If product attributes can discriminate among segments, different product positionings can be used. The discriminating analysis is conducted in step three.

The ANOVA model used in this step is: (formulation is for a 3-way ANOVA):

$$Y_{i,j,k,l} = \mu + \theta_i + \gamma_j + \delta_k + (\theta\gamma)_{ij} + (\theta\delta)_{ik} + (\gamma\delta)_{jk} + (\theta\gamma\delta)_{ijk} + \varepsilon_{ijk\,(l)}$$

Where i,j,k = 1,2,3

l = Number of executions

θ_i = Factor number one

γ_j = Factor number two

δ_k = Factor number three

$(\theta\gamma)_{ij}$ = Interaction of factors one and two

$(\theta\delta)_{ik}$ = Interaction of factors one and three

$(\gamma\delta)_{jk}$ = Interaction of factors two and three

$(\theta\gamma\delta)_{ijk}$ = Interaction of all three factors

μ = A common effect for the entire experiment

ε_i = Error term, assumed to be normally and independently distributed with a mean of 0 and a variance common to all executions.

Several hypotheses are tested in this step for each product attribute. These hypotheses are presented in symbolic and verbal terms for the above three-Way ANOVA model. If an N-Way ANOVA is used, the number of hypotheses will change correspondingly. For the three-Way ANOVA model, there are seven different hypotheses corresponding to seven potential sources of variation. These sources of variation can affect variation in perceived product attributes, leading to a potentially different positioning

of the concept under investigation.

The first three hypotheses deal with the main effects of the three factors. The first hypothesis is:

H_o: $\theta_i = 0$; H_1: At least one $\theta_i \neq 0$

In verbal form, this hypothesis postulates that:

H_o: There are no significant differences in perceived product attribute 'X' between different levels of factor number one.

H_1: There is at least one significant difference in perceived product attribute 'X' between different levels of factor number one.

The second hypothesis deals with the main effects of the second factor:

H_o: $\gamma_j = 0$; H_1: At least one $\gamma_j \neq 0$

Stated verbally, this hypothesis implies that:

H_o: There are no significant differences in perceived product attribute 'X' between different levels of factor number two.

H_1: There is at least one significant difference in perceived product attribute 'X' between different levels of factor number two.

The third hypothesis deals with the main effects of the third factor:

H_o: $\zeta_k = 0$; h_1: At least one $\delta_k \neq 0$

Verbally stated, this hypothesis says:

H_o: There are no significant differences in perceived product attribute

'X' between levels of factor number three.

H_1: There is at least one significant difference in perceived product attribute 'X' between levels of factor number three.

The next three hypotheses deal with second-order interactions. The fourth hypothesis is:

H_o: $(\theta\gamma)_{ij} = 0$; H_1: At least one $(\theta\gamma)_{ij} \neq 0$

Verbally stated:

H_o: There are no significant differences in perceived product attribute 'X' between interacting levels of factors number one and two.

H_1: There is at least one significant difference in perceived product attribute 'X' between interacting levels of factors number one and two.

The fifth hypothesis deals with the interaction effect of the first and third factors:

H_o: $(\theta\delta)_{ik} = 0$; H_1: At least one $(\theta\delta)_{ik} \neq 0$

Stated verbally, the fifth hypothesis is:

H_o: There are no significant differences in perceived product attribut 'X' between interacting levels of factors number one and three.

H_1: There is at least one significant difference in perceived product attribute 'X' between interacting levels of factors number one and three.

The sixth hypothesis deals with the effects of the interaction of the second and third factors:

H_o: $(\gamma\delta)_{ik} = 0$; H_1: At least one $(\gamma\delta)_{ik} \neq 0$

Verbally, the sixth hypothesis is:

H_o: There are no significant differences in perceived product attribute 'X' between interacting levels of factors number two and three.

H_1: There is at least one significant difference in perceived product attribute 'X' between interacting levels of factors number two and three.

The last hypothesis concerns differences in perceived product attributes of a third-order interaction:

H_o: $(\alpha\gamma\delta)_{ijk} = 0$; H_1: A least one $(\alpha\gamma\delta)_{ijk} \neq 0$

Verbally,

H_o: There are no significant differences in perceived product attribute 'X' between interacting levels of all three factors.

H_1: There is at least one significant difference in perceived product attribute 'X' between interacting levels of all three factors.

The seven hypotheses are tested for each product attribute. When H_o is accepted in all seven hypotheses for a given product attribute, the next product attribute is tested. If no product attribute is found for which H_o is rejected, Phase Three is followed. A product attribute for which the factors had an effect is used for discriminating

purposes, and for further testing in step three.

The next step, step three, deals with the use of product attributes as discriminators of target-market consumers.

3.3.3 Step Three: Can Product Attributes Discriminate Among Respondents?

After establishing that perceived product attributes differ among executions, step three is undertaken. Step three uses discriminant analysis to see whether perceived product attributes can discriminate among respondents. Specifically, the aim is to discriminate between respondents who have indicated high preference for the concept and those who have indicated a lesser degree of preference for the concept.

Thus, for example, if a high level of product attribute 'X' generates high levels of preference for the concept and a low level generates low preference, this attribute will discriminate between the two groups. If the level of preference is defined as intention to buy, then product attribute 'X' is discriminating between respondents who intend to buy the product and those who do not. This product attribute can be emphasized in subsequent testing.

If it is proven through subsequent testing that this product attribute 'X' indeed is a good discriminator, the product to be introduced can have a high level of product attribute 'X'.

Support for the decision to use product attributes to discriminate among buyers is found in several sources, namely Wind (1973), Tauber (1972), and Haley (1968). Tauber (1972) claims that the predictive

value of a concept testing test increases if there are perceived benefits. Consumers who perceive a product attribute in a similar fashion are likely to become users. This product attribute can be used for reaching this segment of the population at a later stage. Haley (1968) advocates benefit segmentation, using perceived product attributes as discriminators among segments. Wind (1973) prescribes a similar procedure in his article.

Discriminant analysis is designed to categorize things into groups, with the objective of making these groups as mutually exclusive as possible. The analysis strives to delimit the groups in such a way as to have maximum homogeneity within the groups and a maximum heterogeneity between the groups. If a two-group discriminant analysis is used, the discriminating function will be a linear combination of predictor variables (product attributes) which maximizes the between-group variability relative to the within-group variability. This discriminant function will be of the form:

$$D_i = d_{i1}Z_1 + d_{i2}Z_2 + \cdots + d_{in}Z_n$$

Where D_i = Score on the discriminant function i

d_i = Weighing coefficients

Z = Standardized values of product attributes

p = Number of product attributes

Discriminant analysis can be used to other ends as well. However, these additional ends are based on additional assumptions. If one is solely concerned with finding the function which maximizes between-group

to within-group variance, only an assumption is required: The within-group dispersion must be equal across groups.

If, however, one is interested in classifying new cases, additional assumptions are required. Since concept pretesting is not involved in classifying new cases or in testing whether there are significant differences between the groups, no additional assumptions are required.

The product attributes which successfully discriminate between the groups are used for new positionings of the product concept.

3.3.4 Step Four: Develop Additional Target Markets

The last step in Phase Two involves an attempt to use the groups identified in the previous step and to see whether these groups might be measurable by means of other variables. The procedure suggested for this model involves use of the preferences indicated for the concept as a basis for segmentation.

Support for this procedure is provided in several sources. Wind (1973) in his article advocates the following relationship:

$$\text{Market Segmentation} = f(\text{Preference Index})$$

It is postulated that the preference index can segment the market.

A second source is Massy and Wind (1972). Figure 3.2 is adopted from their book. The authors summarize the state of the art in segmentation research. Of the four possible segmentation classes portrayed in Figure 3.1, three had inconclusive results in research. Only one of the four shows promise for future research. Research in the other three

FIGURE 3.2

ALTERNATIVE BASES FOR MARKET SEGMENTATION
CLASSIFIED BY STATE OF THE ART*

Measures	Customer Characteristics	
	General	Situation-Specific
Objective:	Demographic & Socioeconomic Factors.[a]	Consumption Patterns, Brand Loyalty & Buying Situations.[a]
Inferred	Personality and life-style.[a]	Attitudes, Perceptions and preferences.[b]

* Adopted from Frank, Massy and Wind, Market Segmentation, (1972), p. 37.

a. Inconclusive research results thus far.

b. Shows promise, needs further research.

is somewhat inconclusive.

It seems that segmentation efforts for general product classes failed to establish successful segments. This is true for attempts using objective measures (demographic and socioeconomic variables) as well as inferred measures. Studies using situation-specific measures such as consumption patterns, brand loyalty and buying situations are inconclusive as well. The promise for successful segmentation lies largely in the use of situation-specific studies, relying on preferences, attitudes and perceptions (See Figure 3.2).

Concept pretesting deals with a situation-specific phenomenon. Too, it examines preferences, attitudes, and perceptions. It is therefore reasonable to expect that using preference indices in concept pretesting for segmentation analysis would yield fruitful results. To cite one encouraging comment, Frank Massy, and Wind write (1972): "Another case in which intentions to buy are frequently used as a basis for segmentation is for new products....In this case consumers' reactions to a new concept can be expressed as a basis for grouping consumers into various segments...most studies utilizing this measure are proprietary and have not been published. The use of intentions to buy as a basis for segmentation...is simple and, in conjunction with other relevant customer characteristics, can provide a useful approach to segmentation." (p. 68).

Step four uses various demographic and psychographic variables to determine whether the respondents grouped according to their preferences can be discriminated. Using a battery of psychographic and demographic variables is not a prerequisite for developing benefit segments. Rather, if successful, they can help meet the criteria set by Kotler (1975) for successful segmentation:

1. Accessibility: The segment can be reached.
2. Measurability: The segment can be identified.
3. Substantiality: The segment is substantial.

Once benefit segments are identified via discriminating product attributes, psychological and demographic discrimination aids measurability and accessibility. Further knowledge about these segments can facilitate the formulation of a segment profile. This is required if promotion strategies are to be effectively channeled. Too, this is required when segments are to be identified in the general population. The third requirement——substantiality——is not directly dealt with in concept pretesting.

Development of additional target markets leads to reformulation of the concept and to additional testing. This leads back to phase one. If no discrimination is successful (e.g., step three), then phase two leads to phase three.

3.4 PHASE THREE: INDEPENDENCE

Phase three is undertaken after phase one (when the concept and its execution are found to be independent) or after phase two (if the executions did not affect perceived product attributes). Phase three deals with screening the concept. An overall score is computed for the product. This score serves as a criterion and is compared to cut-off points which are determined by the company. The higher the score, the greater likelihood the concept has of being accepted for development. The lower the score, the greater likelihood the concept has of being rejected. Phase three has five steps. These steps are described in detail below.

3.4.1: Step One: Compute Overall Score.

Step one calls for computing an overall score for the product. This involves using the preferences indicated for the product as a criterion for evaluating the concept. An index is required which translates the preferences indicated for the concept into a score. Most of the screening procedures involve developing a score (see section 2.3). In most cases, the score is a weighted average which ranks the product on several criteria and combines the ranking into a single number.

Using the preference index for computing the score is called for. The literature on concept testing gives little guidance for computing a score (see section 2.6.1). The complexity involved in computing a score is related to the properties of the scale used to measure preferences.

If the scale used is either an interval- or ratio-scale, the mean is a permissible statistic. If, on the other hand, the scale is a nominal scale, the mode is the only statistic permissible. When the scale is an ordinal scale, as is often the case in preference scaling, the median and percentiles are permissible statistics.

The score for the concept is a function of the scale used. When an intention-to-buy scale is used with a verbal (ordinal) scale, the median or percentiles are used. This is the case in the only source (Market Facts Inc., 1963) which indicates that the percentage of the people who indicate intention to buy will serve as the overall score for the product. Other sources do not address themselves to this issue.

It should be noted that when omnibus testing is used, it is possible to transform an ordinal scale into a higher level scale (Green and Tull, 1975). However, since the concept pretesting model does not involve omnibus testing, this potential is not considered here.

When ordinal data is used for score computation, two limitations must be kept in mind:

1. Respondents' zero point may differ across each other.
2. Respondents' subjective scale values may differ across each other.

These limitations exist when the overall score is computed from ordinal scaled data.

The score used in the concept testing is not only a percentile or a

median of ordinal scales. In most cases, additional indicators are sought. Verbal expressions of enthusiasm constitute one example. In a concept testing test by a toy manufacturer, children were used as respondents.* In this case the new toy's package (displaying a picture of the toy) was placed with other toys in a corner of the room. The number of times in which children opened that particular package was recorded, and used as an additional overall score for the concept.

In situations where no additional verbal indicators can be collected, a percentile computed from an ordinal scale can be used as the overall score. If the scale is an interval- or ratio-scale, the mean can be used as an overall concept score. The score obtained is compared to several cut-off points in the next steps of phase three.

3.4.2 Step Two: Is Score Within Rejection Region?

In this step, the computed score is compared to a predetermined rejection region. If the score falls within this rejection region, the concept is discarded. If the score is higher than the upper limit of the rejection region, the product concept proceed to the next step.

The rejection region is determined by the company. The $O-K_1$ region is a function of several considerations. In general, the more new product concepts are sought, the lower the value of K. This can be explained

*Example is from a discussion with an employee from the matchbox toy-cars importer, Newark, New Jersey, December, 1974.

by using the type one and type two errors terminology. If the company would rather commit a type two error than a type one error, K_1 is set at a low level. In this case the company prefers accepting the product concept for further development to rejecting it at the outset. On the other hand, a company can decide that it would rather commit a type one error than a type two error. In this case, K_1 should be set at a relatively high level.

This situation is somewhat complicated by the fact that the company may have a different policy from that of the individuals responsible for screening. Thus, while the company may follow a policy of a low K_1 value, the executives involved may apply a different K_1 for personal reasons. This situation results from a gap between the executive's perceived risk and the company's perceived risk. The executive involved may fear the consequences of passing along a bad concept. He would rather minimize these consequences by discarding the product (McGuire, 1973). It is very important that the company communicate its policy to the executives involved, as well as assure them that they will not be penalized for pursuing this policy. This has been emphasized in the literature for idea generation techniques, but not in the literature for screening those ideas (see section 2.6).

Once the value of K_1 is determined, the score is compared to K_1. If that score is higher than K_1, the product is passed on to step three.

3.4.3 Step Three: Is Score Within Middle Range?

The middle range is defined by the company as a K_1 - K_2 region. It is an optional region, designed to minimize the risk of a type one error. Traditional concept testing does not define a middle range. A concept is either accepted or rejected. The values of K_1 and K_2 are identical.

The middle range leads either to step four or to phase four. A product which has a score that is below the acceptance level (K_2) yet not quite so low as to be definitely discarded (below K_1) can be forwarded for further testing (phase four). This provides the screening process with a safeguard against commiting type one errors. A product concept which has a score that is higher than the middle range is passed to step four and step five.

A company which is interested in minimizing type one errors will make K_1 very low, and the middle range very large. For example, in medical research even the slightest potential for a new medication is worth pursuing. The costs involved in further testing are worth spending and thus the middle range is enlarged. The opposite extreme is possible as well. A company which has a vast number of product concepts to screen may decide to eliminate the middle range. A product has either a very high score (higher than K_2) or is discarded (K_1 equals K_2).

The middle range can be used as an option by executives who would like further information before accepting or rejecting a concept. Executives who believe a concept is promising, but who would rather discard it than risk passing along a bad concept, can use the middle range and

phase four. This will give them additional information, which can aid in decision making.

If the concept's score is higher than K_2, it is passed to step four.

3.4.4 Step Four: Is the Score Within the Acceptance Region?

A concept which has a score within the acceptance region is passed to step five. The acceptance region determines which products will be accepted for further development. A high score for the product is interpreted as indicative of high interest in the product concept. The product has passed the first screening and will be subjected to further screening (see Figure 2.2). The product is passed on to step five.

3.4.5 Step Five: Continue Product Development

A product which has achieved a high score is passed onto the laboratories for development. Too, the product will be subjected to a finer business analysis. Concept testing (and concept pretesting) is not the only screening that a product concept must pass prior to being introduced into the market. Product concepts must be turned into actual products and further testing is carried out. So long as the product is not being used by consumers, the testing will be concept testing. As long as consumers must use their imagination to perceive how a product will perform, they participate in concept testing. Once an actual product exists, product testing begins. Execution elements play a smaller role in actual product tests. There is no need to resort to concept pretesting at this point.

3.5 PHASE FOUR: OPTIONAL FURTHER TESTING

Phase four is an optional phase, to be undertaken if further investigation of the concept is desired. Phase four duplicates phase two to a certain extent. This is why concepts which have previously been through phase two are not subjected to phase four. These concepts have been further investigated and proved to be of little additional potential. Such products are discarded.

Products which were not subjected to phase two, and which had a score within the middle range (phase three, step three) are investigated in phase four. Phase four has three steps. These steps parallel steps two through five in phase two. (see sections 3.3.2, 3.3.3, and 3.3.5)

Phase four leads to either discarding the product concept or to a return to phase one. If the product shows a potential for repositioning or additional target markets, new formulations can be developed. These new concept formulations re-enter the model at phase one. If, however, no repositioning is identified, the concept is discarded.

3.6 SUMMARY

The concept pretesting model was described in detail in this chapter. The model allows the executive involved in screening concepts, a methodology for identifying the effect of the concept's execution on perceived preferences for the concept. Too, the model suggests a methodology for in-depth investigation of concepts and identification of potential repositionings.

An example of an application of the model is presented in chapter four. An actual product concept ALEAVE, developed by Chesebrough-Ponds Inc., is concept pretested. Chapter four parallels chapter three in structure, with each of the steps mentioned in chapter three described, and then carried out for the example application.

CHAPTER 4 AN APPLICATION OF THE MODEL: AN EXAMPLE

4.1 INTRODUCTION

Chapter 3 presented the concept pretesting model. This chapter presents an example of the model. The chapter follows the concept pretesting model, and the sections parallel those in chapter 3. The concept used is ALEAVE, developed by Chesebrough Ponds Inc.; ALEAVE is a hemorrhoid preparation, currently being market tested in Evansville, Indiana. Since the product has not been introduced on the east coast, it was deemed appropriate for the purpose of this example, i.e., a new product concept test.

Phase one of the example follows phase one of the model. A target market is defined and concept executions are developed. The executions are presented to respondents using a factorial design. The last step of phase one calls for a test of independence between the concept and its execution. In this example, the concept and its executions were found to be independent. Step three is undertaken. Step two is not used.

Phase two deals with further testing of the concept and its executions. New potential positionings of the product are identified using discriminant analysis. Two out of ten product attributes discriminate between groups of respondents. These product attributes can be used for repositioning the product concept, which can re-enter the model as a reformulated concept.

Phase three of the example deals with computing an overall score for the product concept. Once computed, the score is evaluated. Two cut-off points, K_1 and K_2, are used to determine whether the product is to be accepted or rejected. In this example, the product's score falls between the two cut-off points. This is the middle range (See Figure 3.1). Further testing is called for. The product follows phase four.

Phase four deals with investigating new potential positionings for the product. Two out of ten product attributes discriminate between buyers and non-buyers. Too, some product related attitudes which are good discriminators are identified. Each of the steps is described in detail in the following section.

4.2 PHASE ONE: TESTING FOR INDEPENDENCE

Phase one deals with the concept, its executions, and a test for the independence of the two. The steps are discussed in detail in the following sections.

4.2.1 Step One: Select a Target Market and Develop a Product Concept

The product used for the study is ALEAVE, a new product concept developed by Chesebrough Ponds. ALEAVE, is advertised as an: "Anal cleaning lotion and foam, from the makers of famous Vaseline Products". ALEAVE is positioned as relieving, soothing and cooling of hot, itching or irritated skin. It is to be used with ordinary bathroom tissue, as a final step in cleansing. Other related products are: Vaseline Petroleum Jelly, Pazo, Nupercainal, Anusol, Non-Brand Petroleum Jelly, Hemorr-Aid, and Preparation H.

Chesebrough Ponds Inc. defined its target market as people who suffer from either hemorrhoids or bathroom discomfort. From the literature study, which covered medical sources, it was found by the company that two out of every three adults suffer from either hemorrhoids or bathroom discomfort. In preliminary testing, only one out of every three adults admitted to suffering from these symptoms. The discrepancy can be attributed to respondents' reluctance to admit to and discuss the issue with interviewers.

The sample used in the example included both sufferers and non-sufferers.

All respondents were asked to complete the questionnaire. The last question in the questionnaire requested information with regard to whether the respondent suffered from bathroom discomfort or hemorrhoids. A total of 26.6% of the sample respondents admitted to suffering from bathroom discomfort or hemorrhoids. (For sample description and breakdown, see Table 4.1 in section 4.2.5.) The lower rate of occurrence in the sample can be attributed to the relatively low age of the sample. (See Table 4.2 in section 4.2.5) Only target market respondents (sufferers) were used in the example analysis.

In this example the product concept as well as the target market were defined by Chesebrough Ponds Inc. As will be shown in later sections, these two can be modified and refined by using the concept pretesting model.

4.2.2 Step Two: Choose Execution Factors (R) and Levels (r); Develop Concept Executions (Rr)

Three execution factors were chosen for this example. These factors were selected because the existing literature on the effects of concept executions on response dealt with them. (see section 2.6.3) Each of these three factors was tested separately by different authors. This example combines the three factors into one study, thus affording the investigation of interactions among factors. The three factors are:

R_1 = Copywriter

R_2 = Copy length

R_3 = Pictorial treatment

As was mentioned in the previous chapter (section 3.2.2), it is possible to choose other factors for investigation. The relevant factors should be determined by the researcher based on the contemplated marketing plan for the product concept, and other considerations deemed relevant.

The functional relation in this example is therefore:

$$\text{Concept's Executions} = (\text{Copywriter}_r, \text{Copy length}_r, \text{Pictorial treatment}_r)$$

Each factor was analyzed on three levels. The levels of the first factor are:

R_1 = Copywriter = (r=1, Copywriter one).
(r=2, Copywriter two).
(r=3, Copywriter three).

Three different copywriters define the levels of the first factor. The effect of the copywriter on preferences for the concept was tested by Haley and Gatty (1971). Haley and Gatty used three different copywriters, each writing eight copy statements, for a total of 24 copy statements. They found that copywriters had a significant effect on response (see section 2.6.3).

The three different copywriters included: the "first copywriter", who wrote the original copy statement of Chesebrough Ponds; and two additional writers, one of whom had just retired from copywriting and volunteered to write a copy statement, and the other who agreed to write for a token fee.

Each copywriter was given a sample of the product, along with samples of competing products. They were asked to write copy statements for the product. They did not know what the purpose of their copy statements was. No attempt was made to direct the copywriters in any other way.

This example combines the factor of copywriters (R_1) with two other factors. The second factor, amount of information (R_2), had the following three levels:

R_2 = Copy length = (r=1, Long copy statement).
(r=2, Medium copy statement).
(r=3, Short copy statement).

The effect of the amount-of-information on indicated preference was tested by Armstrong and Overton (1971). Testing a long version against a short one, they found no significant effect of amount of information on preference for a product concept. (See section 2.6.3 for details.)

Armstrong and Overton tested only two levels of amount of information. Too, they used a mail questionnaire for mailing the short statement, and an exhibit to represent the long statement. This study uses the same data collection mode for the levels of amount of information, as well as adding a medium level.

Each copywriter was asked to write three statements, a long statement, a medium statement and a short statement. The specific instruction as to copy length defined "copy length" as follows:

r_1 = Long Statement = Full $8\frac{1}{2}$ x 11 typewritten page, double-spaced, using capital letters only.

r_2 = Medium Statement = One half of r_1.

r_3 = Short Statement = One quarter of r_1.

A count of characters in each statement was conducted after the copywriters completed their assignment. The mean number of characters per statement was 210 for the "long copy statement", 122 for the "medium copy statement" and 68 for the"short copy statement". No other measure was undertaken to control or affect the copywriters who wrote the statement.

Figures 4.1 through 4.9 present the different statements.
Figures 4.1 through 4.3 present the three long copy statements.
Figures 4.4 through 4.6 present the three medium copy statements.
Figures 4.7 through 4.9 present the three short copy statements.

The third factor (R_3), pictorial treatment, included the following three levels:

R_3 = Pictorial treatment = (r=1, Written statement without a picture).
(r=2, Written statement with a black white picture).
(r=3, Written statement with a color picture).

Tauber (1972) tested the effect of a pictorial treatment on preference for the concept. He tested two levels: a written statement and a

FIGURE 4.1: FIRST COPYWRITER * LONG COPY STATEMENT

B A T H R O O M D I S C O M F O R T ?

ALEAVE® BRINGS SOOTHING COOLING RELIEF WITH JUST ORDINARY BATHROOM TISSUE.

DOCTORS KNOW THAT 1 OUT OF EVERY 3 ADULTS SUFFERS FROM ONE OR MORE TYPES OF ANAL OR RECTAL PROBLEMS. FOR MANY IT IS THE PAIN OF HEMORRHOIDS. BUT OTHERS SUFFER OCCASIONAL CHAPPING, ITCHING, OR SKIN IRRITATION THAT MAY BE AGGRAVATED BY USING ORDINARY BATHROOM TISSUE. ALEAVE® IS A UNIQUE PRODUCT DEVELOPED BY THE MAKERS OF VASELINE® BRAND PRODUCTS SPECIFICALLY FOR ORDINARY BATHROOM DISCOMFORT AGGRAVATED BY DRY TOILET TISSUE.

5 CLEANSERS AND SOFTENERS

ALEAVE'S EXCLUSIVE FORMULATION CONTAINS FIVE DIFFERENT CLEANSERS AND SOFTENERS. APPLIED DIRECTLY TO THE BATHROOM TISSUE, IT ASSURES MORE GENTLE AND MORE THOROUGH CLEANSING. HELPS TO AVOID AGGRATING IRRITATED OR DAMAGED SKIN TISSUE. FORMS A PROTECTIVE BARRIER TO HELP PREVENT FURTHER CHAPPING.

EASY TO USE - NON-GREASY

ALEAVE® IS EASY TO USE. JUST KEEP HANDY NEAR YOUR TOILET. APPLY DIRECTLY TO TOILET TISSUE AS A FINAL STEP IN CLEANSING. PLEASANT AND NEVER GREASY, ALEAVE OFFERS SOOTHING COOLING RELIEF WITH ORDINARY BATHROOM TISSUE.

ALEAVE® CONTAINS PETROLATUM AND MINERAL OIL.

FIGURE 4.2: SECOND COPYWRITER * LONG COPY STATEMENT

B A T H R O O M D I S C O M F O R T ?

HEMORRHOIDS (PILES) ARE ONE OF THE MOST COMMON OF ALL HEALTH PROBLEMS. VEINS INSIDE THE RECTUM OR OUTSIDE THE ANUS ARE WEAKENED AND BECOME STRETCHED, SWOLLEN AND PAINFUL. THEY MAY BE AGGRAVATED BY FATIGUE, LONG HOURS OF WORK, PREGNANCY OR CONSTIPATION. WITHOUT CAREFUL, CONSERVATIVE TREATMENT THEY MAY BECOME DAMAGED, TORN AND BLEEDING OR EVEN INFECTED.

ALEAVE^{TM} LOTION AND FOAM CONTAIN PETROLATUM AND MINERAL OIL, WHICH BRING QUICK, TEMPORARY RELIEF FROM THE PAIN, BURNING AND ITCHING OR HEMORRHOIDS (PILES) IN MANY CASES. OTHER INGREDIENTS SOOTH AND LUBRICATE SWOLLEN HEMORRHOIDAL TISSUE, PROTECTING IT FROM IRRITATION AND ABRASION DURING BOWEL MOVEMENTS.

ALEAVE^{TM} LOTION AND FOAM HAVE BEEN DEVELOPED AND IMPROVED IN THE LABORATORIES OF AN INTERNATIONALLY FAMOUS PHARMACEUTICAL ORGANIZATION. THEY ARE USED AS PART OF A CONSERVATIVE MANAGEMENT OF HEMORRHOIDS (PILES) IN ORDER TO ENCOURAGE NATURAL HEALING OF THE SURROUNDING TISSUE.

DIRECTIONS FOR USE:

KEEP ALEAVE^{TM} LOTION OR FORM NEAR YOUR TOILET.

1. AFTER NORMAL CLEANSING WITH REGULAR BATHROOM TISSUE, PLACE A SMALL DAB OF ALEAVE^{TM} ANAL CLEANSING LOTION ON A FRESH PIECE OF TISSUE.
2. USE TREATED TISSUE TO CLEANSE THE RECTAL AREA.
3. REPEAT WITH A NEW TREATED TISSUE, IF NECESSARY.

ALEAVE^{TM} OFFERS COOLING SOOTHING RELIEF WITH ORDINARY BATHROOM TISSUE.

FIGURE 4.3: THIRD COPYWRITER * LONG COPY STATEMENT

B A T H R O O M D I S C O M F O R T ?

IT HAS LONG BEEN RECOGNIZED BY DOCTORS THAT CONSTIPATION AND THE STRAINING THAT ACCOMPANY IT CAN CAUSE AND AGGRAVATE HEMORRHOIDS (PILES). IN TURN, HEMORRHOIDS MAKE BOWEL MOVEMENTS PAINFUL. THIS PAIN LEADS TO NEGLECT OR POSTPONEMENT OF REGULAR HABITS AND EVEN MORE SERIOUS PROBLEMS.

A WELL KNOWN RESEARCH LABORATORY DEVELOPED ALEAVE®. ALEAVE® HELPS SHRINK THE SWELLING OF HEMORRHOIDAL TISSUES CAUSED BY INFLAMMATION, IRRITATION OR CHAPPED SKIN. ALEAVE® HELPS HEAL HEMORRHOIDS BY COOLING AND SOOTHING ADJOINING TISSUES. ALEAVE® LEAVES A PROTECTIVE COATING TO GUARD AGAINST THE CHAPPING. NO PRESCRIPTION IS REQUIRED FOR ALEAVE®. THERE HAS NEVER BEEN A FORMULA LIKE ALEAVE®. ALEAVE® IS AVAILABLE IN FOAM OR IN LOTION. IT COMES IN THREE DIFFERENT SIZES: A 1.5 OZ. BOTTLE, A 3 OZ. BOTTLE AND AN ECONOMICAL 5 OZ. BOTTLE.

FROM TESTS CONDUCTED WITH ALEAVE® IT IS KNOWN THAT IN ADDITION TO ITS USE AS A SOOTHING AND RELIEVING FORMULA, MANY POTENTIAL SUFFERERS KEEP ALEAVE® HANDY AS A PREVENTATIVE AND CLEANSING SOLUTION. ALEAVE® IS EASY TO USE: JUST KEEP HANDY NEAR YOUR TOILET. APPLY DIRECTLY TO TOILET TISSUE AS A FINAL STEP IN CLEANSING. PLACE A SMALL DAB (ABOUT THE SIZE OF A DIME) ON A FRESH PIECE OF TOILET TISSUE. USE THE TREATED TISSUE TO CLEANSE THE RECTAL AREA.

REPEAT IF NECESSARY.

ALEAVE® CONTAINS PETROLATUM AND MINERAL OIL.

FIGURE 4.4: FIRST COPYWRITER * MEDIUM COPY STATEMENT

B A T H R O O M D I S C O M F O R T ?

DOCTORS KNOW THAT 1 OUT OF EVERY 3 ADULTS SUFFERS FROM ONE OR MORE TYPES OF ANAL OR RECTAL PROBLEMS. FOR MANY IT IS THE PAIN OF HEMORRHOIDS. BUT OTHERS SUFFER OCCASIONAL CHAPPING, ITCHING, OR SKIN IRRITATION THAT MAY BE AGGRAVATED BY USING ORDINARY BATHROOM TISSUE.

ALEAVE[rt] IS A UNIQUE PRODUCT DEVELOPED BY THE MAKERS OF VASELINE[rt] BRAND PRODUCTS SPECIFICALLY FOR ORDINARY BATHROOM DISCOMFORT AGGRAVATED BY DRY TOILET TISSUE.

EASY TO USE, JUST KEEP HANDY NEAR YOUR TOILET. APPLY DIRECTLY TO TOILET TISSUE AS A FINAL STEP IN CLEANSING. OFFERS SOOTHING COOLING RELIEF WITH ORDINARY BATHROOM TISSUE.

FIGURE 4.5: SECOND COPYWRITER * MEDIUM COPY STATEMENT

B A T H R O O M D I S C O M F O R T ?

HEMORRHOIDS ARE ONE OF THE MOST COMMON HEALTH PROBLEMS. VEINS INSIDE THE RECTUM ARE WEAKENED AND BECOME SWOLLEN AND PAINFUL. WITHOUT CAREFUL CONSERVATIVE TREATMENT THEY MAY BECOME DAMAGED, TORN AND BLEEDING OR EVEN INFECTED.

ALEAVE™ HAS BEEN DEVELOPED AND IMPROVED IN THE LABORATORIES OF AN INTERNATIONALLY KNOWN PHARMACEUTICAL ORGANIZATION. IT HAS BEEN DEVELOPED IN ORDER TO ENCOURAGE NATURAL HEALING OF THE TISSUE SURROUNDING A HEMORRHOID.

DIRECTIONS FOR USE:

1. AFTER NORMAL CLEANSING WITH REGULAR BATHROOM TISSUE, PLACE A SMALL DAB OF ALEAVE™ ON A FRESH PIECE OF TISSUE.
2. USE THE TREATED TISSUE TO CLEANSE THE RECTAL AREA.
3. REPEAT WITH A NEW TREATED TISSUE IF NECESSARY.

ALEAVE™ OFFERS SOOTHING COOLING RELIEF WITH ORDINARY BATHROOM TISSUE.

FIGURE 4.6: THIRD COPYWRITER * MEDIUM COPY STATEMENT

B A T H R O O M D I S C O M F O R T ?

IT HAS LONG BEEN RECOGNIZED BY DOCTORS THAT CONSTIPATION AND THE STRAINING THAT ACCOMPANY IT CAN CAUSE AND AGGRAVATE HEMORRHOIDS (PILES). IN TURN, HEMORRHOIDS MAKE BOWEL MOVEMENT PAINFUL.

A WELL KNOWN RESEARCH LABORATORY DEVELOPED ALEAVE^{R}. ALEAVE^{R} HELPS SHRINK THE HEMORRHOIDAL TISSUE BY COOLING AND SOOTHING ADJOINING TISSUES. NO PRESCRIPTION IS REQUIRED FOR ALEAVE^{R}. IT IS AVAILABLE IN FOAM OR LOTION, AND COMES IN THREE SIZES: 1.5 OZ., 3 OZ. AND AN ECONOMICAL 5 OZ. BOTTLE.

FROM TESTS CONDUCTED WITH ALEAVE^{R}, IT IS KNOWN THAT MANY POTENTIAL SUFFERERS KEEP ALEAVE^{R} HANDY AS A PREVENTATIVE AND CLEANSING SOLUTION. EASY TO USE: APPLY TO A FRESH PIECE OF TOILET TISSUE AS A FINAL STEP IN CLEANSING. APPLY TREATED TISSUE TO RECTAL AREA.

ALEAVE^{R} CONTAINS PETROLATUM AND MINERAL JELLY.

FIGURE 4.7: FIRST COPYWRITER * SHORT COPY STATEMENT

B A T H R O O M D I S C O M F O R T ?

DOCTORS KNOW THAT ONE OUT OF THREE ADULTS SUFFERS FROM ONE OR MORE RECTAL PROBLEMS: HEMORRHOIDS, CHAPPING, ITCHING OR SKIN IRRITATION.

ALEAVE® BRINGS SOOTHING COOLING RELIEF WITH JUST ORDINARY BATHROOM TISSUE.

APPLY DIRECTLY TO TOILET TISSUE AS A FINAL STEP IN CLEANSING. PLEASANT AND NEVER GREASY.

FIGURE 4.8: SECOND COPYWRITER * SHORT COPY STATEMENT

B A T H R O O M D I S C O M F O R T ?

HEMORRHOIDS ARE A MOST COMMON HEALTH PROBLEM. WITHOUT CAREFUL TREATMENT THEY MAY BECOME DAMAGED, TORN AND BLEEDING.

ALEAVE™ HAS BEEN DEVELOPED IN ORDER TO ENCOURAGE NATURAL HEALING OF THE TISSUE SURROUNDING A HEMORRHOID.

AFTER NORMAL CLEANSING WITH BATHROOM TISSUE, APPLY ALEAVE™ TO FRESH TISSUE AND CLEANSE RECTAL AREA. REPEAT IF NECESSARY.

FIGURE 4.9: THIRD COPYWRITER * SHORT COPY STATEMENT

B A T H R O O M D I S C O M F O R T ?

IT HAS LONG BEEN RECOGNIZED BY DOCTORS THAT CONSTIPATION AND STRAINING CAUSE AND AGGRAVATE HEMORRHOIDS, WHICH, IN TURN, CAUSE PAINS.

A WELL KNOWN RESEARCH LABORATORY DEVELOPED ALEAVE®. ALEAVE® HELPS SHRINK HEMORRHOIDS BY SOOTHING AND COOLING ADJOINING TISSUES.

IT WAS DISCOVERED IN ACTUAL TESTS, THAT MANY NON-SUFFERERS USE ALEAVE® AS A PREVENTATIVE AND CLEANSING SOLUTION. EASY TO USE. AFTER NORMAL CLEANSING, APPLY ALEAVE® TO FRESH TOILET TISSUE AND APPLY TO RECTAL AREA. REPEAT IF NECESSARY.

written statement with a picture (see section 2.6.3). Tauber found no significant effects of the pictorial treatment on response. Tauber used only two levels, an advertisement and a written statement. This example adds another level, a black and white picture.

The two pictorial treatments called for developing a black and white picture, and a color picture. The third treatment required no picture. Finished ads were obtained from the company and the copy statements on the finished ads were eliminated. Figure 4.10 shows the black and white treatment, and Figure 4.11 the color picture. Color xerox was used to reporduce the color picture, and offset printing was used to reproduce the black and white picture.

The three factors and the corresponding three levels were combined into twenty-seven different treatments. The treatments were inserted after page three of the questionnaire. Where a pictorial treatment existed, the questionnaire had two pages inserted, the written statement page and a picture page. If only a written statement was required, only one page was inserted. The three-way factorial design which emerged is presented in Figure 4.12.

After the executions were developed, step three was undertaken.

4.2.3 Step Three: Develop Questionnaire and a Preference Index

Step three calls for developing the questionnaire. The questionnaire used in this example had a total of seven pages, divided into four parts. Part one consisted of demographic and socioeconomic questions.

FIGURE 4.10: BLACK AND WHITE PICTORIAL TREATMENT, ADOPTED FROM ACTUAL ADVERTISEMENT

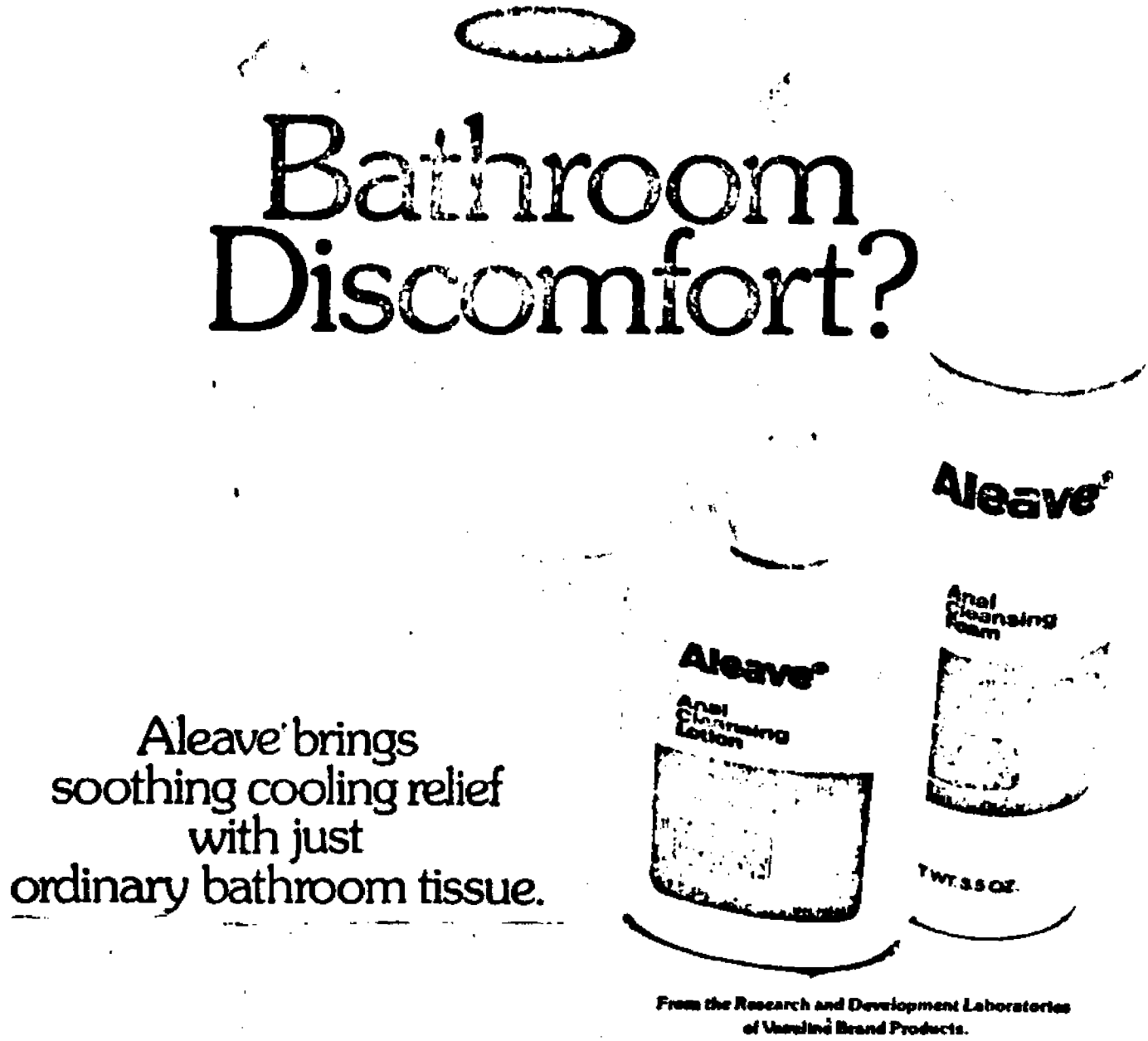


FIGURE 4.11: COLOR PICTORIAL TREATMENT, ADOPTED FROM ACTUAL ADVERTISEMENT

FIGURE 4.12

THREE-WAY FACTORIAL DESIGN

B	A_1	A_2	A_3	Totals
B_1	C_1 C_2 C_3	C_2 C_3 C_1	C_3 C_1 C_2	B_1C_j
B_2	C_2 C_3 C_1	C_3 C_1 C_2	C_1 C_2 C_3	B_2C_j
B_3	C_3 C_1 C_2	C_1 C_2 C_3	C_2 C_3 C_1	B_3C_j
Totals:	A_1C_j	A_2C_j	A_3C_j	$A_jB_jC_j$

Factors:

R_1 = A: Copywriter

R_2 = B: Copy length

R_3 = C: Pictorial treatment

R_2r_1 = B_1: Short statement

R_2r_2 = B_2: Medium statement

R_2r_3 = B_3: Long statement

Factor Levels:

R_1r_1=A_1: First copywriter

R_1r_2=A_2: Second Copywriter

R_1r_3=A_3: Third Copywriter

R_3r_1=C_1: No picture

R_3r_2=C_2: Black and white picture

R_3r_3=C_3: Color picture

Part two included psychographic questions. Part three included the treatment and various opinion and preference questions relating to the treatment. Part four included questions about different benefit segments and a question about minor ailments and discomforts, designed to identify target respondents. The questionnaire was seven pages long (see Appendix A).

Part one of the questionnaire consisted of eleven demographic and socio-economic questions. The questionnaire required no identification of respondents. Questions in part one included two about the household's purchase decision making patterns, one about the occupation of the head of the household and questions about age, sex, education and income.

Part two of the questionnaire included a battery of A.I.O. questions from Wells (1971). There were thirteen interest questions, eleven activity questions and twenty-four opinion questions. Parts one and two were directed at obtaining information for phase two, step four. They were included so that potential target markets can be identified using these questions.

Part three begins with the treatment (concept's execution), followed by various questions which asked respondents to evaluate, describe, and give their opinion about the concept. The questions were adopted from different questionnaires concerned with either concept testing or product testing. These were the criterion variables.

The first question (sixteen on page four, Appendix A), was taken from a Chesebrough Pond's Inc. questionnaire. It includes ten questions

related to the product's attributes. The next two questions (seventeen and eighteen) were intention-to-buy questions, adopted from a concept-testing questionnaire of the National Family Opinion Inc. (1973). Question seventeen was a seven-point intention-to-buy scale. Question eighteen was a seven-point intention-to-recommend scale; (How likely would you be to recommend ALEAVE). Question eighteen was introduced so that non-target respondents would be able to use an intention-to-buy scale even though they are not potential users. This was incorporated in the questionnaire after the first pretest (see section 4.2.4).

Question nineteen asked the respondents to rank ALEAVE with respect to its similarity with other products (a total of six products including ALEAVE). The six products in alphabetical order were: ALEAVE, IRISH SPRING SOAP, NON-BRAND PETROLEUM JELLY, PREPARATION-H, VASELINE BRAND PETROLEUM JELLY and WIPE N' DIPE. A total of fifteen items were inquired about, asking respondents to evaluate two products at a time. The last three are considered a part of external validity (Campbell and Stanley, 1969). This question and the next two questions were adopted from a questionnaire by Dean Sidney I. Lirtzman (1975), of C.U.N.Y.

Question twenty asked respondents to rank the six products from question nineteen in order from the most likely to be used to the least likely. Question twenty-one was an overall rating question, asking for an overall rating for ALEAVE.

The next two questions were price questions. The first asked respondents to write the amount of money they thought a three-ounce bottle of ALEAVE lotion sells for. The next question requested respondents to write the maximum amount they would be willing to spend for a three-ounce bottle of ALEAVE. The difference between the two prices, it was postulated, can be taken as an attitudinal measure.

Question twenty-six includes general descriptive items adopted from a "canned" new product concept testing questionnaire. The word "canned" is used because the questionnaire tests six different product concepts using the same questions with the product's name changed as appropriate. The first seven items of this question were adopted for ALEAVE. The next five items were taken from previous pretests and are overall attitudinal questions about ALEAVE.

As was mentioned in section 3.2.3, the preference index is vaguely discussed in the concept testing literature. The intention-to-buy scale was chosen as the primary preference index for the example. This was based on both the practice within the industry and Chesebrough Ponds and its documented potential for segmentation purposes (see section 3.2.3). The additional preference questions will be used in subsequent analysis. They were not used in the example given here.

Part four includes two questions. The first (twenty-seven) includes nineteen items covering four different areas:

1. Attitudes toward advertising
2. Cleanliness psychographics
3. Diet psychographics
4. Pains and Health Care psychographics

The advertising questions were included to obtain a general attitudinal measure of respondents' reactions to advertising. The next three are possible benefit segments for ALEAVE defined by Chesebrough Ponds. This resulted from a preliminary concept testing conducted for Chesebrough Ponds by the Fairfield Consulting Association, Inc. (1972). The three segments are:

A. The segment concerned mostly with cleanliness.
B. The segment mostly concerned with reducing pains, and relief from itching.
C. The segment mostly concerned with reducing pains from hemorrhoids.

The last question in the questionnaire (twenty-eight) included a screening question about the potential target market. It consisted of a list of six minor discomforts by which people are sometimes bothered. The six are: Headaches, muscular aches, dandruff, piles or hemorrhoids, stomach upsets, and rectal itching or discomfort. This question was adopted from the Chesebrough Ponds questionnaire.

The questionnaires were precoded to facilitate easy transfer of the data to coding sheets.

4.2.4 Step Four: Pretest Questionnaires

Two pretests were conducted with earlier versions of the questionnaire. The pretests concentrated on the questions and the executions. A total of forty-five respondents completed the first pretest and thirty-two respondents completed the second pretest. The first pretest was conducted in March of 1975 and the second one in April of 1975. The pretest questionnaires are presented in Appendix B.

The pretest helped in identifying problem questions and questions that required rewording. Too, the arrangement of the parts in the questionnaires was changed to the structure described in section 4.2.3.

Thus, for example, respondents who were not sufferers could not answer question number sixteen:

"If you suffer from bathroom discomfort, or might suffer sometimes in the future, how likely would you be to buy ALEAVE?"

As a result of the first pretest, question number seventeen was added:

"If you knew of someone who suffers from bathroom discomfort, how likely would you be to recommend ALEAVE to him?"

Several additional changes, similar to the above, were implemented as a result of the pretest. Many attitudinal questions and psychographic items were replaced or omitted as a result of the pretests.

The next step, step five, deals with the collection of the data and preparation of these data for analysis.

4.2.5 Step Five: Present to Respondents

Step five deals with the execution of the example. Data collection and sampling are described first. Next, the initial tabulations are presented. An overall profile of respondents emerges from these tables.

The different executions varying the three factors and factor levels, were inserted into otherwise identical questionnaires. The questionnaires without this treatment were seven pages long. The twenty-seven different treatments were given to twenty-seven different classes of evening undergraduate students from Rutgers, The State University of New Jersey. It should be noted that most of these students are adults (over twenty-seven years old) holding full-time jobs. They are, therefore, less homogeneous than day-session students.

Unlike evening students in New York who have a choice of schools, New Jersey students have only one evening undergraduate program. This reduces the self-selection effect implicit in a college choice.

The classes were picked by class size (minimum of 30 registered students) from a roster of all classes given at Rutgers, the State University of New Jersey, University College. The faculty secretary, Mrs. Florence Adams, called the various instructors and arranged the schedule of interviewing. Instructors were not told who was conducting the study or for what purpose.

Each class received a different treatment. The assignment of treatments to classes was randomized. The questionnaires were

self-administered, i.e., all the instructions were included in the questionnaire. The questionnaires were handed out during the class period and students were asked to complete them. It took between twenty-five and forty minutes to complete the questionnaires.

Data collection was completed during the last week of May 1975. Results of the data collection are presented in Table 4.1. Table 4.1 presents the data collection results by class (treatment) and gives the proportion of target respondents found within each class.

A total of 632 questionnaires were completed by respondents. Of those 632 questionnaires, 168 were completed by target-market respondents, i.e., respondents who admitted suffering from either hemorrhoids or bathroom discomfort. As was mentioned in section 4.2.1, the relative frequency of sufferers within the sample, 26.6 percent is lower than that found by Chesebrough Ponds, Inc. (33.3 percent). This can be attributed to the lower age of the sample respondents (average 30 years) compared to the general population average.

In order to achieve an equal number of target respondents per cell, five target respondents were sorted out of every class. The first five questionnaires which were completed by admitted sufferers were used in the analysis. A total of 135 questionnaires were used for this example (five x twenty-seven treatments).

4.2.5.1 Sample Demographics

Tables 4.2 through 4.13 summarize the demographic profile of the target respondents.

TABLE 4.1

DATA COLLECTION RESULTS BY TREATMENT
AND THE PROPORTION OF TARGET RESPONDENTS

Treatment			Respondents		
Copy Writer	Copy Length	Pictorial Treatment	Total Sample	Target Market	Target as % of Total Sample
1	1	1	21	5	23.8
1	2	1	18	5	27.7
1	3	1	30	7	23.3
1	1	2	23	5	21.7
1	2	2	33	6	18.2
1	3	2	13	6	46.2
1	1	3	14	5	35.7
1	2	3	22	6	27.2
1	3	3	22	6	27.2
2	1	1	18	6	33.3
2	2	1	27	6	22.2
2	3	1	17	5	29.4
2	1	2	31	7	22.6
2	2	2	16	6	37.5
2	3	2	23	5	21.7
2	1	3	24	7	29.2
2	2	3	26	5	22.7
2	3	3	21	7	33.3
3	1	1	29	10	34.5
3	2	1	17	5	29.4
3	3	1	22	5	22.7
3	1	2	24	5	20.8
3	2	2	29	5	17.2
3	3	2	27	8	29.6
3	1	3	32	7	21.9
3	2	3	31	7	21.9
3	3	3	22	8	36.3
Total			632	168	26.6

The average age of the respondents was thirty (see Table 4.2). This is compatible with Rutgers University information about University College (The Evening Division) students. Three-quarters of the sample were males (76.3%). One-quarter of the sample were females (23.7%). Table 4.3 presents the sex distribution.

A distribution of the sample by marital status is presented in Table 4.4. Two-thirds (65.9%) of the sample were married. One-fifth (19.3%) were single. The other 15% were divorced (8.9%) or separated (4.4%), with one additional case each of widowed and engaged.

A distribution by family life cycle is portrayed in Table 4.5. About one-third (31.9%) of the target respondents had a child under six years old. Twenty-three percent had youngest children over six. Close to a half (45.2%) had no children.

A breakdown of the sample by home ownership showed that roughly one-half (51.1%) owned their own residences and the other half rented (Table 4.6). The number-of-rooms-per-residence distribution is shown in Table 4.7. 11.1% had fewer than three rooms in their residences. Nearly a half (48.1%) had between four and six rooms in their residences. A third (34.8%) had between seven and nine rooms, and 5.9% had residences with ten rooms or more.

The income distribution is contained in Table 4.8. 5.9% of the sample had incomes (annual pre-tax for 1974) below $7,500.-. The modal income group was between $12,501.- and $15,000.- (18.6%) of the sample.

TABLE 4.2

TARGET MARKET BY AGE GROUPS

AGE	ABSOLUTE FREQ.	RELATIVE FREQ.
Under 25	17	12.6
26 - 30	49	36.3
31 - 35	33	24.4
36 - 40	16	11.9
41 - 45	7	5.2
46 - 50	9	6.7
51 - 55	4	3.0
TOTAL	135	100.0

TABLE 4.3

TARGET MARKET BY SEX OF RESPONDENT

SEX	ABSOLUTE FREQ.	RELATIVE FREQ.
Male	103	76.3
Female	32	23.7
TOTAL	135	100.0

TABLE 4.4

TARGET MARKET BY MARITAL STATUS

MARITAL STATUS	ABSOLUTE FREQ.	RELATIVE FREQ.
MARRIED	89	65.9
SINGLE	26	19.3
DIVORCED	12	8.9
SEPARATED	6	4.4
WIDOWED	1	0.7
OTHER	1	0.7
TOTAL	135	100.0

TABLE 4.5

TARGET MARKET BY FAMILY LIFE CYCLE, USING AGE OF YOUNGEST CHILD

NUMBER OF CHILDREN	ABSOLUTE FREQ.	RELATIVE FREQ. (PCT)
ZERO CHILDREN	61	45.2
YOUNGEST UNDER 6	43	31.9
YOUNGEST OVER 6	31	23.0
TOTAL	135	100.0

TABLE 4.6

TARGET MARKET BY OWNERSHIP OF RESIDENCE

RESIDENCE OWNED OR RENTED	ABSOLUTE FREQ.	RELATIVE FREQ. (PCT)
RESIDENCE OWNED	69	51.1
RESIDENCE RENTED	66	48.9
TOTAL	135	100.0

TABLE 4.7

TARGET MARKET BY THE NUMBER OF ROOMS IN RESIDENCE

NUMBER OF ROOMS IN RESIDENCE	ABSOLUTE FREQ.	RELATIVE FREQ. (PCT)
UNDER 3	15	11.1
4 - 6	65	48.1
7 - 9	47	34.8
OVER 10	8	5.9
TOTAL	135	100.0

TABLE 4.8

TARGET MARKET BY INCOME GROUPS

FAMILY INCOME PRE-TAX FOR 1974	ABSOLUTE FREQ.	RELATIVE FREQ. (PCT)
UNDER $5,000	4	3.0
$5,001 - $7,500	1	0.7
$7,501 - $10,000	11	8.1
$10,001 - $12,500	22	16.3
$12,501 - $15,000	25	18.5
$15,001 - $17,500	14	10.4
$17,501 - $20,000	19	14.1
$20,001 - $25,000	20	14.8
$25,001 - $30,000	16	11.9
OVER $30,000	3	2.2
TOTAL	135	100.0

TABLE 4.9

TARGET MARKET BY EDUCATION
(MEASURED BY COLLEGE CREDITS)

NUMBER OF COLLEGE CREDITS COMPLETED	ABSOLUTE FREQ.	RELATIVE FREQ. (PCT)
LESS THAN 9 CREDITS	4	3.0
9 - 30 CREDITS	8	5.9
31 - 60 CREDITS	23	17.0
61 - 90 CREDITS	40	29.6
91 - 120 CREDITS	45	33.3
BACHELOR' DEGREE	9	6.7
GRADUATE STUDENT	3	2.2
GRADUATE DEGREE	3	2.2
TOTAL	135	100.0

The education of respondents was measured by college credits earned and is described in Table 4.9. A quarter of the sample (25.9%) had leas than 61 college credits. Roughly a third of the sample were in their junior year and a third in their senior year, 29.6% and 33.3% respectively. Ten percent of the respondents had earned a Bachelor's degree; 6.7% of them had studied for a graduate degree and 2.2% had a graduate degree.

Table 4.10 classifies the target sample into nuclear family roles. Three-quarters of respondents classified themselves as heads of households. 11.9% classified themselves as "spouse." The remainder of the group (14.1%) were either living at their parents' residence or alone (either with roommates or without).

The occupations of the head of the household are contained in Table 4.11. The modal category is "managers or proprietors." 31.1% of the sample are in this category. The next largest category is "professional or technical," with 27.4% of the sample. "Sales or clerical" includes 16.3% of the sample. These three categories account for almost three-quarters of the sample (74.8%). Service workers and craftsmen/foremen account for an additional 15%, (8.1% and 5.9% respectively). Most of the sample belongs in the lower middle class and upper lower class, with roughly one-sixth to one-fifth in the latter.

Tables 4.12 and 4.13 describe patterns of family purchase decision making. Two categories are described: "groceries," Table 4.12, and

TABLE 4.10

TARGET MARKET CLASSIFIED BY THE NUCLEAR FAMILY ROLES

RESPONDENTS' RELATION TO HEAD OF HOUSEHOLD	ABSOLUTE FREQ.	RELATIVE FREQ. (PCT)
HEAD OF HOUSEHOLD	100	74.1
SPOUSE	16	11.9
OTHER	19	14.1
TOTAL	135	100.0

TABLE 4.11

TARGET MARKET CLASSIFIED BY OCCUPATIONAL CATEGORIES

OCCUPATION OF THE HEAD OF THE HOUSEHOLD	ABSOLUTE FREQ.	RELATIVE FREQ. (PCT)
OTHER	1	0.7
SERVICE WORKER	11	8.1
CRAFTSMAN - FOREMAN	8	5.9
MANAGER OR PROPRIETOR	42	31.1
LABORER	3	2.2
OPERATOR	6	4.4
SALES OR CLERICAL	22	16.3
PROFESSIONAL OR TECHNICAL	37	27.4
HOUSEWIFE	1	0.7
STUDENT	4	3.0
TOTAL	135	100.0

TABLE 4.12

TARGET MARKET CLASSIFIED BY FAMILY PURCHASE DECISIONS (GROCERIES)

PATTERN OF COSMETICS AND OTC DRUGS BUYING	ABSOLUTE FREQ.	RELATIVE FREQ. (PCT)
HEAD DECIDES ALONE	27	20.0
HEAD AND SPOUSE	61	45.2
SPOUSE DECIDES ALONE	26	19.3
MEMBERS TOGETHER	8	5.9
OTHER	13	9.6
TOTAL	135	100.0

TABLE 4.13

TARGET MARKET CLASSIFIED BY FAMILY PURCHASE DECISIONS (COSMETICS/DRUGS)

PATTERN OF GROCERY BUYING DECISIONS	ABSOLUTE FREQ.	RELATIVE FREQ. (PCT)
HEAD DECIDES ALONE	30	22.2
HEAD AND SPOUSE	52	38.5
SPOUSE DECIDES ALONE	35	25.9
MEMBERS TOGETHER	14	10.4
OTHER	4	3.0
TOTAL	135	100.0

"drugs", Table 4.13. Decision making patterns are similar for both categories.

One fifth of the sample described the head of the household as the sole decision maker. The joint pattern of family decision making is practiced by 45.2% in the case of grocery items, and 38.5% in the case of cosmetics and drug products. In the category of "spouse decides alone," there are some differences, although statistically insignificant. One-fifth of the sample spouses (19.3%) decide on their grocery shopping alone, as compared to one-quarter (25.9%) in the case of cosmetics and drugs. The small differences exist as well in the case of all members deciding together, and in the 'other' category, which in most cases was characterized by respondents as the case where each family member decides alone.

Overall, the sample is comprised of young adults, thirty years of age. Three-quarters are males, and two-thirds of the sample are married. Half of the sample reside in their own homes, and the modal income is $12,500.- to $16,000.- per annum. Most of the sample belong to the upper lower class or the lower middle class. One-half have no children. Of the other half, two-thirds have children under six years of age. Over two-thirds of the sample either are in their junior or senior year.

The above profile covers the demographic and socio-economic dimensions of the sample. The psychographic profile is described in the next subsection.

4.2.5.2 Sample Psychographics

Table 4.14 presents the frequency distribution of the target market on various interest items. Table 4.15 presents the frequencies for various activities, and Table 4.16 presents frequencies for various opinion items.

Table 4.14 portrays interest items. Modal values for interest items are six (Extremely Interested) for two items: Interest in Children and Interest in Privacy. Modal values of five (Very Interested) were registered for interest in Health Care, Politics, Clothing, and Newspapers. Modal values of four (Quite Interested) were registered for Cooking, Community Affairs, and Other People's Problems. No item registered a mode of less than three (Hardly Interested, etc.).

Table 4.15 portrays the frequencies for enjoying various activities. The highest modal value was given to enjoying Sports (Extremely Enjoyable). "Taking a Shower" and "Working on a Job" were the next most enjoyable activities (Very Enjoyable). The least enjoyable activity, Cleaning the House, received the lowest modal value (Not Enjoyable). Bargain Hunting was characterized as Slightly Enjoyable by the largest number of respondents.

Table 4.16 presents frequency distribution of the sample on various opinion items. The following items registered a modal value of 6 or a "Strongly Agree" response:

TABLE 4.14

TARGET MARKET BY INTERESTS[a]

INTEREST IN:	Extremely Interested	Very Inter.	Quite Inter.	Rather Inter.	Hardly Inter.	Not Inter.	TOTAL
Discussing your own affairs	23 (17.0)	26 (19.3)	25 (18.5)	34 (25.2)	17 (12.6)	10 (7.4)	135 (100.0)
Food	17 (12.6)	27 (20.0)	33 (24.4)	39 (28.9)	13 (9.6)	6 (4.4)	135 (100.0)
Health Care	28 (20.7)	37 (27.4)	30 (22.2)	27 (20.0)	9 (6.7)	4 (3.0)	135 (100.0)
New Products	12 (8.9)	22 (16.3)	25 (18.5)	40 (29.6)	32 (23.7)	4 (3.0)	135 (100.0)
Advertising	7 (5.2)	21 (15.6)	26 (19.3)	39 (28.9)	28 (20.7)	14 (10.4)	135 (100.0)
Cooking	5 (3.7)	24 (17.8)	34 (25.2)	29 (21.5)	30 (22.2)	13 (9.6)	135 (100.0)
Politics	22 (16.3)	34 (25.2)	31 (23.0)	26 (19.3)	14 (10.4)	8 (5.9)	135 (100.0)
Clothing	17 (12.6)	36 (26.7)	35 (25.9)	29 (21.5)	13 (9.6)	5 (3.7)	135 (100.0)
Children	39 (28.9)	27 (20.0)	19 (14.1)	23 (17.0)	16 (11.9)	11 (8.1)	135 (100.0)
Other People's Problems	9 (6.7)	20 (14.8)	33 (24.4)	24 (17.8)	27 (20.0)	22 (16.3)	135 (100.0)

[a]Modal values are underlined.

TABLE 4.14 (continued

TARGET MARKET BY INTERESTS

INTEREST IN:	Extremely Interested	Very Inter.	Quite Inter.	Rather Inter.	Hardly Inter.	Not Inter.	TOTAL
Privacy	51	35	21	16	9	3	135
	(37.8)	(25.9)	(15.6)	(11.9)	(6.7)	(2.2)	(100.0)
Community Affairs	19	35	37	23	14	7	135
	(14.1)	(25.9)	(27.4)	(17.0)	(10.6)	(5.2)	(100.0)
Newspapers	23	37	34	27	11	6	135
	(17.0)	(27.4)	(25.2)	(17.8)	(8.1)	(4.4)	(100.0)

TABLE 4.15

TARGET MARKET BY ENJOYMENT OF ACTIVITIES[a]

	Extremely Enjoyable	Very Enjoy.	Quite Enjoy.	Rather Enjoy.	Slightly Enjoy.	Not Enjoy.	TOTAL
Watching Television	8	23	39	42	20	3	135
	(5.9)	(17.0)	(28.9)	(31.1)	(14.8)	(2.2)	(100.0)
Going to Parties	12	35	46	27	10	5	135
	(8.9)	(13.3)	(19.3)	(14.8)	(27.4)	(16.3)	(100.0)
Bargain Hunting	12	18	26	20	37	22	135
	(8.9)	(13.3)	(19.3)	(14.8)	(27.4)	(16.3)	(100.0)
Cleaning the House	12	8	18	27	29	51	135
	(1.5)	(5.9)	(13.3)	(20.0)	(21.5)	(37.8)	(100.0)
Work on the Job	17	42	26	25	12	13	135
	(12.6)	(31.1)	(19.3)	(18.5)	(8.9)	(9.6)	(100.0)
Eating	19	34	36	28	15	3	135
	(14.1)	(25.2)	(26.7)	(20.7)	(11.1)	(2.2)	(100.0)
Taking a Shower	29	40	35	15	12	4	135
	(21.5)	(29.6)	(25.9)	(11.1)	(8.9)	(3.0)	(100.0)
Wearing Latest Fashion	18	26	41	31	19	10	135
	(13.3)	(19.3)	(30.4)	(15.6)	(14.4)	(7.4)	(100.0)
Drinking With Friends	16	31	34	27	15	12	135
	(11.9)	(23.0)	(25.2)	(20.0)	(11.1)	(8.9)	(100.0)

[a]Modal values are underlined.

TABLE 4.15 (continued

TARGET MARKET BY ENJOYMENT OF ACTIVITIES

	Extremely Enjoyable	Very Enjoy.	Quite Enjoy.	Rather Enjoy.	Slightly Enjoy.	Not Enjoy.	TOTAL
Sports	34	30	29	21	15	6	135
	(25.2)	(22.2)	(21.5)	(15.6)	(11.1)	(4.4)	(100.0)
Do-It-Yourself Projects	28	44	21	17	14	11	135
	(20.7)	(32.6)	(15.6)	(12.6)	(10.4)	(8.1)	(100.0)

TABLE 4.16

TARGET MARKET BY OPINIONS[a]

OPINION ITEM	Strongly Agree	Mainly Agree	Slightly Agree	Slightly Disagree	Mainly Disag.	Strongly Disag.	TOTAL
I often Worry that Something I Buy Will Turn Out to be a Mistake	12 (8.9)	24 (17.8)	36 (<u>26.7</u>)	29 (21.5)	13 (9.6)	21 (15.6)	135 (100.0)
I Work Hard Most of the Time	38 (28.1)	47 (<u>34.8</u>)	32 (23.7)	15 (11.1)	1 (0.7)	2 (1.5)	135 (100.0)
I Am More Independent Than Most People Are	38 (28.1)	55 (<u>40.7</u>)	27 (20.0)	13 (9.6)	2 (1.5)	0 (0.0)	135 (100.0)
I Have a Lot of Personal Ability	47 (34.8)	59 (<u>43.7</u>)	21 (15.6)	4 (3.0)	3 (2.2)	1 (0.7)	135 (100.0)
It's not What You Know but Who You Know That is Important	16 (11.9)	36 (26.7)	43 (<u>31.9</u>)	17 (12.6)	12 (8.9)	11 (8.1)	135 (100.0)
Things Change Too Fast	7 (5.2)	19 (14.1)	41 (<u>30.4</u>)	38 (28.1)	18 (13.3)	12 (8.3)	135 (100.0)
Nobody Cares What I Think	6 (4.4)	7 (5.2)	20 (14.8)	46 (<u>34.3</u>)	34 (25.2	22 (16.3)	135 (100.0)
I Am a Home-body	13 (9.6)	16 (11.9)	33 (<u>24.4</u>)	18 (13.3)	26 (19.3)	29 (21.5)	135 (100.0)

[a]Modal values are underlined.

TABLE 4.16 (continued)

TARGET MARKET BY OPINIONS

	Strongly Agree	Mainly Agree	Slightly Agree	Slightly Disagree	Mainly Disag.	Strongly Disag.	TOTAL
I Believe In Taking Action When I Don't Like Something	43 (31.9)	44 (32.6)	26 (19.3)	16 (11.9)	0 (0.0)	6 (4.4)	135 (100.0)
My Greatest Achievements Are Still Ahead	72 (53.3)	34 (25.2)	21 (15.6)	3 (2.2)	3 (2.2)	2 (1.5)	135 (100.0)
I Put My Family's Welfare Before My Own	47 (34.8)	41 (30.4)	26 (19.3)	15 (11.1)	3 (2.2)	3 (2.2)	135 (100.0)
I Wish I Were Younger	28 (20.7)	12 (8.9)	30 (22.2)	27 (20.0)	19 (14.1)	19 (14.1)	135 (100.0)
I I Had My Life to Live Over, I'd Do Things Differently	34 (25.2)	20 (14.8)	12 (23.7)	20 (14.8)	13 (9.6)	16 (11.9)	135 (100.0)
I Hate to Lose at Anything	24 (17.8)	19 (14.1)	33 (24.4)	25 (18.5)	19 (14.1)	15 (11.1)	135 (100.0)
I Like What I See when I Look in the Mirror	17 (12.6)	47 (31.8)	42 (31.1)	19 (14.1)	6 (4.4)	4 (3.0)	135 (100.0)
The Early Morning Is the Best Part of my Day	20 (14.8)	20 (14.8)	22 (16.3)	38 (28.1)	16 (11.9)	19 (14.1)	135 (100.0)

TABLE 4.16 (continued)

TARGET MARKET BY OPINIONS

	Strongly Agree	Mainly Agree	Slightly Agree	Slightly Disagree	Mainly Disag.	Strongly Disag.	TOTAL
I Feel More Energetic when Clean	52 (38.5)	46 (34.1)	18 (13.3)	7 (5.2)	3 (2.2)	9 (6.7)	135 (100.0)
I Shall Probably Move Once in the Next 5 Years	48 (35.6)	25 (12.5)	19 (14.1)	15 (11.1)	13 (9.6)	15 (11.1)	135 (100.0)
I Wouldn't Work if I did not Have To	36 (26.7)	13 (9.6)	20 (14.8)	23 (17.0)	23 (13.3)	18 (18.5)	135 (100.0)
I Enjoy Life More than my Parents did	38 (28.1)	34 (25.2)	30 (22.2)	18 (13.3)	8 (5.9)	7 (5.2)	135 (100.0)
I get Paid what I am Worth	11 (8.1)	22 (16.3)	20 (14.8)	28 (20.7)	20 (14.8)	34 (25.2)	135 (100.0)
My Major Hobby Is my Family	16 (11.9)	19 (14.1)	35 (25.9)	26 (19.3)	20 (14.8)	19 (14.1)	135 (100.0)
I Am a Great Person	22 (16.3)	36 (26.7)	49 (36.3)	13 (9.6)	10 (7.4)	5 (3.7)	135 (100.0)

My greatest achievements are still ahead.

I put my family's welfare before my own.

If I had my live to live over, I'd sure do things differently.

I feel more energetic when clean.

I'll probably move once in the next 5 years.

I wouldn't work if I didn't have to.

I enjoy life more than my parents did.

The next highest modal value was "Mainly Agree" and the items are:

I work very hard most of the time.

I am more independent than most people are.

I think I have a lot of personal ability.

I like what I see when I look in the mirror.

The only item to receive the lowest modal value (strongly disagree) is:

I get paid what I am worth.

The sample's profile can be summarized as follows: high interest was expressed in children, privacy, health care, politics, and welfare. No subject was found to be uninteresting. The most enjoyable activities are sports, showering and working on the job. The least enjoyable activity is cleaning the house. The only opinion item which registered disagreement was: "I get paid what I am worth." Most of the other opinion questions were agreed to by respondents.

The various psychographics are used in the ensuing analysis, phase two, step five. It tests whether the concept and its executions are independent. The next step ends phase one.

4.2.6 Step Six: Testing for Independence

Step six is the last step in phase one. It calls for an investigation of the relationships between the concept and its executions. An ANOVA is used to see whether the preference indices indicated for the different executions differ significantly from one another. A One-Way ANOVA model is used to test the following hypotheses: (see section 3.2.6 for the ANOVA model)

H_o: There are no significant differences between the preference indices indicated for the different executions.

H_1: There are significant differences between the preference indices indicated for the different executions.

Table 4.17 presents the results of the analysis. The F in this table was computed by using the following formula:

$$F = \frac{SS_A/(K-1)}{SS_{Error}/(N-K)} = \frac{MS_A}{MS_{Error}}$$

Where: SS_A = Portion of sum of squares in the variable, due to factor A.

SS_{Error} = Variation not accounted for by factor A.

$(K-1)$ = Number of categories in A-1

$(N-K)$ = Degree of freedom

MS_A = Mean Square due to factor A

MS_{Error} = Mean Square due to variation unaccounted for by Factor A.

Table 4.17 shows that at any reasonable α-level Ho cannot be rejected, i.e., there is no evidence of significant differences in the twenty-seven executions. The treatments had no statistically significant effect on the indicated intention-to-buy scales. The null hypothesis is accepted. The next phase to be undertaken is phase three. (see Figure 3.1) Phase two is not undertaken in this example.

TABLE 4.17

ONE WAY ANOVA OF 'HOW LIKELY WOULD YOU BE TO BUY ALEAVE' BY TREATMENTS

Source of Variation	Sum of Squares	D.F.	Mean Squares	F-Ratio	Significance of F
Between Groups	5.3916	26	0.2074	0.090	0.000
Within Groups	247.2056	107	2.3103		
Total	252.5972	133			

Two explanations can account for the above results. First, it is possible that respondents did not perceive the treatments as different. Second, the nature of the data could affect results. Respondents checked their answers on a six-point scale. In One-Way ANOVA, means are computed for each group (treatment) using this scale. The means of the 27 groups are close to each other, resulting in a small between group variation, thus leading to insignificant results, i.e., a small between to within F ratio.

4.3 PHASE THREE: INDEPENDENCE

Phase three is to be undertaken when a concept and its executions are found to be independent. Phase three deals with computing an overall score for the product concept. After this score is computed, it is compared to the cut-off points. These cut-off points determine what will be done with the product concept, i.e., rejection, acceptance or further testing.

4.3.1: Step One: Compute Overall Score

Several methods are available for computing the overall score (see section 3.4.4). Since the data collected are ordinal in nature, the percentile is the most appropriate measure. In this case the score is:

$$S = \frac{n_B}{N}$$

Where S = product's overall score

n_B = respondents who have indicated that they would buy the product

N = total sample

Application of this formula to this sample would yield (See figure 4.13):

$$\text{Score} = \frac{62}{135} = 45.9$$

In this case, the total score for the concept would be 45.9%. This score is compared to the cut-off points.

4.3.2 Step Two: Is the Overall Score Within Rejection Region?

Using a cut-off point of $K_1 = 50\%$, would mean that ALEAVE does not generate sufficient enthusiasm for the concept to be passed on for further testing or development. A score of 45.9 means that the score is within $0\text{-}K_1$ and therefore should be rejected.

FIGURE 4.13

FREQUENCY DISTRIBUTION OF RESPONDENTS BY INTENTION-TO-BUY SCALE

Intent	Frequency	
Absolutely sure I Would Get It	11	
Almost sure I Would Get It	14	
Probably Would Get It	37	
Sub Total: Buyers		62
Might or Might Not Get It	52	
Sub Total: Not Certain		52
Probably Would Not Get It	7	
Almost sure I Would Not Get It	9	
Absolutely sure I Would Not Get It	5	
Sub Total: Non Buyers		21
Total		135

Obviously, the determination of the cut-off point is an important aspect of the screening process. The literature on concept testing reports the use of a single cut-off point. The cut-off point K_1 is equated with K_2 and set at a higher level, for example 70%. For demonstrative purposes, K_1 will be set below the overall score, i.e., at 40%.

4.3.3 Step Three: Is the Overall Score Within the Middle Range?

With a cut-off point of K_1 = 40%, the overall score falls within the middle range. A company can set a deliberately low K_1 if they are interested in reducing type one errors, i.e., rejecting a good product idea although it has a low score. The product concept is passed on to phase four which conducts further testing. Step three concludes phase three in this example. The product did not achieve a high overall score and should not, therefore, be passed on to development. The liaison with Chesebrough Ponds pegged the value of K_2 at 70% (for the company $K_1 = K_2$).

4.4 PHASE FOUR: FURTHER TESTING

Phase four provides for additional investigation of the concept. Essentially its steps are equal to the additional testing suggested for phase two of the model. Since phase two was not undertaken with this example, phase four is carried out.

4.4.1 Step One: Are Product Attributes Perceived Differently Among Executions?

Step One of phase four investigates the effect of the treatment on perceived product attributes. Ten product attributes were investigated, using a Three-Way ANOVA (see section 3.3.2). Seven different hypotheses are tested in this step for each product attribute. The first three hypotheses relate to the first-order effects:

1. H_o: There are no significant differences in perceived product attribute 'X' among different copywriters.

   H_1: There is at least one significant difference in perceived product attribute 'X' among different copywriters.

This hypothesis postulates that certain product attributes are preferred by respondents. H_o was rejected by Haley and Gatty (1971). However, "copywriter" was the only variable tested. This example employs three copywriters, with each one writing a descriptive statement for the product concept, with different copy lengths and different pictorial treatments.

The second hypothesis is:

2. H_o: There are no significant differences in perceived product attribute 'X' among different copy lengths.

   H_1: There is at least one significant difference in perceived product attribute 'X' among different copy lengths.

Different copy lengths were found to have an effect on response (Overton and Armstrong, 1971). However, copy length was the only variable tested. Too, Overton and Armstrong varied the amount of information using a questionnaire (brief) and a display (long), through which respondents walked. Compensation given to respondents varied. A single dollar was given to questionnaire respondents. Five dollars were given to those who actually walked through the display, and who travelled in order to get to it. It is possible that the two groups differed in their willingness to cooperate. This example varies copy length in three levels: brief, medium and long.

The third hypothesis is:

3. H_0 : There are no significant differences in perceived product attribute 'X' among different pictorial treatments.

   H_1: There is at least one significant difference in perceived product attribute 'X' among different pictorial treatments.

Tauber (1972) rejected H_0 when he tested presentation form as a sole variable. Too, Tauber included only two levels: that of the written statement, and that of a written statement with a picture. This example adds a third level by introducing a black-and-white picture.

The next three hypotheses are second-order interactions:

4. H_0: There are no significant differences in perceived product attribute 'X' among interactions of copywriter and copy length.

H_1: There is at least one significant difference in perceived product attribute 'X' among interactions of copywriter and copy length.

5. H_0: There are no significant differences in perceived product attribute 'X' among interactions of copywriter and pictorial treatment.

   H_1: There is at least one significant difference in perceived product attribute 'X' among interactions of copywriter and pictorial treatment.

6. H_0: There are no significant differences in perceived product attribute 'X' among interactions of copy length and pictorial treatment.

   H_1: There is at least one significant difference in perceived product attribute 'X' among interactions of copy length and pictorial treatment.

Second-order hypothesis had not been previously tested in the literature.

The last hypothesis is the third-order interaction:

7. H_0: There are no significant differences in perceived product attribute 'X' among interactions of copywriter, copy length and pictorial treatment.

   H_1: There is at least one significant difference in perceived product attribute 'X' among interactions of copywriter, copy length and pictorial treatment.

The third-order interaction had not been tested previously in the literature.

The Three-Way ANOVA results are presented in Tables 4.18 through 4.28. Each table presents the results of the Three-Way ANOVA for a single product attribute. Table 4.28 summarizes the results for all ten product attributes.

Table 4.18 presents the ANOVA results for the first product attribute. Three sources of variation had a significant effect on product-attribute-'cleansing'. Main effects were significant at P = 0.027, with the pictorial-treatments effect being significant at P = 0.014. In second-order interactions, significant effects were due to the interaction of the copywriter and the pictorial treatment. The null hypothesis was accepted in five out of seven hypotheses. The second hypothesis of the first-order interactions and first hypothesis of the second-order were the two for which the null hypotheses were rejected.

Table 4.19 presents the ANOVA results for the second product attribute. Two sources of variation had an effect on the second-product attribute 'preventing itching'. The amount of information (copy length) had a significant effect on variation: P = 0.007. Second-order interactions show a significant effect of the interaction between the copywriter and copy length: P = 0.019. In five of the seven hypotheses the null hypothesis was accepted. In hypothesis two (first-order interactions) and hypothesis four (second-order), the null hypothesis was rejected.

TABLE 4.18

3-WAY ANOVA OF PRODUCT ATTRIBUTE 'CLEANSING' BY COPYWRITER, COPY LENGTH AND PICTORIAL TREATMENT

Source of Variation	Sum of Squares	D.F.	Mean Squares	F-Ratio	Significance of F
Main Effects	24.971	6	4.162	2.475	0.027
Copy Writer	8.533	2	4.267	2.537	0.082
Copy Length	3.333	2	1.667	0.991	0.999
Pictorial treatment	14.933	2	7.467	4.441	0.014
2-Way Interactions	27.261	12	2.272	1.351	0.201
Copywriter/Copy Length	4.489	4	1.122	0.667	0.999
Copywriter/Pictorial Treatment	17.955	4	4.489	2.670	0.035
Copy Length/Pictorial Treatment	9.955	4	2.489	1.480	0.212
3-Way Interactions	15.215	8	1.902	1.131	0.348
Copywriter/Copy Length/ Pictorial Treatment	15.215	8	1.902	1.131	0.348
Residual	181.599	108	1.681		
Total	239.881	134	1.790		

TABLE 4.19

3-WAY ANOVA OF PRODUCT ATTRIBUTE 'PREVENTING ITCHING' BY COPYWRITER, COPY LENGTH AND PICTORIAL TREATMENT

Source of Variation	Sum of Squares	D.F.	Mean Squares	F Ratio	Significance of F
Main Effects	22.571	6	3.762	1.895	0.088
Copy Writer	2.133	2	1.067	0.537	0.999
Copy Length	20.933	2	10.467	5.272	0.007
Pictorial Treatment	0.400	2	0.200	0.101	0.999
2-Way Interactions	29.230	12	2.436	1.227	0.274
Copywriter/Copy Length	24.400	4	6.100	3.073	0.019
Copywriter/Pictorial Treatment	1.155	4	0.289	0.146	0.999
Copy Length/Pictorial Treatment	12.889	4	3.222	1.623	0.173
3-Way Interactions	23.837	8	2.980	1.501	0.165
Copywriter/Copy Length/ Pictorial Treatment	23.837	8	2.980	1.501	0.165
Residual	214.398	108	1.985		
Total	274.546	134	2.049		

Table 4.20 presents the ANOVA results for the third product attribute. The copy length was the only source of significant effect on the third product attribute, 'preventing discomfort'. Copy length effect was significant at P = 0.004. Indicative of their effect were the 'main effects' with P = 0.059. No other sources of variation affected this product attribute. Hypothesis number two (first-order) interaction was the only one for which the null hypothesis was rejected. For the other six, the null hypothesis was accepted.

Table 4.21 presents the ANOVA results for the fourth product attribute. No significant sources of variation were found for the product attribute, 'relieving itching'. All seven null hypotheses were accepted for this product attribute.

Table 4.22 presents the ANOVA results for the fifth product attribute. No significant sources of variation were found for the product attribute, 'relieving discomfort'. All seven null hypotheses were accepted for this product attribute.

Table 4.23 presents the ANOVA results for the sixth product attribute. No significant sources of variation were found for the product attribute 'being soothing'. All seven null hypotheses were accepted for this product attribute.

TABLE 4.20

3-WAY ANOVA OF PRODUCT ATTRIBUTE 'PREVENTING DISCOMFORT' BY COPYWRITER, COPY LENGTH AND PICTORIAL TREATMENT

Source of Variation	Sum of Squares	D.F.	Mean Squares	F Ratio	Significance of F
Main Effects	20.571	6	3.429	2.094	0.059
Copy Writer	2.133	2	1.067	0.652	0.999
Copy Length	19.600	2	9.800	5.986	0.004
Pictorial Treatment	1.200	2	0.600	0.366	0.999
2-Way Interactions	19.897	12	1.658	1.013	0.443
Copywriter/Copy Length	11.866	4	2.967	1.812	0.131
Copywriter/Pictorial Treatment	2.889	4	0.722	0.441	0.999
Copy Length/Pictorial Treatment	14.889	4	3.722	2.274	0.065
3-Way Interactions	11.792	8	1.474	0.900	0.999
Copywriter/Copy Length/ Pictorial Treatment	11.792	8	1.474	0.900	0.999
Residual	176.799	108	1.637		
Total	226.992	134	1.694		

TABLE 4.21

3-WAY ANOVA OF PRODUCT ATTRIBUTE 'RELIEVING ITCHING' BY COPYWRITER, COPY LENGTH AND PICTORIAL TREATMENT

Source of Variation	Sum of Squares	D.F.	Mean Squares	F Ratio	Significance of F
Main Effects	9.942	6	1.657	0.825	0.999
Copywriter	2.533	2	1.267	0.631	0.999
Copy Length	8.400	2	4.200	2.092	0.126
Pictorial Treatment	4.800	2	2.400	1.195	0.306
2-Way Interactions	17.687	12	1.474	0.734	0.999
Copywriter/Copy Length	9.022	4	2.255	1.124	0.349
Copywriter/Pictorial Treatment	4.222	4	1.055	0.526	0.999
Copy Length/Pictorial Treatment	9.333	4	2.333	1.162	0.331
3-Way Interactions	16.148	8	2.018	1.006	0.437
Copywriter/Copy Length/ Pictorial Treatment	16.148	8	2.018	1.006	0.437
Residual	216.800	108	2.007		
Total	252.636	134	1.885		

TABLE 4.22

3-WAY ANOVA OF PRODUCT ATTRIBUTE 'RELIEVING DISCOMFORT' BY COPYWRITER, COPY LENGTH AND PICTORIAL TREATMENT

Source of Variation	Sum of Squares	D.F.	Mean Squares	F Ratio	Significance of F
Main Effects	5.111	6	0.852	0.501	0.999
Copywriter	0.993	2	0.496	0.292	0.999
Copy Length	0.904	2	0.452	0.266	0.999
Pictorial Treatment	3.215	2	1.607	0.946	0.999
2-Way Interactions	15.689	12	1.307	0.769	0.999
Copywriter/Copy Length	6.874	4	1.719	1.011	0.406
Copywriter/Pictorial Treatment	2.830	4	0.707	0.416	0.999
Copy Length/Pictorial Treatment	5.985	4	1.496	0.880	0.999
3-Way Interactions	7.704	8	0.963	0.566	0.999
Copywriter/Copy Length/ Pictorial Treatment	7.704	8	0.963	0.566	0.999
Residual	183.599	108	1.700		
Total	212.103	134	1.583		

TABLE 4.23

3-WAY ANOVA OF PRODUCT ATTRIBUTE 'BEING SOOTHING'

BY COPYWRITER, COPY LENGTH AND PICTORIAL PRESENTATION

Source of Variation	Sum of Squares	D.F.	Mean Squares	F Ratio	Significance of F
Main Effects	7.289	6	1.215	0.713	0.999
Copywriter	0.726	2	0.363	0.213	0.999
Copy Length	4.904	2	2.452	1.439	0.240
Pictorial Treatment	1.659	2	0.830	0.487	0.999
2-Way Interactions	26.000	12	2.167	1.272	0.245
Copywriter/Copy Length	7.141	4	1.785	1.048	0.387
Copywriter/Pictorial Treatment	14.518	4	3.630	2.130	0.081
Copy Length/Pictorial Treatment	4.341	4	1.085	0.637	0.999
3-Way Interactions	4.015	8	0.502	0.295	0.999
Copywriter/Copy Length/ Pictorial Treatment	4.015	8	0.502	0.295	0.999
Residual	183.999	108	1.704		
Total	221.303	134	1.652		

Table 4.24 presents the ANOVA results for the seventh product attribute. On source of variation had a statistically significant effect on product attribute 'being convenient to use'. The interaction of the copywriter with pictorial treatment produced a significant effect — P = 0.018. The fifth hypothesis (out of the seven) was the only one for which the null hypothesis was rejected for this product attribute. The null hypothesis was accepted for all the other six.

Table 4.25 presents the ANOVA results for the eighth product attribute. Only one source of variation produced a significant effect on product attribute 'being economical to use'. The interaction of the copywriter with the pictorial treatment had a significant effect — P = 0.028. The fifth hypothesis is the one for which the null hypothesis is rejected. The null hypothesis is accepted for the other six hypotheses.

Table 4.26 presents the ANOVA results for the ninth product attribute. Only one statistically significant source of variation affected product attribute 'being comfortable to use'. Copy length had a significant effect at P = 0.043. The second null hypothesis is therefore rejected and all other six null hypotheses were accepted.

Table 4.27 presents the ANOVA results for the tenth product attribute. No statistically significant sources of variation were found for the product attribute 'being messy to use'. All seven null hypotheses were accepted.

TABLE 4.24

3-WAY ANOVA OF PRODUCT ATTRIBUTE 'BEING CONVENIENT TO USE'

BY COPYWRITER, COPY LENGTH AND PICTORIAL TREATMENT

Source of Variation	Sum of Squares	D.F.	Mean Squares	F Ratio	Significance of F
Main Effects	10.133	6	1.689	0.884	0.999
Copywriter	7.511	2	3.756	1.965	0.143
Copy Length	0.711	2	0.356	0.186	0.999
Pictorial Treatment	1.911	2	0.956	0.500	0.999
2-Way Interactions	39.067	12	3.256	1.704	0.075
Copywriter/Copy Length	4.178	4	1.044	0.547	0.999
Copywriter/Pictorial Treatment	23.778	4	5.944	3.111	0.018
Copy Length/Pictorial Treatment	11.111	4	2.778	1.454	0.220
3-Way Interactions	24.400	8	3.050	1.596	0.134
Copywriter/Copy Length/ Pictorial Treatment	24.400	8	3.050	1.596	0.134
Residual	206.398	108	1.911		
Total	279.998	134	2.090		

TABLE 4.25

3-WAY ANOVA OF PRODUCT ATTRIBUTE 'BEING ECONOMICAL TO USE'

BY COPYWRITER, COPY LENGTH AND PICTORIAL TREATMENT

Source of Variation	Sum of Squares	D.F.	Mean Squares	F Ratio	Significance of F
Main Effects	9.422	6	1.570	0.812	0.999
Copywriter	4.844	2	2.422	1.253	0.289
Copy Length	1.200	2	0.600	0.310	0.999
Pictorial Treatment	3.378	2	1.689	0.874	0.999
2-Way Interactions	30.489	12	2.541	1.314	0.221
Copywriter/Copy Length	3.822	4	0.956	0.494	0.999
Copywriter/Pictorial Treatment	21.911	4	5.478	2.833	0.028
Copy Length/Pictorial Treatment	4.756	4	1.189	0.615	0.999
3-Way Interactions	13.022	8	1.628	0.842	0.999
Copywriter/Copy Length/ Pictorial Treatment	13.033	8	1.628	0.842	0.999
Residual	208.799	108	1.933		
Total	261.732	134	1.953		

TABLE 4.26

3-WAY ANOVA OF PRODUCT ATTRIBUTE 'BEING COMFORTABLE TO USE'

BY COPYWRITER, COPY LENGTH AND PICTORIAL TREATMENT

Source of Variation	Sum of Squares	D.F.	Mean Squares	F Ratio	Significance of F
Main Effects	15.943	6	2.657	1.409	0.217
Copywriter	3.733	2	1.867	0.990	0.999
Copy Length	12.133	2	6.067	3.218	0.043
Pictorial Treatment	3.733	2	1.867	0.990	0.999
2-Way Interactions	32.910	12	2.743	1.455	0.153
Copywriter/Copy Length	14.355	4	3.589	1.904	0.114
Copywriter/Pictorial Treatment	11.467	4	2.867	1.521	0.200
Copy Length/Pictorial Treatment	10.222	4	2.556	1.356	0.253
3-Way Interactions	18.192	8	2.274	1.206	0.302
Copywriter/Copy Length/ Pictorial Treatment	18.192	8	2.274	1.206	0.302
Residual	203.599	108	1.885		
Total	258.769	134	1.931		

TABLE 4.27

3-WAY ANOVA OF PRODUCT ATTRIBUTE 'BEING MESSY TO USE'

BY COPYWRITER, COPY LENGTH AND PICTORIAL TREATMENT

Source of Variation	Sum of Squares	D.F.	Mean Squares	F Ratio	Significance of F
Main Effects	10.000	6	1.667	0.688	0.999
Copywriter	2.326	2	1.163	0.480	0.999
Copy Length	6.326	2	3.163	1.306	0.274
Pictorial Treatment	1.348	2	0.674	0.278	0.999
2-Way Interactions	27.111	12	2.259	0.933	0.999
Copywriter/Copy Length	4.652	4	1.163	0.480	0.999
Copywriter/Pictorial Treatment	9.630	4	2.407	0.994	0.999
Copy Length/Pictorial Treatment	12.830	4	3.207	1.324	0.265
3-Way Interactions	13.926	4	1.741	0.719	0.999
Copywriter/Copy Length/ Pictorial Treatment	13.926	8	1.741	0.719	
Residual	261.596	108	2.422		
Total	312.633	134	2.333		

Table 4.28 summarizes the Three-Way ANOVA results for six product attributes. These six product attributes are those for which at least one of the seven hypotheses had a rejected null hypothesis. Each of these six product attributes was affected in at least one instance by one or more treatments. In each case the treatment had a statistically significant effect on the perception of this product attribute.

Taking the seven hypotheses one at a time, the following summary emerges:

Copywriter effect was not statistically significant for any product attribute.

Copy length had a statistically significant effect on variation for three product attributes: preventing itching, preventing discomfort and being comfortable to use.

Pictorial treatment had a significant effect on variation in one product attribute: cleansing.

The interaction of copywriter and copy length affected significantly one product attribute: preventing itching.

The interaction of copywriter and pictorial treatment affected three product attributes: cleansing, being economical to use, and being convenient to use.

Neither the interaction of copy length with pictorial treatment nor the third-order interaction of all three execution elements had any significant effect on any product attribute.

TABLE 4.28

SUMMARY OF ANOVA RESULTS FOR SIGNIFICANT PRODUCT ATTRIBUTES[a]

Source of Variation	Product Attributes					
	Cleansing	Preventing Itching	Preventing Discomfort	Being Convenient To Use	Being Economical To Use	Being Comfortable To Use
Main Effects	0.027					
Copywriter						
Copy Length		0.007	0.004			0.043
Pictorial Treatment	0.014					
2-Way Interactions						
Copywriter + Copy Length		0.019				
Copywriter + Pictorial Treatment	0.035			0.018	0.028	
Copy Length + Pictorial Treatment						
3-Way Interactions						
Copywriter + Copy Length + Pictorial Treatment						

[a]Levels of significance was determined at P = 0.05.

Analysis of step one shows that execution elements can affect perceived product attributes in a significant manner. It now remains to be seen whether these product attributes can be used for repositioning the product concept.

4.4.2 Step Two: Can Perceived Product Attributes Discriminate Among Respondents?

Step two uses discriminant analysis to see whether product attributes can discriminate between respondents (see section 3.3.3). Respondents were divided into two groups: prospective buyers and prospective non-buyers. The classification into these groups was based on the intention-to-buy question. The question was: (Appendix 'A')

If you suffer from bathroom discomfort, or might suffer sometime in the future, how likely would you be to buy ALEAVE? Please check where appropriate.

Absolutely sure I would get it _____

Almost sure I would get it _____

Probably would get it _____

Might or might not get it _____

Probably would not get it _____

Almost sure I would not get it _____

Absolutely sure I would not get it _____

A frequency distribution of response to this question is presented in Table 4.29.

TABLE 4.29

FREQUENCY DISTRIBUTION OF RESPONDENTS BY THE INTENTION-TO-BUY SCALE

Category	Absolute Frequency	Relative Frequency (%)	Cumulative Absolute Frequency	Cumulative Frequency (%)
Absolutely sure	11	8.1	11	8.1
Almost sure	14	10.4	25	18.5
Probably would	37	27.4	62	45.9
Might or might not	52	38.5	114	84.4
Probably would not	7	5.2	121	89.6
Almost sure not	9	6.7	130	96.3
Absolutely not	5	3.7	135	100.0
TOTAL	135	100.0		

A total of 62 respondents indicated that they would buy the product. This includes respondents who indicated either 'absolutely sure', 'almost sure' or 'probably would buy'. The 62 respondents were classified as buyers. A total of 21 respondents indicated that they would not buy the products. This includes the last three categories of the question. This second group was classified as non-buyers. The middle category—'might or might not buy'—was excluded from the analysis. A total of 52 respondents chose this category. The discriminant analysis reported here is therefore based on two groups alone including a total sample of 83 respondents.

Six product attributes emerged from the ANOVA in step two as being affected to some degree by the treatments. These six product attributes were used in the discriminant analysis. They are:

1. Cleansing
2. Preventing Itching
3. Preventing Discomfort
4. Convenient to Use
5. Economical to Use
6. Comfortable to Use

A correlation matrix between these six product attributes is presented in Table 4.30. When the correlations between the variables (product attributes) is high, multicolinearity exists. This affects the meaningfulness of the discriminant analysis coefficients. Few high correlations exist in Table 4.30. In two instances the correlation is higher

TABLE 4.30

CORRELATION MATRIX BETWEEN SIX PRODUCT ATTRIBUTES

	Cleansing	Preventing Itching	Preventing Discomfort	Convenient to Use	Economical to Use	Comfortable to Use
Cleansing	1.0000					
Preventing Itching	0.3300	1.0000				
Preventing Discomfort	0.2957	0.5725	1.0000			
Convenient to Use	0.2923	0.1065	0.1601	1.0000		
Economical to Use	0.1732	0.2950	0.3839	0.3365	1.0000	
Comfortable to Use	0.4354	0.2480	0.3838	0.5522	0.4496	1.0000

than 0.5. In all other cases the correlation is below 0.5. It seems that although there may be a problem of multicolinearity, the problem is not substantial.

A classification function is derived from the discriminant analysis. This function is used in order to classify respondents into buyers and non-buyers. Since the sample was small (especially the non-buyers group, which includes 21 respondents), no holdout sample was used. The derived classification functions were not validated on another sample. These functions are therefore valid only for the group used in the example. No predictive validity was proven.

The functions were derived through the use of step-wise discriminant function analysis. In this technique, the variables are entered sequentially in the order in which they reduce the unexplained variance. Thus, the first variable to enter the anlaysis would be the variable which has the highest explanatory value for the difference between buyers and non-buyers. The second variable (product attribute) has the next highest explanatory value for the unexplained difference, remaining after the choice of the first variable has been made. The third variable entered is the one with the greatest explanatory value, given the first two variables, and so on. The only variables entered were ones for which Partial-F was significant at $\alpha = 0.1$.

It is possible to develop a subset of variables which best explain the variance between the apriori defined groups. Table 4.31 presents the discriminant function coefficients for such a subset of variables.

TABLE 4.31

DISCRIMINANT FUNCTION COEFFICIENTS* FOR PRODUCT ATTRIBUTES

Variable Name	Coefficients	
	Unstandardized	Standardized
Preventing Discomfort	0.46574	0.65365
Comfortable to Use	0.34294	0.50782
Constant Term	-2.53794	0.0

*Only significant variables are included. Partial F Test was significant at α = .05.

Two product attributes (out of six) were included in this discriminant function. The mean values for the buyers' group were lower for these two product attributes. The non-buyers had higher means. The lower the mean, the better the product scored on this particular attribute. The higher the mean, the lesser the score.

Table 4.32 shows the degree to which the classification function (shown in Table 4.31) was successful in classifying buyers and non-buyers.

The results of this step indicate that potential repositioning of ALEAVE should be done along the lines of emphasizing two product attributes: "preventing discomfort" and "being comfortable to use". Step 4.4.2 carries the analysis one step further, into an attempt at segmentation.

4.4.3 Develop Additional Target Markets

Step three is the last step in phase four. In this step, respondents' characteristics are used to see whether they can identify the buyers' group. A battery of A.I.O.'s was used as well as a set of product-related attitudinal questions. Too, a set of socio-economic questions were used as discriminators. In all, five different discriminant analyses were done.

The first discriminant analysis used the product-related attitudinal questions for discrimination. A total of 13 questions were in the analysis, and six of them formed a subset of significant discriminatory

TABLE 4.32

CLASSIFICATION MATRIX, BUYERS VS. NON-BUYERS, USING PRODUCT ATTRIBUTES FOR CLASSIFICATION

Actual Group	Group Membership	Predicted Group Membership	
		Buyers	Non-Buyers
Buyers	62	66.1%	33.9%
Non-Buyers	21	28.6%	71.4%

Note: Percent of Correct Classification: 67.47%. Priors were computed, based on size.

coefficients. Table 4.33 presents the classification functions for the two groups——buyers and non-buyers. The variables are listed in the order of entry into the stepwise discriminant analysis. (Partial F significant at $\alpha = 0.1$ for all the variables presented in this section.)

Table 4.34 shows the results of the classification using these functions. The percentage of correctly classified cases was 89.16%. It should be reiterated that all the results of the discriminant analysis are valid only for this particular example.

The second analysis was conducted on socio-economic variables. Eight variables were used.

Table 4.35 presents the discriminant function coefficients for eight socio-economic variables.

The classification of respondents into buyers and non-buyers resulted in correct classification of 65.06% of the respondents. Table 4.36 presents the classification results.

The next three analyses present the discriminant analyses conducted on the psychographics. First, the activities-related questions were analyzed. Next, the interest-related questions and then the opinion-related questions were studied. The results are presented in that order.

Table 4.37 presents the classification function for the A.I.O.'s. Two activities out of a total of ten entered the stepwise procedure. Five interest items entered the stepwise analysis, out of eleven items.

TABLE 4.33

DISCRIMINANT COEFFICIENTS AND CLASSIFICATION FUNCTIONS FOR SIGNIFICANT PRODUCT-RELATED-ATTITUDES BUYERS VS. NON-BUYERS

Step	Variable	Classification* Function Coefficient		Discriminant Coefficients	
		Buyers	Non-Buyers	Unstandardized	Standardized
1	ALEAVE is worth every cent it costs	2.41718	1.52131	-0.36367	-0.55313
2	ALEAVE offers an advantage over the way people now cleanse themselves	1.86607	1.07316	-0.32188	-0.49972
3	My spouse would object if I bought ALEAVE	0.33347	1.07703	0.44336	0.30184
4	ALEAVE is a good idea	2.24177	1.68499	-0.34568	0.22602
5	I would be ashamed to keep ALEAVE on an open shelf	1.67043	2.09963	0.25717	0.17423
6	I need more information about ALEAVE	2.36934	2.04208	-0.20885	-0.13285
	Constant Term	-22.08716	-16.07913	3.00005	0.0

*SPSS, Statistical Package for the Social Sciences, (1975), produces two sets of coefficients — one for each of the two predetermined groups.

TABLE 4.34

CLASSIFICATION MATRIX: BUYERS VS. NON-BUYERS USING PROCUCT-RELATED ATTITUDES FOR CLASSIFICATION

Actual Group	No. of Cases	Predicted Group Membership	
		Buyers	Non-Buyers
Buyers	62	95.2%	4.8%
Non-Buyers	21	28.6%	71.4%

Percent of "grouped" cases, correctly classified: 89.16%.

TABLE 4.35

DISCRIMINANT FUNCTION COEFFICIENTS* FOR DEMOGRAPHIC VARIABLES

	Coefficients	
	Unstandardized	Standardized
Sex	-0.10472	-0.04863
Age	0.10504	0.17207
Marital Status	0.07551	0.07616
Number of Children	-0.32592	-0.26110
Home Ownership	1.44014	0.72440
Number of Rooms in Residence	0.33925	0.28089
Family Income	-0.05472	-0.12386
Education	-0.01336	-0.01898
Constant	-2.33985	0.00

*Only significant variables are included. Partial F test significant at = 0.10.

TABLE 4.36

CLASSIFICATION MATRIX, BUYERS VS. NON-BUYERS, USING SOCIO-ECONOMIC VARIABLES AS DISCRIMINATORS

Actual Group	No. of Cases	Predicted Group Membership	
		Buyers	Non-Buyers
Buyers	62	61.3%	38.7%
Non-Buyers	21	23.8%	76.2%

Percent of "grouped" cases correctly classified: 65.06%

TABLE 4.37

DISCRIMINANT COEFFICIENTS AND CLASSIFICATION FUNCTIONS FOR SIGNIFICANT PSYCHOGRAPHICS, BUYERS VS. NON-BUYERS

Step	Activity	Classification* Function Coefficients		Discriminant Function Coefficients	
		Buyers	Non-Buyers	Unstandardized	Standardized
1	Enjoy Working On The Job	1.79396	1.46593	0.52006	0.81009
2	Enjoys Wearing The Latest Fashion	1.96658	1.70900	0.40844	0.59312
	Constant Term	-7.48656	-5.33812	-3.55381	0.00000
	Interests				
1	Privacy	1.38823	1.94117	0.38567	0.55687
2	Food	1.49533	1.18645	-0.27928	-0.37377
3	Advertising	1.89168	1.49127	-0.21544	-0.33126
4	Clothing	1.38823	1.94117	-0.26842	-0.29355
5	Discussing Own Affairs	1.04640	0.78271	-0.18392	-0.28915
	Constant Term	-15.43086	-13.48693	1.55163	0.00000
	Opinions				
1	If I Had My Life To Live Over, I'd Sure Do Things Differently	0.56761	1.31534	0.33589	0.57166
2	I Feel More Energetic When Clean	2.07240	1.65012	-0.18969	-0.27475

*SPSS, Statistical Package for the Social Sciences (1975), produces two sets of coefficients, one for each of the two predetermined groups.

TABLE 4.37 (continued)

DISCRIMINANT COEFFICIENTS AND CLASSIFICATION FUNCTIONS FOR SIGNIFICANT PSYCHOGRAPHICS, BUYERS VS. NON-BUYERS

		Classification Function Coefficients		Discriminant Function Coefficients	
Step	Activity	Buyers	Non-Buyers	Unstandardized	Standardized
3	I am More Independent Than Most People	5.09045	4.46120	-0.28266	-0.28312
4	The Early Morning Is The Best Part of My Day	2.24050	1.75483	-0.21817	-0.35622
5	It Is Not What You Know But Who You Know That Is Important	1.43347	1.00700	-0.19157	-0.28383
6	Nobody Cares What I Think	0.84143	1.21710	0.16876	0.23215
7	I Think I Have A Lot of Personal Ability	4.10035	3.71956	-0.17106	-0.18504
8	I Like What I See When I Look In The Mirror	0.68947	1.00388	0.14124	0.17302
	Constant Term	-38.91022	-34.24426	2.33428	0.00000

Eight opinion items entered the analysis, out of a total of 23 opinion items. Each was used in a separate discriminant analysis.

Results of the classifications obtained are presented in Tables 4.38 through 4.40. Using the two activity items, a correct classification of 71.08% of the cases was obtained. Using the five interest items, a correct classification of 84.34% of the cases was achieved. When the eight opinion items were used for classification, 84.34% of the cases were correctly classified.

The potential buyers of ALEAVE can be described by the following profile. They prefer the comfort and convenience of the product. They believe that the product is worth every cent it costs, and that the product offers an advantage over existing products. They think that the product is a good idea, and would not be ashamed to keep it on an open shelf. Their spouses would not object to their buying it.

In terms of target psychographics, the typical buyer enjoys working on the job and wearing fashionable clothing; he is also eager to take part in enjoyable activities.

In terms of the interest items, interest in food, clothing, advertising, and discussing own affairs were discriminating interests among the groups. Out of the opinion items, eight items discriminate between the groups. The psychographic variables (Table 4.37) are presented in the order in which they entered the analysis. The standardized discriminant coefficient can be used as a measure of relative importance within each

TABLE 4.38

CLASSIFICATION MATRIX, BUYERS VS. NON-BUYERS
USING ACTIVITIES AS DISCRIMINATORS

Actual Group	No. of Cases	Predicted Group Membership	
		Buyers	Non-Buyers
Buyers	62	95.2%	4.8%
Non-Buyers	21	100.0%	0.0%

Percent of "grouped" cases correctly classified: 71.08%. The relatively high percentage of correct classification of buyers and the high percentage of incorrect classification of non-buyers is partially a result of the proportions between these groups. Activity items can discriminate and classify buyers but cannot classify non-buyers. They are therefore not a good discriminator for the purpose of this example.

TABLE 4.39

CLASSIFICATION MATRIX, BUYERS VS. NON-BUYERS
USING INTERESTS AS DISCRIMINATORS

Actual Group	No. of Cases	Predicted Group Membership	
		Buyers	Non-Buyers
Buyers	62	98.4%	1.6%
Non-Buyers	21	57.1%	42.9%

Percent of "grouped" cases correctly classified: 84.34%. The relatively high percentage of correct classification of buyers and the high percentage of incorrect classification of non-buyers is partially a result of the proportions between these groups. Interest items can discriminate and classify buyers but cannot classify non-buyers. They are therefore not a good discriminator for the purpose of this example.

TABLE 4.40

CLASSIFICATION MATRIX, BUYERS VS. NON-BUYERS USING OPINIONS AS DISCRIMINATORS

Actual Group	No. of Cases	Predicted Group Membership	
		Buyers	Non-Buyers
Buyers	62	95.2%	4.8%
Non-Buyers	21	47.6%	52.4%

Percent of "grouped" cases correctly classified: 84.34%.

category. The three psychographic items with the highest standardized discriminant coefficient are:

Activity: Enjoy working on the job

Interest: Interest in privacy

Opinion: If I had my life to live over, I'd sure do things differently.

The additional testing in phase four lead to inconclusive results with respect to psychographic discrimination. Using A.I.O. questions did not lead to a highly successful prediction of buyers and non-buyers. On the other hand, phase four showed that the concept can be repositioned, using a stronger emphasis on two out of the ten product attributes originally used (see Table 4.31).

Product-related attitudes showed the highest discrimination potential (see Table 4.34). The percentage of correctly classified cases was 89.16 %. The implications for product management are as follows:

A. If the product is deemed worthy of retesting, a new product positioning should be undertaken.

B. Target respondents should be redefined as sufferers who have certain attitudes toward the product. For example, buyers believed (more than non-buyers) that ALEAVE is worth every cent it costs. They believed more than non-buyers that ALEAVE offers an advantage over the way people now cleanse themselves. They thought ALEAVE is a good idea. They

attested that they would not be ashamed to keep ALEAVE on an open shelf nor did they think their spouses would object to their buying it.

Results from phase four are subject to an evaluation by the screener. If the screener believes the product is worthy of additional testing based on results from phase four, the concept re-enters the model at phase one. If the screener believes that no further testing is warranted, the product is discarded.

4.5 SUMMARY

The example followed in this study was carried through phases one, three, and four. Phase two was not carried out for ALEAVE.

The example shows how the concept pretesting model can be used to screen product concepts. An actual concept was executed by choosing three factors, each on three levels. The twenty-seven different executions were then presented to respondents. It was found that the executions did not affect response as expressed by the preference index.

Phase three was undertaken as the next step in the example. A total score was computed and compared to the cut-off points. The cut-off points determine that the product should be discarded or tested further.

Phase four is undertaken next. Product attributes were studied. Six were found to be dependent upon the executions. These six were used in the subsequent discriminant analysis, and two emerged as able to discriminate between potential buyers and non-buyers of ALEAVE. Demographics and a psychographic profile of the potential buyers were investigated and described next. The product-related attitudinal questions were found to be the best discriminators. A.I.O. items and demographic characteristics did not discriminate as well between buyers

and non-buyers. The example shows how the model should be used. The conclusions as well as the limitations of the example are example-specific. The model must be used by several screeners and companies before generalizations can be drawn.

CHAPTER 5 SUMMARY

5.1 RETROSPECTIVE REVIEW

This study has examined the literature on concept testing. The literature on the subject is sparse, and the range of views expressed in the literature is wide. Concept testing means different things to different people. It seems to be a generic name for a battery of tests, rather than a name for one specific test.

A concept pretesting model was developed so as to improve the mechanism of concept testing. Concept screeners test abstract ideas in a concrete formulation, i.e., an execution. The response elicited from respondents is a function of both concept and execution. The concept's execution presents the concept to respondents. The model presented in Figure 3.1 suggests pretesting several elements of the concept's execution. Concept pretesting enables the researcher to study the relationships between a concept and its executions. This is done by investigating the effect of the executions on respondents' preferences.

Once the relations between a concept and its execution are known, the researcher may proceed in one of two directions:

A. If the execution has no effect on consumers' preference for the concept, the researcher proceeds through traditional concept testing. An overall score for the concept is computed and a decision as to acceptance or rejection of the concept, is made (see Phase 3 of the model).

B. If the execution affects consumers' preference for the concept, the

researcher should follow phase two of the model by studying product attributes and respondents' psychographics. Different executions appeal to different benefit segments. This means that the executions can create different product preferences. Too, product attributes can appeal to different segments, thus leading to repositioning of the concept.

The additional expense involved in carrying out concept pretesting may be more than offset by reducing the likelihood of mistakes. Concept pretesting provides a means for defining the relationship between a concept and its execution. A good concept 'wrapped' in a bad execution will not be discarded. The bad concept wrapped in a good presentation can be identified.

An example is carried out as an application of the model. A Three-Way factorial design was used in the example. The factors were chosen based on the literature survey. The product, ALEAVE, developed by Chesebrough Ponds, Inc. is currently being market-tested in Indiana and was deemed appropriate for concept testing in New Jersey (as an unknown, new concept).

The ANOVA, performed in the example, showed that the executions had no effect on the preference indicated for the concept. Two product attributes were found to have an affect on response. These two can be used for repositioning the concept. Further analysis revealed a profile of potential buyers. This is an additional insight that might be used when retesting the concept in its new positioning. If validated, this profile can be helpful in the forming of a promotion strategy.

Several comments are in order about the example. The example is product-specific; it was carried out with a relatively small judgmental sample. The response obtained is ordinally-scaled, although an interval scale is assumed in the analysis. No provision for severity of suffering was made in defining the target market. For example, senior citizens, whose suffering may be more intense, could prove to be a different benefit segment. Their reaction could be different. Other limitations are mentioned in the introductory chapter (section 1.4).

The example, nevertheless, illustrates a methodology and explains the model. The effect of the execution on perception of the product is important. Following the methodology of concept pretesting can contribute to better product planning.

5.2 IMPLICATIONS FOR PRODUCT PLANNING

A product is not only a physical entity. It is a combination of perceived attributes and benefits. Different consumers perceive a given product in various ways. While this is accepted in marketing theory, it is ignored by product planners.

Concept testing is based on the assumption that for testing purposes a product need not exist as a physical entity. What is tested is the product's image, its Gestalt, its perceived benefits. It is therefore surprising that concept pretesting is not included in concept testing.

Changing the advertising copy statement can change a product. A change in the background music, actors on a T.V. commercial, media vehicle — each of these can affect the product. While accepted in advertising, this fact is not implemented in product planning. The execution presents the product, especially when the physical entity does not exist. Testing a single execution is no different from market-testing a single package size, or one advertising theme. It can be done, but it is risky.

Product planning involves high stakes; high rates of product failures, coupled with expensive price tags. The successful new product is tomorrow's sales, profits, and in many cases, survival. An improvement in product planning can help improve these chances for success.

The model offered in this study is an attempt to improve the process. It is not an automatic improvement which can be used indiscriminately.

Product planners must still exercise judgment and care. Choosing the factors to be tested and pretested, the factor levels, the target respondents — all require judgment. Concept pretesting offers a method for dealing with a fallacy that contributes to erroneous decision-making. The model should not be used indiscriminately.

Company executives have to evaluate benefits and costs involved with concept pretesting. They should evaluate the benefits from the information to be gained. If concept pretesting can save a good new product idea from being discarded, the benefits will probably pay for many more concept pretesting tests. If a bad product idea is detected earlier, many resources will be saved. Applying the model can better marketing decision making.

5.3 IMPLICATIONS FOR FUTURE RESEARCH

Various possibilities for future research in this area are possible. Some are replications of the example, without changing the model. This is discussed first. Other possibilities are additions and refinements of the model itself. These are discussed second.

5.3.1 Replications of the Example

The example carried out in this study involved a large sample (close to 700 respondents) out of which only a fraction was used for the analysis (See Table 4.1). The criterion for selecting the sub-sample for analysis was respondent's belonging to the target market. Only those who admitted to suffer from either hemorrhoids or bathroom discomfort were defined as the target market, and included in the sub-sample. In this example, the target was predetermined by Chesebrough Ponds, who developed the product. In other cases, the target market may not be predetermined. In yet other cases, respondents may not wish to admit that they are potential users. Medical journals claim that two thirds of the adult population are suffering from hemorrhoids or bathroom discomfort. Only half of those people admit to be sufferers in market testing.

All the above possibilities call for a study of the entire sample. In an explanatory study conducted on a matching sample of non-sufferers, it was found that executions had a stronger effect on their response. ANOVA results found more variation in response due to the different treatments. Too, intentions to buy were significantly higher for the

non-sufferers. This may imply two alternative explanations:

A. Non-sufferers are easily swayed by the elements of the execution. In this case, a company conducting concept testing must exercise special care in selecting target respondents. The non-sufferers may be more likely to tell researchers what they think those researchers want to find. Such an occurence may distort results significantly, leading to wrong conclusions.

B. The non-target includes a large group of target respondents. A predetermination of the target can miss this segment of the market. A study of the non-sufferers is called for. It will be undertaken as an extension of the present study.

Several additional replications of the study are possible. An analysis of additional new product concepts is called for. ALEAVE^{r} was used in this study simply because Chesebrough Ponds allowed the use of the concept in the study. It is possible that using additional concepts will add insight to the application of the model. In the long run, the more concepts are pretested, the more will be learned about the model and its usefulness.

The use of students in this study resulted in a group whose age and educational characteristics are relatively homogeneous. It is possible that choosing a different population as respondents would result in different results, and different reactions to the treatments. A replication of the study with other target audiences is called for.

A fourth replication of the model can be conducted by using other elements for the execution. For example, combinations of:

A. Medium presenting the concept (print, radio, videotape).

B. Degree of closeness of the execution to the finished advertisement (rough, storyboard advertisement).

Additional combinations are possible. While there is, of course, an economic limit to the number of elements tested, the company can decide on the most appropriate ones. Hopefully, with more replications, some generalizations can be made about the choice of factors for concept pretesting.

Most concept testing tests in industry are conducted by using focused group interviews. Academic studies in this field have used larger samples (200-400 cases). The effect, if any, of the data-collection mode is unknown as well. Can concept testing be done over the phone? by mail? etc. A replication of the example using different data collection modes and sampling methods is called for.

All the above replications do not call for a change in the model itself. The next section discusses changes in the model.

5.3.2 Model Building

One important aspect of the model is the preference index. Preference indices are crucial to both concept testing and concept pretesting. Preference indices must be developed and further validated before being used in product planning. The example in this study has relied on the preference index used by the company (Chesebrough Ponds Inc.) which

developed the concept. However, more work is required in this area. It is possible that phase one of the concept pretesting model has to be enlarged to include validating preference indices. This will be attempted in the future.

The cut-off points in phase three (K_1 and K_2) presents another area for future research. A method for developing these points must be developed. It may be that at this stage, only a checklist can be developed (possibly via interviewing product planners). At a later point, phase three may have to be enlarged to include the development of cut-off points. Parameters such as the costs of type-one and type-two errors will be included as explicit steps in developing a less heuristic method for determining cut-off points.

The model has tested several executions with a given target market. Pretesting a concept with several executions and several target markets is another possible development for the model. This model-building research is currently in the works. An application of concept pretesting to public administration and social-policy-making requires dealing with several target markets. An application of concept testing to public administration problems have been presented to a public administration conference (Bernstein, Silbiger and Laric, 1974). The execution is an important parameter for a public officer. A project or any public commodity must be presented to different target audiences in different executions. For example, Mayor Lindsey of New York presented the low income housing project in Forest Hills, N.Y. to the

residents in one execution—without pretesting the concept. This policy was rejected by residents and after violent demonstrations, the project was changed and scaled down. Concept pretesting can be used to avoid public dissent and violent demonstration. Concept pretesting could have helped in developing a more acceptable concept. A proposal for a study grant to execute such a study is currently under review by the Connecticut Commission on Higher Education.

APPENDIX

RUTGERS UNIVERSITY *The State University of New Jersey*

UNIVERSITY COLLEGE
Department of Marketing
New Brunswick, New Jersey 08903

May, 1975

Dear student:

The enclosed questionnaire is part of my doctoral research. It is concerned with New Products, and will be carried out in several colleges. I am interested in obtaining your opinions and reactions to a certain product. All the products used in the study are already being test marketed or have been introduced in another part of the country.

There are seven pages in this questionnaire, divided into four parts. Your opinions and feelings are sought. Your name and identity are NOT. Please be as candid as possible. There are no 'Right' or 'Wrong' answers. Only your opinion counts. Please answer all questions.

Thank you very much for your consideration and cooperation.

Sincerely yours,

Michael V. Laric

Michael V. Laric
Department of Marketing
U.C. Newark Campus
Phone: 201/648-5605

P.S.
The numbers in parentheses are for data punching, on computer cards. Please disregard them.

Thank you again
Mike Laric

(For office use only) 1.

Col.1 | Col.2 | Col.3 | Col.4 | Col. 5

PART 1.

The following questions are for classification purposes only. Your name is NOT required. Please check where appropriate.

Col.

(6) 1. You are: Male ___-1; Female ___-2.

(7) 2. What is your age: Under 25 ___-1; 26-30 ___-2; 31-35 ___-3; 36-40 ___-4; 41-45 ___-5; 46-50 ___-6; 51-55 ___-7; 56-60 ___-8; Over 61 ___-9.

(7) 3. Your marital status: Married ___-1; Single ___-2; Divorced ___-3; Separated ___-4; Widowed ___-5; Other, please specify _____-6.

(9) 4. If you have any children, what is the age of your youngest child: No children ___-1; Youngest child under 6 ___-2; Youngest child over 6 ___-3.

(10) 5. Is your residence owned or rented: Owned ___-1; Rented ___-2.

(11) 6. How many rooms are there in your residence: Under 3 ___-1; 4-6 ___-2; 7-9 ___-3; Over 10 ___-4.

(12) 7. What is your family income before taxes, for 1974:

Under $ 5,000 ___-1;	$ 15,001 - $ 17,500 ___-6;
$ 5,001 - $ 7,500 ___-2;	$ 17,501 - $ 20,000 ___-7;
$ 7,501 - $ 10,000 ___-3;	$ 20,001 - $ 25,000 ___-8;
$ 10,001 - $ 12,500 ___-4;	$ 25,001 - $ 30,000 ___-9;
$ 12,501 - $ 15,000 ___-5;	Over $ 30,001 ___-0;

(13) 8. Which category best describes the number of credits you completed in college: Less than 9 ___-1; 9-30 ___-2; 31-60 ___-3; 61-90 ___-4; 91-120 ___-5; I have a Bachelor's Degree ___-6; Graduate student ___-7; Graduate degree ___-8.

(14) 9. Are you the: Head of the household ___-1; Spouse ___-2; Other ___-3.

(15) 10. Which category best describes the PRIMARY occupation of the head of your household:

Service worker (Policeman, practical nurse, housekeeper, barber etc.) ___-1;
Craftsman or Foreman (Plumber, carpenter, baker, lineman etc.) ___-2;
Manager or Proprietor (Store manager, executive, supervisor etc.) ___-3;
Laborer (Longshoreman, warehouseman, construction worker etc.) ___-4;
Operator (Deliveryman, factoryworker, driver, machineoperator etc.) ___-5;
Sales or Clerical (Secretary, bookkeeper, mailman, salesman etc.) ___6;
Professional or Technical (Engineer, Doctor, Teacher, Clergyman etc.) ___-7;
Housewife ___-8; Student ___-9; Other, specify: _____-0.

(16) 11. Which of the following statements best describes your grocery shopping:

Head of household decides alone ___-1;
Head of household and spouse decide together ___-2;
Spouse decides alone ___-3;
All members of the family decide together ___-4;
Other, please specify _____-5.

2.

(17) 12. Which of the following statements best describes your cosmetics and non-prescription drugs, shopping:

Head of household decides alone ___-1

Head of household and spouse decide together ___-2

Spouse decides alone ___-3

All family members decide together ___-4

Other, please specify _____-5.

PART 2.

13. Please give us your opinion of the following statements. How interested are you in the subjects listed below; Please circle the most appropriate number.

	Extremely Interested	Very Inter.	Quite Inter.	Rather Interes.	Hardly Inter.	Not Inte.
(18) Discussing your own affairs	-6	-5	-4	-3	-2	-1
(19) Food	-6	-5	-4	-3	-2	-1
(20) Health Care	-6	-5	-4	-3	-2	-1
(21) New Products	-6	-5	-4	-3	-2	-1
(22) Advertising	-6	-5	-4	-3	-2	-1
(23) Cooking	-6	-5	-4	-3	-2	-1
(24) Politics	-6	-5	-4	-3	-2	-1
(25) Clothing	-6	-5	-4	-3	-2	-1
(26) Children	-6	-5	-4	-3	-2	-1
(27) Other people's problems	-6	-5	-4	-3	-2	-1
(28) Privacy	-6	-5	-4	-3	-2	-1
(29) Community affairs	-6	-5	-4	-3	-2	-1
(30) Newspapers	-6	-5	-4	-3	-2	-1

14. The following statements describe activities in which people like to engage. Please circle the number under the phrase which best describes how enjoyable this activity is for you.

	Extremely Enjoyable	Very Enjoy.	Quite Enjoy.	Rather Enjoy.	Slightly Enjoyab.	Not Enj.
(31) Watching television	-6	-5	-4	-3	-2	-1
(32) Going to parties	-6	-5	-4	-3	-2	-1
(33) Bargain hunting	-6	-5	-4	-3	-2	-1
(34) Cleaning your house	-6	-5	-4	-3	-2	-1
(35) Work (on your job)	-6	-5	-4	-3	-2	-1
(36) Eating	-6	-5	-4	-3	-2	-1
(37) Taking a shower	-6	-5	-4	-3	-2	-1
(38) Wearing the latest fashion	-6	-5	-4	-3	-2	-1
(39) Drinking with friends	-6	-5	-4	-3	-2	-1
(40) Sports	-6	-5	-4	-3	-2	-1
(41) Do-it-yourself project	-6	-5	-4	-3	-2	-1

3.

35. Here are some statements used by various people to describe themselves. We would like to get your opinion as to how well each statement describes you. There are no right or wrong answers. Only your opinion counts. Circle the number which is under the heading closest to your opinion.

	Strongly Agree	Mainly Agree	Slightly Agree	Slightly Disagree	Mainly Disa.	Strongly Disagree
(42) I often worry that something I buy will turn out to be a mistake.	-6	-5	-4	-3	-2	-1
(43) I work very hard most of the time	-6	-5	-4	-3	-2	-1
(44) I am more independent than most people are.	-6	-5	-4	-3	-2	-1
(45) I think I have a lot of personal ability.	-6	-5	-4	-3	-2	-1
(46) It is not what you know but who you know that is important.	-6	-5	-4	-3	-2	-1
(47) Things are changing too fast.	-6	-5	-4	-3	-2	-1
(48) Nobody cares what I think.	-6	-5	-4	-3	-2	-1
(49) I am a homebody.	-6	-5	-4	-3	-2	-1
(50) I believe in taking action when I don't like something.	-6	-5	-4	-3	-2	-1
(51) My greatest achievements are still ahead.	-6	-5	-4	-3	-2	-1
(52) I put my family's welfare before my own.	-6	-5	-4	-3	-2	-1
(53) I wish I were younger than I am.	-6	-5	-4	-3	-2	-1
(54) If I had my life to live over, I'd sure do things differently.	-6	-5	-4	-3	-2	-1
(55) I hate to lose at anything.	-6	-5	-4	-3	-2	-1
(56) I like what I see when I look in the Mirror.	-6	-5	-4	-3	-2	-1
(57) The early morning is the best part of my day.	-6	-5	-4	-3	-2	-1
(58) I feel more energetic when clean.	-6	-5	-4	-3	-2	-1
(59) I smoke too much.	-6	-5	-4	-3	-2	-1
(60) I'll probably move once in the next 5 years.	-6	-5	-4	-3	-2	-1
(61) I wouldn't work if I didn't have to.	-6	-5	-4	-3	-2	-1
(62) I enjoy life more than my parents did.	-6	-5	-4	-3	-2	-1
(63) I get paid what I am worth.	-6	-5	-4	-3	-2	-1
(64) My major hobby is my family.	-6	-5	-4	-3	-2	-1
(65) I am a great person.	-6	-5	-4	-3	-2	-1

PART 3.

On the next page you will see a description of a product which is now selling in the Midwest. Some of you will also see a photograph of the product. Please read the description carefully. The questions following the product description will relate to the product described. Please answer all the questions, even if you feel that they may not be applicable to you.

4.

Please answer the following questions even if you do not think that you might be able to use the product yourself.

16. Based on the description you just read how would you rate ALEAVE® on the following characteristics: Circle number 1, if you think the product rates highly on that characteristic. Circle number 6 if you think the product rates poorly on that characteristic. Choose a number between 1 and 6, if you think such a number is appropriate.

	Excel-lent	Very Good	Good	Fair	Poor	Very Poor
(66) Cleansing	-1	-2	-3	-4	-5	-6
(67) Preventing itching	-1	-2	-3	-4	-5	-6
(68) Preventing discomfort	-1	-2	-3	-4	-5	-6
(69) Relieving itching	-1	-2	-3	-4	-5	-6
(70) Relieving discomfort	-1	-2	-3	-4	-5	-6
(71) Being soothing	-1	-2	-3	-4	-5	-6
(72) Being convenient to use	-1	-2	-3	-4	-5	-6
(73) Being economical to use	-1	-2	-3	-4	-5	-6
(74) Being comfortable to use	-1	-2	-3	-4	-5	-6
(75) Being messy to use	-1	-2	-3	-4	-5	-6

17. If you suffer from bathroom discomfort, or might suffer sometimes in the future, how likely would you be to buy ALEAVE® ?; Please check where appropriate:

Absolutely sure I would get it ____ (76)-1
Almost sure I would get it ___-2
Probably would get it ___-3
Might or might not get it ___-4
Probably would not get it ___-5
Almost sure I would not get it ___-6
Absolutely sure I would not get it ___-7

18. If you knew of someone who suffers from bathroom discomfort, how likely would you be to recommend ALEAVE® to him?; Please check where appropriate:

Absolutely sure I would recommend it ___ (77) -1
Almost sure I would recommend it ___-2
Probably would recommend it ___-3
Might or might not recommend it ___-4
Probably would not recommend it ___-5
Almost sure I would not recommend it ___-6
Absolutely sure I would not recommend it ___-7

5.

19. In the following question you will find the names of six products which are used by people who suffer from skin irritation, hemorroids or bathroom discomfort. We would like to know how similar, you feel, these six products are. They are listed for you two at a time. If you feel the two are identical, circle number 6. If you feel they are <u>not at all</u> similar, circle number 1. The less similar you feel they are, the lower the number you'd choose. The products are: NON-BRAND PETROLEUM JELLY, ALEAVE^{R}, PREPARATION-H., VASELINE PETROLEUM JELLY, IRISH SPRING SOAP, WIPE n DIPE. <u>Please answer each pair.</u>

	Not at all similar					Almost identical
(07) Aleave - Non Brand Petrol. Jelly	-1	-2	-3	-4	-5	-6
(08) Aleave - Preparation - H.	-1	-2	-3	-4	-5	-6
(09) Aleave - Vaseline Petroleum Jelly	-1	-2	-3	-4	-5	-6
(10) Aleave - Irish Spring Soap	-1	-2	-3	-4	-5	-6
(11) Aleave - Wipe n Dipe	-1	-2	-3	-4	-5	-6
(12) Preparation H - Non Brand Petrol. Jel.	-1	-2	-3	-4	-5	-6
(13) Preparation H - Vaseline Petroleum Jel.	-1	-2	-3	-4	-5	-6
(14) Preparation H - Irish Spring Soap	-1	-2	-3	-4	-5	-6
(15) Preparation H - Wipe n Dipe	-1	-2	-3	-4	-5	-6
(16) Vaseline Pet. Jelly - Non Brand Petroleum Jelly	-1	-2	-3	-4	-5	-6
(17) Vaseline Pet. Jelly - Irish Spring Soap	-1	-2	-3	-4	-5	-6
(18) Vaseline Pet. Jell. - Wipe n Dipe	-1	-2	-3	-4	-5	-6
(19) Irish Spring Soap - Non Brand Pet. Jel.	-1	-2	-3	-4	-5	-6
(20) Irish Spring Soap - Wipe n Dipe	-1	-2	-3	-4	-5	-6
(21) Wipe n Dipe - Non Brand Petrol. Jelly	-1	-2	-3	-4	-5	-6

20. Now, we'd like to know which of these six products you would use if you suffered from irritation, hemorroids or bathroom discomfort. Just put a 1 next to the product you would like to use most. Then put a 2 next to the product you next most prefer to use, and so on until you put the number 6 along side the product you would least prefer. Make sure each product ends up with a number.

Aleave _____ (22) -1
Irish Spring Soap _____-2
Non Brand Petroleum Jelly ___-3
Preparation H _____-4
Vaseline Petroleum Jelly _____-5
Wipe n Dipe _____-6

23 How would you rate ALEAVE overall:
ALEAVE is a great product ___ (23)-1
ALEAVE is just another product ___-2
ALEAVE should never be sold ___-3
I have no opinion ___-4

24. How much do you think a 3 Oz. bottle of ALEAVE^{F} lotion actually costs? Please write:
(24-26) Dollars ____.___ ___;

25. How much would you pay, at most, for a 3 Oz. bottle of ALEAVE^{R} ? Please write:
(27-29) Dollars ___ .___ ___;

26. The following questions are concerned with your feeling and opinion about ALEAVE^{F}, BASED on the description you saw; Please circle the number which is under the heading that describes your opinion best:

	Strongly Agree	Mainly Agree	Slightly Agree	Slightly Disagree	Mainly Disagr.	Strongly Disagree
(30) ALEAVE^{F} is worth every cent it costs - use the price you suggested.	-6	-5	-4	-3	-2	-1
(31) My spouse would object if I bought ALEAVE^{F}	-6	-5	-4	-3	-2	-1
(32) I really don't understand how ALEAVE^{F} is supposed to work	-6	-5	-4	-3	-2	-1
(33) ALEAVE^{F} offers an advantage over the way people now cleanse themselves	-6	-5	-4	-3	-2	-1
(34) I would have no difficulty telling my friend that I use ALEAVE	-6	-5	-4	-3	-2	-1
(35) I would be ashamed to keep ALEAVE on an open shelf in my bathroom	-6	-5	-4	-3	-2	-1
(36) ALEAVE is not a product for a person like me	-6	-5	-4	-3	-2	-1
(37) I need more information about ALEAVE before I'll decide whether to buy it	-6	-5	-4	-3	-2	-1
(38) The description I saw was provocative	-6	-5	-4	-3	-2	-1
(39) I'd rather buy a product like ALEAVE with a Doctor's prescription	-6	-5	-4	-3	-2	-1
(40) ALEAVE is a good idea	-6	-5	-4	-3	-2	-1
(41) ALEAVE signifies the moral deterioration of the American society	-6	-5	-4	-3	-2	-1
(42) ALEAVE cannot be discussed in public	-6	-5	-4	-3	-2	-1

PART 4

This section focuses on your opinions regarding advertising, personal care habits and some diet habits. Please circle the number which best describes your opinion:

	Strongly Agree	Mainly Agree	Slightly Agree	Slightly Disagree	Mainly Disag.	Strongly Disagree
(43) There is too much advertising around	-6	-5	-4	-3	-2	-1
(44) I try to ignore advertising	-6	-5	-4	-3	-2	-1
(45) Advertising leads to impulse buying	-6	-5	-4	-3	-2	-1
(46) Advertising has a bad effect on Children	-6	-5	-4	-3	-2	-1

	Strongly Agree	Mainly Agree	Slightly Agree	Slightly Disagree	Mainly Disagr	Strongly Disagree
(47) Newspapers would be dull without advertising	-6	-5	-4	-3	-2	-1
(48) I enjoy television advertising	-6	-5	-4	-3	-2	-1
(49) I pay little attention to printed ads	-6	-5	-4	-3	-2	-1
(50) I never bought a product because of an advertising I saw	-6	-5	-4	-3	-2	-1
(51) A balanced diet is very important	-6	-5	-4	-3	-2	-1
(52) Health is the most important thing in the world	-6	-5	-4	-3	-2	-1
(53) Overweight people have poor health	-6	-5	-4	-3	-2	-1
(54) Vitamines are important even if you eat a well-balanced diet	-6	-5	-4	-3	-2	-1
(55) I shower every day	-6	-5	-4	-3	-2	-1
(56) People should wash more often	-6	-5	-4	-3	-2	-1
(57) Our house is very clean	-6	-5	-4	-3	-2	-1
(58) I eat too much	-6	-5	-4	-3	-2	-1
(59) I work very hard to keep things clean	-6	-5	-4	-3	-2	-1
(60) I cannot stand pains	-6	-5	-4	-3	-2	-1
(61) I'd rather take painkillers than suffer	-6	-5	-4	-3	-2	-1

For the following list of discomforts, please indicate the ones from which you suffered or which bothered you in the last 6 months. If were bothered, please also indicate how often and whether you took any medication. Circle the appropriate number, under the headline which describes your case:

	Bothered:		How Often:				Medication:		
	Yes	No	Daily	Almost Daily	Weekly	Almost Weekly	Yes	No	Some times
(62) Headaches	-1	-2	(63)-1	-2	-3	-4	(64)-1	-2	-3
(65) Muscular aches	-1	-2	(66)-1	-2	-3	-4	(67)-1	-2	-3
(68) Dandruff	-1	-2	(69)-1	-2	-3	-4	(70)-1	-2	-3
(71) Piles or Hemorrhoids	-1	-2	(72)-1	-2	-3	-4	(73)-1	-2	-3
(74) Stomach Upsets	-1	-2	(75)-1	-2	-3	-4	(76)-1	-2	-3
(77) Rectal Itching or discomfort	-1	-2	(78)-1	-2	-3	-4	(79)-1	-2	-3

THANK YOU VERY MUCH FOR YOUR HELP AND COOPERATION. WE HOPE YOU FOUND THIS QUESTIONNAIRE INTERESTING.

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