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CONSUMER PREFERENCES AND PERCEPTIONS OF TERRY  
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The University of North Carolina at Greensboro,  
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CONSUMER PREFERENCES AND PERCEPTIONS OF  
TERRY TOWELS AS RELATED TO SELECTED  
DEMOGRAPHIC FACTORS

by

June Foster Mohler

A Dissertation Submitted to  
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The University of North Carolina at Greensboro  
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1975

Approved by

  
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APPROVAL PAGE

This dissertation has been approved by the following  
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MOHLER, JUNE FOSTER. Consumer Preferences and Perceptions of Terry Towels as Related to Selected Demographic Factors. (1975) Directed by: Dr. Pauline E. Keeney. Pp. 101.

This study investigated consumer perception and preference for selected terry towels under conditions of a simulated choice-making situation. A secondary consideration was the study of the relationships between consumer perception and preference for terry towels and selected demographic characteristics of the consumer population under study. Four different types of terry towels were selected as the variables to be used in generating consumer response to three instruments of measurement.

The research method used in collecting the data was a field survey of upper class adult female householders living in Greensboro, North Carolina. A random proportionate sample of 100 subjects was drawn, utilizing probability sampling techniques to compute sample size, confidence levels and population estimates. Interval, ordinal and nominal data were collected from the administration of: (1) the Semantic Differential Instrument, (2) the Rank-Order Preference Rating Instrument, and (3) the Demographic Information Form. A hypothetical choice-making situation was simulated through the use of word association and physical manipulation of the experimental towels in at-home type interviews conducted by the investigator and one trained assistant.

Interval data generated by the semantic differential instrument were statistically analyzed by computing D scores, which were tested for significance with the Mann-Whitney U Test, and t-tests of significance of mean semantic differential scores. Eleven of the 15 D scores

were found to be statistically significant at the  $\leq .05$  alpha level, and 45 of the 48 t-tests were statistically significant at the  $\leq .01$  level of confidence, confirming the hypothesis that consumers' perceptions of the product attributes of the selected terry towels were significantly different. Results of t-tests performed on the rank-order preference data indicated that the differences in first towel preferences were also statistically significant at the  $\leq .05$  confidence level. Chi-square and Spearman-Rho correlation tests yielded results indicating that the relationships between consumer perception and preference for towels and the demographic variables of age, income and educational levels were not statistically significant.

It was recommended that future research efforts be directed toward middle and lower social classes to study the possible relationships between demographic variables and consumer perception and preference of terry towels. It was also suggested that future research should focus on the choice-making behavior of male consumers to measure possible differences between their perceptions and preferences for terry towels and those of female consumers. The development of research in the general area of consumer decision-making in home furnishings textiles was recommended, as was cooperative research between educational and business communities.

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To Dr. McGehee, former Director of Personnel Research and Training of Fieldcrest Mills, Inc., the author is deeply indebted for his kind encouragement and critical assistance throughout the design and implementation of this study.

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## Chapter 1

### INTRODUCTION

This study was developed to investigate consumer perception and preference for terry towels as these factors relate to demographic characteristics. The recent (1972) introduction of a new type terry towel to the market place raised a number of questions concerning consumer preference for home furnishings products and, more particularly, the behavior underlying consumer decision-making.

Satisfying consumer tastes and preferences is thought by many economists to be the single most powerful underlying force of the American economy. Adam Smith called consumption ". . . the sole end and purpose of all production; the interest of the producer ought to be attended to, only for promoting that of the consumer."<sup>1</sup> Menger speculated that the value of every economic thing, including not only raw materials and manufactured goods, but also human services and skills, is dependent on the amount of utility it has for the consumer.<sup>2</sup>

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<sup>1</sup>Adam Smith, An Inquiry into the Nature and Causes of the Wealth of Nations, ed. Robert Maynard Hutchins, Great Books of the Western World, No. 39 (Chicago: Encyclopedia Britannica, 1952), p. 287.

<sup>2</sup>Carolyn Shaw Bell, Consumer Choice in the American Economy (New York: Random House, 1967), p. 128.

The unprecedented growth of the American economy in the twentieth century, with mass production of food, clothing, automobiles and a myriad of other consumer goods, has resulted in a vast array of products from which consumers can choose. How consumers spend their money has been the subject of extensive government research since 1934, when the first of numerous large-scale consumer surveys was conducted by the U.S. Bureau of the Census and the U.S. Department of Agriculture. These surveys have generated substantial demographic data relating to income expenditure patterns of consumers, but wide variation in consumer choice-making behavior has limited their use as predictors of specific consumer preferences.

In essence, the consumer must go to the market with his or her consumption choices, where these choices become consumption expenditures. Thus, consumer preference research has become primarily the domain of marketing management and the producers of consumer goods. Kollat and others pointed out that:

. . . The dramatic change that has occurred in demand-supply relationships during the last fifteen years [since 1955] has elevated the consumer to a position of unprecedented sovereignty and has forced business firms to design and sell products that better satisfy consumer desires. At no time in the history of our country have so many companies spent so much money attempting to determine what products should be produced and marketed. And, never before has the cost of making mistakes been so high. Looking ahead, it seems reasonable to predict that these trends will continue, probably at an increasing rate.<sup>3</sup>

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<sup>3</sup>David T. Kollat, Roger D. Blackwell, and James F. Engel, Research in Consumer Behavior (New York: Holt, Rinehart and Winston, 1970), p. v.

Many critics of the American marketing system do not concur with Kollat and others in his assessment of consumer 'sovereignty' in the market place. A notable example is Packard's study of advertising practices and their effects on consumer purchase behavior. Packard found that over two-thirds of the largest advertisers of American consumer goods were using marketing strategies based on concepts from mass psycho-analysis, leading him to conclude that consumers are adversely affected by such "manipulative" techniques.<sup>4</sup>

It is reported throughout marketing literature, however, that most major manufacturers of consumer products actively engage in consumer research, seeking to predict consumer acceptance or rejection of new products prior to costly market introductions. Rogers noted the substantial risk involved in the market introduction of new consumer products:

. . . marketing managers of firms in the United States have long been concerned with how to launch new products most efficiently. Their interest in this topic is sparked by the appearance of large numbers of new consumer products and by the high rate of failure of such products. For instance, it is estimated that only one idea out of every 540 results in a successful new product (Marting, 1964, p. 9). Further, only 8 percent of the approximately 6000 new consumer items introduced each year have a life expectancy of even one year.<sup>5</sup>

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<sup>4</sup>Vance Packard, The Hidden Persuaders (New York: David McKay, 1957), pp. 4-9.

<sup>5</sup>Everett M. Rogers, Communication of Innovation: A Cross-Cultural Approach (New York: The Free Press, 1971), p. 23.

Some scholars of marketing have placed the blame for this high rate of new product failure on the inefficiency of business firms.

McCarthy noted:

. . . the main reason for such failure [of new products] is poor management or just plain managerial inefficiency. One survey of 15,782 failures found that more than 90 percent were caused by incompetent or inexperienced management. Other surveys have obtained similar results.<sup>6</sup>

He found the situation improved, however, as better trained and more competent people entered the business community, concluding that:

. . . The efficiency of business and marketing would be increased greatly if more business managers understood and accepted the marketing concept--that the primary purpose of the whole business is to satisfy the consumer.<sup>7</sup>

The increasingly larger attention being paid to consumer interests and welfare is indicative of its growing importance in the eyes of education, industry and all levels of government. Howard and Sheth wrote:

. . . this public need is obviously not new. Such matters as antitrust and truthfulness of advertising have been significant for many years, but because of a number of social and technological factors, their nature and importance have changed.<sup>8</sup>

They suggested that researchers direct more of their efforts to field studies than to the laboratory because ". . . policy decision, public and private, must be based on buying behavior as it occurs in the complex field setting."<sup>9</sup>

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<sup>6</sup>Jerome McCarthy, Basic Marketing: A Managerial Approach (Homewood, Ill.: Richard D. Irwin, 1968), p. 654.

<sup>7</sup>Ibid.

<sup>8</sup>John A. Howard and Jagdish N. Sheth, The Theory of Buyer Behavior (New York: John Wiley & Sons, 1969), p. viii.

<sup>9</sup>Ibid.

Buchanan, in her study of choice-making behavior in the lower social classes, recommended that further research be conducted in ". . . the decision-making behavior of the middle and upper social classes in the purchasing of household textiles." Home furnishings industry executives, particularly those individuals in product research and development positions, are encouraging both individual textile researchers and textile trade associations ". . . to probe into the motivational structure of the American consumer to develop ways and means of determining consumer preferences before new products reach the market place."<sup>11</sup>

Numerous references to consumer preference research sponsored by private industry were found in the marketing literature, but the results and data from such research largely were unavailable in published form. Rogers commented on this situation:

. . . commercial companies have a vital stake in the diffusion of new products, and a great number of researches have undoubtedly been completed. However, a large proportion of the research reports are found in the secret files of the sponsoring companies because of the threat of competitive advantage.<sup>12</sup>

Thus it was concluded that increased understanding of consumer behavior in the market place would contribute both to improved marketing efficiency and consumer satisfaction.

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<sup>10</sup>Frances B. Buchanan, "Consumer Decision-Making in Purchasing Textiles for the Home" (unpublished PhD dissertation, University of North Carolina at Greensboro, 1970), p. 87.

<sup>11</sup>W. D. Cooper, An Introduction to the U.S. Textile Industry of the 70's (North Carolina State University: Department of Textiles Extension and Continuing Education, School of Textiles, 1972), p. 10.

<sup>12</sup>Rogers, op. cit., p. 68.



## STATEMENT OF THE PROBLEM

The purpose of this study was to investigate consumer perceptions and preferences. More specifically, the investigation focused on consumer perception of product attributes of selected terry towels, consumer preferences for selected terry towels under condition of a simulated choice-making situation, and the relationships that exist between these factors and consumer age, income, and educational levels.

The four types of terry towels selected for this study were: (1) 50 percent cotton, 35 percent rayon, 15 percent polyester, sheared, medium pile terry towel, (2) 100 percent cotton, unsheared, medium pile towel, (3) 100 percent cotton, sheared, medium pile terry towel, and (4) 100 percent cotton, unsheared, medium pile terry towel.

Demographic characteristics classified as independent variables were: (1) age, (2) income, and (3) educational levels.

The following hypotheses were tested at the .05 level of confidence:

Hypothesis 1. There will be significant differences among consumers in their preference rankings of selected terry towels.

Hypothesis 2. There will be significant differences among consumers in their perception of product attributes of selected terry towels.

Hypothesis 3. There will be significant relationships between consumers' preference rankings of selected terry towels and demographic variables of consumer age, educational and income levels.

Hypothesis 4. There will be significant relationships between consumers' perceptions of product attributes of selected terry towels and demographic variables of consumer age, educational and income levels.

## DEFINITIONS OF TERMS

The following definitions were used for purposes of clarity and understanding:

Consumer behavior. A subset of human behavior focusing on the consumption role.<sup>13</sup>

Connotative Meaning. Overtones or inferences of symbols; meanings that people attach to symbols.

Cue. A stimulus which directly or indirectly indicates the perceived nature of a response.

Decision-making Process. The series of steps used by consumers in making a consumption choice.

Denotative Meaning. The prescribed meaning of a symbol; e.g., "dictionary interpretation" of a word.

Mediating Response. A complex process whereby the consumer decodes and encodes stimuli from a semantic differential instrument; interpretation and expression.

Perception. The meaning of a stimulus to an individual.<sup>14</sup>

File. Fabric Surface produced from raised loops of yarn.

Product Attribute. Characteristics of a product such as texture, sheen, weight, thickness and absorbency.

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<sup>13</sup>Ward., op. cit., p. 6.

<sup>14</sup>Charles E. Osgood, George J. Suci, and Percy H. Tannebaum, The Measurement of Meaning (Urbana: University of Illinois Press, 1957), p. 291.

Product Concept. A major factor or dimension underlying the meaning of a product to an individual.<sup>15</sup>

Semantic Differential. A technique in which bi-polar adjective scales are used to measure the meaning of concepts.

Sheared Towel. A loop-pile terry cloth on which the loops on the face side of the fabric have been sheared, or cut off, to produce a velour-type surface.

Terry Towel. A textile product which is distinguished by a loop-pile construction on both sides. It is also known as "turkish toweling."

Unsheared Terry Towel. A textile fabric of loop-pile construction in which the loops on both sides are un-cut.

### Basic Assumptions

Basic assumptions underlying this study were:

1. The semantic differential instrument would measure adequately the product concepts and product attributes developed by a panel of textile specialists.

2. The product concepts and product attributes selected for the semantic differential instrument would be representative of consumer choice criteria for terry towels.

3. Responses of subjects to instruments and questionnaires would be representative of preferences and perceptions of the consumer population under study.

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<sup>15</sup> Ibid., p. 270.

### Data Collection and Analysis

The research method used in collecting the data for this study was a field survey of upper class adult female householders living in Greensboro, North Carolina. A random proportionate sample of 100 subjects was drawn, utilizing the 1970 U.S. Census Tracts for Greensboro and the 1973 Greensboro City Directory. Probability sampling techniques were used to compute sample size, confidence levels and population estimates.

Interval, ordinal and nominal data were collected from the administration of: (1) the Semantic Differential instrument, (2) the Rank-Order preference rating instrument, and (3) the Demographic Information form. Statistical tests of significance were performed on the data, yielding descriptive and inferential statistics.

## Chapter 2

### SELECTED REVIEW OF RELATED LITERATURE

There is a vast amount of literature dealing with the general subject area of consumer behavior, at times linking together the rich data from several of the behavioral sciences. This selection of literature deals with those aspects of consumer behavior germane to the primary objective of the study, the investigation of consumer preferences and perceptions of terry towels. In this respect, the following sequence was observed:

1. Theoretical basis of consumer behavior
  - A. Definition and locus of the field
  - B. Models of consumer behavior
2. Studies relating to psychological theory in consumer behavior
  - A. Attitudinal theory and measurement
  - B. Perceptual theory
3. Rationale for the utilization of the semantic differential technique
  - A. The development of the concept
  - B. Applying the semantic differential technique to consumer research
4. Related studies in perception and preference making
  - A. Government research
  - B. Home furnishings and textile studies
  - C. Business and industry sponsored product research

## THEORETICAL BASIS OF CONSUMER BEHAVIOR

### Definition and Locus of the Field

Consumer behavior is a relatively new phenomenon of academic inquiry only recently recognized as a dynamic influence in the economic system and worthy of scholarly research. Broad in scope, its root foundations lie in the social science disciplines of economics, psychology and sociology. Some academicians perceive the field more broadly to include anthropology, particularly in consumer studies with cross-cultural implications.<sup>1</sup>

Engel and others observed that

. . . it is noteworthy that scholars from many fields are focusing attention on the consumer . . . and there is less current disdain [now] in the social and behavioral sciences for research in the "real world."<sup>2</sup>

In defining the locus of consumer behavior Ward and Robinson interpreted the scope of inquiry from a consumption viewpoint:

. . . Consumer behavior is a subset of human behavior focusing on the consumption role, that is, the activities and conduct attendant with the positions of buyer and consumer and the relations between these positions. Thus the objective of consumer behavior as a field of inquiry is to understand, explain, and predict human actions in the consumption role, . . . consumer behavior is an extremely broad area of research, defined not by a formal, unified theoretical position, nor even by a set of coherent, unique concepts, but rather by the common interests of users and producers of consumer behavior research.<sup>3</sup>

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<sup>1</sup>Scott Ward and Thomas S. Robertson, Consumer Behavior: Theoretical Sources (Englewood Cliffs, N.J.: Prentice-Hall, 1973), p. 5.

<sup>2</sup>James F. Engel, David T. Kollat, and Roger D. Blackwell, Consumer Behavior (2d ed. New York: Holt, Rinehart and Winston, 1973), p. 54.

<sup>3</sup>Ward and Robinson, op. cit., p. 41.

Early concepts of consumer behavior centered principally on the purchasing act, while modern-day theories advance the idea of decision-processing. Decision-process approach, as theorized by both Engel<sup>4</sup> and Rogers,<sup>5</sup> consists of five stages of behavior: (1) problem recognition, (2) external search for information, (3) alternative evaluation, (4) purchasing process, and (5) post-purchase evaluation. This study focuses on the alternative evaluative stage of the process, drawing principally from social psychology theory as it relates to the consumer decision-making process.

#### Models of Consumer Behavior

There is a surprising paucity of formal, theoretical models, as noted by Engel and others, the first model being developed by Howard in 1963.<sup>6</sup> Using learning theory as its basis, the model introduced the concept of interdisciplinary research in the analysis of buying behavior.

Howard and Sheth collaborated on a refinement of the Howard model to produce an integrative theory described by Engel and others as:

. . . a notable advance toward the development of theory in this important area of marketing thought . . . most scholars are unanimous in their assessment that the study of consumer motivation and behavior was advanced by publication of the Howard-Sheth model.<sup>7</sup>

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<sup>4</sup>Engel (and others), op. cit., p. 79.

<sup>5</sup>Everett M. Rogers, Communication of Innovation: A Cross-Cultural Approach (New York: The Free Press, 1971), p. 67.

<sup>6</sup>Engel (and others), op. cit., p. 130.

<sup>7</sup>Ward and Robinson, op. cit., p. 12.

The essence of the Howard-Sheth model is the manner in which input and output variables are linked together. The model specifies in detail the operations of stimuli, an element largely ignored by behaviorists prior to that time. The authors define stimuli as ". . . mainly the sum of all social influences and of the marketing effort to which the buyer is exposed."<sup>8</sup> They classify stimuli as: (1) significant stimuli, (2) symbolic stimuli, and (3) social stimuli.

"Significant stimuli" can be thought of as stimuli generated from the physical world, such as the effect of noticing an object in the physical environment, as when a consumer notes a particular product feature while shopping. "Symbolic stimuli" refers to the symbols of language, both written and oral, such as pictorial representations and product names. "Social stimuli" emanate from the outside influences of family, social class, and reference groups.

Howard and Sheth recognized the complexity and interactions of these input variables in classifying them more generally as "stimulus display." Although this classification is not an exhaustive one, it does identify certain things which are external to the buyer and which serve to activate the sensory processes.

In contrast to these external stimuli are the cognitive processes, or internal stimuli, such as a buyer's attitudes and motives, which result from external physical stimuli. The logic for developing this complex theory of stimuli was to produce a single multidimensional variable,

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<sup>8</sup>John A. Howard and Jagdish N. Sheth, The Theory of Buyer Behavior (New York: John Wiley & Sons, 1969), p. 63.



"stimulus display," which considerably simplified the statistical manipulation of the large numbers of variables used by Howard and Sheth.

In analyzing the Howard-Sheth model, Egeth concluded that this model implies that buyers are selective in their attention to environmental factors and that there are ". . . mechanisms which enable organisms to respond selectively to important features of their environments while ignoring features which are of little or no importance."<sup>9</sup>

An empirical analysis of the Howard-Sheth model by Farley and Ring tested relationships between 11 different endogenous variables (intervening variables) and 16 exogenous variables (those variables which describe the conditions under which behavior occurs).<sup>10</sup> Although this analysis suggested that the Howard and Sheth model required refinement, Farley and Ring concluded that ". . . the implied relationships in the model provide some rules by which inferences may be derived and relationships subjected to empirical test."<sup>11</sup>

Nicosia, another of the early model builders, utilized a computer flow-chart technique to indicate the consumer decision-making process. It is noteworthy that, like the Howard and Sheth model, this model draws from many theories to form a comprehensive, integrated model of consumer

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<sup>9</sup>Howard Egeth, "Selective Attention," Psychological Bulletin, Vol. 67, January, 1967, p. 41.

<sup>10</sup>J. U. Farley and L. W. Ring, "An Empirical Test of the Howard-Sheth Model of Buyer Behavior," Journal of Marketing Research, 7, November, 1970, 430.

<sup>11</sup>Farley and Ring, op. cit., p. 436.

behavior. A substantial number of research findings from several areas of the behavioral sciences were brought together in this model, relating research in motivation, attitudes and perceptions.

In critiquing the methodology and structure of the Nicosia model, Ehrenberg commented on ". . . the long listings of variables that might possibly enter into such a model with little, if any, explicit treatment of how they are interrelated."<sup>12</sup> Ehrenberg was particularly concerned with the lack of empirical evidence to support the theory of the Nicosia model, implying that the model's conceptual basis was empirically weak.

This criticism appeared to be an isolated one, as the literature indicated that most scholars assess both the Howard and Sheth and Nicosia models as important contributions in advancing research in consumer behavior methodology.<sup>13</sup>

McNeal proposed a highly simplified model of consumer behavior taken from Maslow's hierarchical theory of behavior which suggests that man orders his needs in an order of decreasing importance. McNeal postulated that

. . . needs occur in two forms: defined and undefined. . . . These needs create some degree of tension, are considered in the state of cognition in the sense they are immediately recognized, and direct us to some action that will give us satisfaction.<sup>14</sup>

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<sup>12</sup>Francesco Nicosia, Consumer Decision Processes (Englewood Cliffs, N. J.: Prentice-Hall, 1966), chs. 6-7.

<sup>13</sup>A.S.C. Ehrenberg, "A Book Review of Consumer Decision-Processes by Francesco M. Nicosia," Journal of Marketing, 5, August, 1968, 334.

<sup>14</sup>J. U. McNeal, An Introduction to Consumer Behavior, (New York: John Wiley & Sons, 1973).

It is interesting to note that McNeal's conceptual approach is essentially in agreement with both the earlier Howard and the Howard-Sheth models.

McNeal's model describes the consumer decision-making cycle as starting with needs, either from an event or from some other environmental influence. Needs, in turn, create the tension state in which consumers cognitively attempt to remove the source of tension. This is an evaluative, thinking, perceiving state in which the individual attempts to sort out the various input data necessary to make a selection, and finally, acting on that decision. The circle is completed with the removal of the tension state, assuming the action has brought satisfaction to the consumer.

#### The Role of Perception in Consumer Research

Early consumer research in perception was influenced primarily by the German school of clinical psychiatry, where such theories as "autistic thinking," "defense mechanism" and "perceptual distortion" had been popularized as a result of Freud's clinical findings. An example was the 1942 study by Levine, Chein and Murphy in which food associations of subjects under varying conditions of hunger were compared. Bruner commented on this early study:

. . . the authors attempted to explain the findings in terms of the pleasure principle operating under conditions of mild drive, being supplanted by the reality principle when hunger became severe. Like many pioneering experiments, there was much wrong with the design of this study--the kind of associational response employed, the fact that the subjects knew they would be fed after the requisite number of hours of being without food, etc. But it stimulated many

follow-up studies. We now know that the results of Levine, Chein, and Murphy are a special case of a more general one whose nature is not yet clear.<sup>15</sup>

Bruner conducted several such follow-up studies in perception in an effort to determine those behavioral influences, such as needs, values, attitudes, cultural background and stress, that relate to the organization of perceptual processes. In 1948 he developed a "perceptual defense" experiment with Postman and McGinnies, in which the Allport-Vernon scale of values was used to measure subject value orientation, in turn relating the speed and ease of word recognition to subject value structure. It was found that the greater the dominance of a value held by a subject, the more rapidly he was likely to recognize a word from that particular value area.<sup>16</sup> Later individual studies by the three authors led to the development of a concept of "perceptual defense," defined by Bruner as ". . . a kind of blocking of recognition for classes of materials that were personally and/or culturally unacceptable to the perceiver."<sup>17</sup>

In an experiment on perceptual identification Bruner again collaborated, this time with Miller and Zimmerman, finding that a subject's ability to recognize a word was significantly better if it came from a small group of four words, as opposed to larger groups of eight, sixteen, and thirty-two words. Their results suggested that erroneous perception

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<sup>15</sup>J. S. Bruner, Readings in Social Psychology, 3rd. ed., (New York: Holt, Rinehart and Winston, 1958), p. 87.

<sup>16</sup>L. Postman, J. S. Bruner, and E. McGinnies, "Personal Values as Selective Factors in Perception," Journal of Abnormal Psychology, XXCI, 1948, 148.

<sup>17</sup>Bruner, op. cit., p. 90.

is increased under conditions of stress, and to increase speed of perception it is probable that alternatives should be limited to fewer rather than greater choices.

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Bruner and Goodman experimented with the concept of perception of magnitude, as did both McCurdy and Tajfel, and they similarly observed that subjects reflected their social and economic environment as well as their value orientation in perceiving the physical magnitude of various objects.

19

Early experiments in social psychology also showed that the past experiences of individuals are determinants of perceptual discrimination, as demonstrated by Helson, whose subjects made sensory judgments concerning the perceived weights of discs. Subjects who had judged weights as "heavy" or "light" changed their evaluations of perceived weight when the same weights were differed as to shape and color. Helson theorized that this phenomenon of discrimination is accurate only within the individual's customary frame of reference.

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McNeal related Helson's theory of learned attitudes to consumption practices, noting that attitudes are predispositions or beliefs learned in early childhood. In American society, he explained, children

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<sup>18</sup>J. S. Bruner, G. A. Miller, and C. Zimmerman, "Discriminative Skill and Discriminative Matching in Perceptual Recognition," Journal of Experimental Psychology, 1955, XLIX, 187-192.

<sup>19</sup>Kollat, op. cit., p. 57.

<sup>20</sup>H. Helson and F. H. Rohles, Jr., "A Quantitative Study of Reversal of Classical Lightness-Contrast," American Journal of Psychology, Vol. 72, December, 1959, pp. 530-538.

are taught the fundamentals of consumption at an early age, typically making their first purchase at age five. How a consumer behaves as an adult, he postulated, may have been determined by these childhood experiences in consumer-related consumption practices.<sup>21</sup>

Howard and Sheth anchored attitude theory to the law of expectancy in advancing a multivariate technique for the measurement of consumer decision-making, explaining:

The buyer has a set of evaluative beliefs (or attitudes) with the resultant effect toward a specific brand because of his expectations about it as a goal-object. The law of expectancy has been found to include (a) Miller's conflict theory . . . (b) Hull's (deductive) theory . . . and its ultimate refinement by Osgood . . . to connect up with the idealistic construct of attitude toward a brand and thus bringing behaviorism and cognitive psychology into close contact.<sup>22</sup>

Perceptual ambiguity has been explored by researchers in an attempt to explain its sensory or semantic affect upon a buyer's attitude toward denotative or connotative attributes of a brand. It has been shown that perceptual bias does occur and that it can affect a buyer's response by altering sensory cues associated with a specific product. Bruner and others found that subjects matched objects with perceived appropriate colors, although in actuality the selected colors deviated considerably from the true color values of the experimental shapes.<sup>23</sup>

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<sup>21</sup>James F. McNeal, An Introduction to Consumer Behavior, (New York: John Wiley and Sons, 1973), p. 69.

<sup>22</sup>Howard and Sheth, op. cit., p. 9.

<sup>23</sup>Ibid., p. 177.

Stagner related the cues received by the sensory organs to the perceived quality of vision, noting:

. . . if, like superman, we had sense organs which were sensitive to x-rays, we would undoubtedly perceive external reality in a very different fashion. . . . Sensory deficiencies, on the other hand, differ materially from person to person and may under certain conditions give rise to conflict situations. One can imagine that a color-blind traffic policeman might create considerable trouble.<sup>24</sup>

Howard and Sheth concluded that the interactions that operate between attitude and perceptual mechanisms can ". . . be used to explain a number of things we see happening in marketing, . . . and the enormous complications involved in evaluating advertising under field conditions."<sup>25</sup>

#### RATIONALE FOR THE UTILIZATION OF THE SEMANTIC DIFFERENTIAL TECHNIQUE

##### The Development of the Concept

Osgood developed the semantic differential technique in 1957 in collaboration with Suci and Tannenbaum at the University of Illinois, as part of a study in experimental semantics. The focus of this research was the development of a method for the measurement of "meaning," and more precisely, "semantic meaning." Osgood defines "semantic meaning" from the psychologist's viewpoint as "the relation of signs to their significates."<sup>26</sup> The measurement theory advanced by him postulates a

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<sup>24</sup>Ross Stagner, Psychology of Industrial Conflict (New York: John Wiley & Sons, 1956), p. 21.

<sup>25</sup>Howard and Sheth, op. cit., p. 179.

<sup>26</sup>Osgood and others, op. cit., p. 3.

relationship of the ". . . organism's meaning of a sign, or the representational mediation process, with a point in multidimensional space."<sup>27</sup>

Taken from the theory of learning, it essentially explains a person's capacity for decoding meaningless stimuli into meaningful signs by a mediating process. Osgood identifies this cognitive state as "meaning," dividing it into two stages of development; (1) decoding, or the association of signs with mediators (or interpretation), and (2) encoding, or the association of these mediated responses with overt sequences (such as "expression of ideas").

Most of the signs which we use in everyday communication have meanings assigned to them via ". . . association with other signs rather than via direct association with the objects signified."<sup>28</sup> Osgood explains:

. . . given the essential sameness of human organisms and the stability of physical laws, of course, the meanings of most primary perceptual signs should be quite constant across individuals. Given stability of learning experiences within a particular culture, also, meanings of most common verbal signs will be highly similar (e.g., the adjective sweet will be heard and used in much the same types of total situations regardless of the individual in our culture). On the other hand, the meanings of many signs will reflect the idiosyncrasies of individual experience, as for example, the meanings of FATHER, MOTHER, and ME for individuals growing up in "healthy" vs. "unhealthy" home environments.<sup>29</sup>

Osgood applied a linguistic definition to the meaning of a sign to make it operationally measurable, defining it as ". . . that point in the semantic space specified by a series of differentiating judgments."<sup>30</sup>

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<sup>27</sup>Ibid., p. 30.

<sup>28</sup>Ibid., p. 8.

<sup>29</sup>Ibid., p. 9.

<sup>30</sup>Ibid., p. 26.



That point in space is labeled the semantic space, and is assumed to be Euclidian in character, and of unknown dimension. Osgood developed, through a factor analysis, the original semantic measure via the use of semantic scales. The semantic scales, defined as pairs of bi-polar adjectives, represent a multidimensional space when combined. Summarizing this theoretical analysis, Osgood noted:

The location of a concept in the semantic space defined by a set of factors is equated with the evocation by the concept of a set of component mediating reactions, direction in space being equated to what mediators are evoked (from among reciprocally antagonistic pairs) and distance from the origin being equated to how intensely (with what habit strength) these are evoked. Each position on one of our semantic scales is also assumed to be associated with a complex mediating reaction. . . . Since the positions checked on the scales constitute the coordinates of the concept's location in semantic space, we assume that the coordinates in the measurement space are functionally equivalent with the components of the representational mediation process associated with this concept.<sup>31</sup>

This complex analysis demonstrated a direct relationship with well established learning theory, and confirmed the selection of the semantic differential as an appropriate hypothesis testing technique.

Osgood developed the semantic differential as a technique for the measurement of the connotative meanings of "concepts" in a "semantic space." Since this technique was first advanced by Osgood it has been empirically tested by literally hundreds of investigators. Williams noted:

. . . the influence of Osgood's theory and method upon modern psychology has been remarkable. The impact of his work has been felt all the way from the ivory towers of pure experimental psychology, to the consulting rooms of clinical psychology and the sweatshops of consumer psychology.<sup>32</sup>

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<sup>31</sup>Ibid., pp. 29-30.

<sup>32</sup>John E. Williams, rev. of James G. Snider and Charles E. Osgood, Semantic Differential Technique: A Sourcebook (Aldine), The Seventh Mental Health Measurements Yearbook, pp. 1807-1808.

In commenting on the research potential of the semantic differential Kerlinger noted:

. . . the response to the semantic differential, especially from psychologists, has been enthusiastic, . . . the simplicity of the SD and its ease of use are appealing, . . . and it can be applied to a variety of research problems. It has been shown to be sufficiently reliable and valid for many research purposes.<sup>33</sup>

In an experiment involving attitudinal change, Tannenbaum found the semantic differential to be a reliable method of measuring difference scores, with statistical significance shown by statistical analyses.<sup>34</sup>

In explaining the importance of culture in the understanding of buyer behavior, Howard and Sheth noted:

. . . one way to think about culture is to ask whether people in different cultures would use the same set of attributes to evaluate a brand, the empirical counterpart of Choice Criteria. Osgood has presented considerable evidence that the adjectival scales used to describe a concept, such as the dimensions of preference space for a given brand, are very similar across cultures, whereas the evaluations of a concept differ markedly.<sup>35</sup>

The value of the semantic differential in consumer product research lies in its ability to get at connotative judgments otherwise difficult to obtain, Osgood explained:

. . . the instrument may be used to determine how close the profile of judgment for a particular brand of beer, say, approximates that for the concept IDEAL BEER in comparison with other competing brands. As one pilot study showed, the instrument was able to differentiate between different brands of beer tasted blindly by subjects, according

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<sup>33</sup>Fred H. Kerlinger, Foundations of Behavioral Research, (2d ed.; New York: Holt, Rinehart and Winston, 1973), p. 579.

<sup>34</sup>p. Tannenbaum, "Mediated Generalization of Attitude Change Via the Principle of Congruity," Journal of Personality and Social Psychology, III (1966), 493-499.

<sup>35</sup>Howard and Sheth, op. cit., p. 229.

to their smoothness, mellowness, and so on—all richly connotative terms.<sup>36</sup>

In recommending the semantic differential technique as a measure of aesthetic concepts Osgood commented:

. . . The field of experimental aesthetics begs for quantitative studies with an instrument like the differential, development of tests of aesthetic appreciation and communication, to name only a few. . . . In psycholinguistics, the semantic differential finds its place in the tool bin quite naturally, for it is at base a psycholinguistic instrument.<sup>37</sup>

#### RELATED STUDIES IN PERCEPTION AND

#### PREFERENCE MAKING

##### Government Research

The Federal Government first sponsored consumer surveys in the 1930's in an effort to assess consumer purchasing power during a period of economic depression in the United States. It was determined that a knowledge of consumer consumption practices and needs was necessary for the development of government programs that would encourage more effective use of the nation's productive resources.

Under the general direction of the National Resources Committee, data concerning the rural population of the nation were collected through the Bureau of Home Economics, starting in 1934 with the first Consumer Purchases Study. These surveys generated considerable data on consumer expenditure patterns, income distribution and factors affecting consumption of families living on farms, in villages and small cities. Combined

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<sup>36</sup>Osgood and others, op. cit., p. 317.

<sup>37</sup>Ibid., p. 330.

with urban data from studies of large city populations by the Bureau of Labor Statistics, they provided massive amounts of statistical information which has been widely used and cited in economic and social welfare literature. Clark wrote of the surveys:

. . . [they] provided the basis for appraisals of income distribution and consumption patterns that had not been possible before. For example, one finding that led to the enrichment of white bread and flour stimulated programs of nutrition education and research, and helped to demonstrate the need for the national school lunch program. . . . Agricultural economists formulated estimates of consumer demand . . . Businessmen used the statistics on consumption expenditures in their study of markets. Finally, the wealth of statistics made available from the Consumer Purchases Study stimulated research on consumption throughout the country, especially in the universities.<sup>38</sup>

National consumer studies later became the domain of the Bureau of the Census and the Department of Agriculture's Economic Research Service, although consumer research is also conducted by the Federal Trade Commission, the Food and Drug Administration along with other federal government agencies. Of particular interest in this study was the consumer research conducted by the Market Research Section of the Sample Survey Research Branch, United States Department of Agriculture (USDA), transferred in 1973 to the USDA's Economic Research Service. (ERS)

In 1971 a nationwide survey was conducted by the ERS concerning man's attitudes toward cotton and other fibers used in clothing items, generating data from 2,001 interviews of males between the ages of 18 and 65. The findings indicated that:

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<sup>38</sup>Faith Clark, "Day Monroe: A Brief Profile," Home Economics Research Journal, Vol. 3, No. 1, September 1974, p. 65.

. . . compared with 100 percent synthetic fiber, 100 percent cotton fiber was more likely to be associated favorably with comfort on the skin and moisture absorption and less likely to be associated favorably with wrinkle resistance and need for ironing. . . . [but] misconceptions about fibers, permanent press finish, and knit or woven construction were also uncovered.<sup>39</sup>

Respondents generally indicated in this ERS study that style and color were more important than any other of the selected features of price, finish of fabric, fiber content, fabric construction, and brand name. In rating the relative importance of fiber qualities, the four characteristics which received the highest mean ratings were: "(1) keeps its shape, (2) does not discolor or fade, (3) feels comfortable on the skin, and (4) does not wrinkle easily."<sup>40</sup> Respondents were asked to rate the importance of fabric qualities, using bi-polar descriptive phrases on a five-point scale. The findings indicated that fewer than 14 percent of the subjects selected a neutral scale position of three, confirming the results of earlier investigations which had utilized five-point intervals for bi-polar scaling.

The ERS also conducted in 1974 a study of mothers' attitudes toward cotton and other fibers in children's clothing. The findings were based on 2,161 personal interviews from a probability sample of mothers with children under age 14. Respondents were asked to select bi-polar phrases that best described their opinions about the four fibers; all cotton,

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<sup>39</sup>Evelyn F. Kaitz, Men's Attitudes Toward Cotton and Other Fibers in Selected Clothing Fibers (Washington, D.C.: U. S. Department of Agriculture, Economic Research Service, Consumer Surveys, National Economic Analysis Division, July, 1974), p. 11.

<sup>40</sup>Ibid., p. 77.

all polyester, all nylon, and a blend of cotton and polyester. This technique of perceptive questioning was thought to provide ". . . further insight into factors that might influence a mother's selection of garments made of these fibers."<sup>41</sup> It was reported in this ERS study that:

. . . a blend of cotton and polyester and all polyester were perceived somewhat similarly by mothers. More than half selected none of the same positive characteristics as attributes of these fibers. On the other hand, all nylon and all cotton were cited by comparable proportions on less than five of the positive characteristics to a blend of cotton and polyester or all polyester. However, both all cotton and all nylon had a negative connotation to the mothers.<sup>42</sup>

From 1946 to 1959 the Federal Reserve Board sponsored annual surveys of consumer expectations, buying intentions, and attitudes, known as the Survey of Consumer Finances (SCF) under the auspices of the Survey Research Center (SRC) at the University of Michigan. The information derived from these surveys was intended to be used as predictors of consumer buying behavior and was obtained through open-ended interviews with approximately 3,000 household spending units. These surveys subsequently were privately financed and evolved into quarterly reports from the SRC published under the name of The Index of Consumer Sentiment. These surveys are also reported in the U.S. Department of Commerce Report, Business Condition Digest. A 1955 report on the effectiveness of these SRC surveys concluded:

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<sup>41</sup>Yvonne Clayton, Mothers' Attitudes Toward Cotton and Other Fibers in Children's Clothing (Washington, D.C.: U.S. Department of Agriculture, Economic Research Service, Consumer Surveys, National Economic Analysis Division, July, 1974), p. 11.

<sup>42</sup>Ibid.

. . . year-to-year changes in proportions of the Survey respondents with favorable expectations, intentions and attitudes seem to have been useful in predicting the general strength of consumer demand . . . data suggest that buying intentions are useful but by no means perfect predictors of the subsequent buying behavior of individuals . . . it has not yet been proved that expectations and attitudes, other than buying intentions, add to the predictive value of survey data.<sup>43</sup>

This report led to the decision in 1959 of the Federal Reserve Board and the Bureau of the Census to develop jointly Quarterly Surveys of Consumer Buying Intentions (QSI) for the purpose of obtaining consumer buying plan. Due to the same difficulties encountered with the earlier SCF studies, notably the failure of the QSI to identify future buyers in any significant respect, a probability technique of sampling known as the Survey of Consumer Buying Expectation (CBE) was introduced in 1966. By 1973 it was determined that the CBE also was of questionable predictive use, the report from the Census Bureau concluding:

. . . [that] none of the CBE series on expected car purchases was a satisfactory lead indicator. . . a major reason for the considerable amount of skepticism that had surrounded efforts to measure consumer buying plans was the often documented finding that households with no plans to buy accounted for a very large share of subsequent purchases.<sup>44</sup>

As a result of these findings, the Census Bureau conducted a final CBE survey in April 1973, noting the discontinuance of the surveys obviated ". . . when it became apparent that aggregate purchase plans were not a good predictor of aggregate purchase behavior."<sup>45</sup>

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<sup>43</sup> John McNeil, "Federal Programs to Measure Consumer Purchase Expectations, 1946-1973: A Post-Mortem," Journal of Consumer Research, Vol. 1, No. 3, December, 1974, p. 2.

<sup>44</sup> Ibid., pp. 5-8.

<sup>45</sup> Ibid., p. 9.

In commenting on the demise of such Federal government programs, Adams noted:

. . . it was naive to believe that broad summary measure of consumer anticipation would make a systematic contribution to predicting consumer spending. . . . the decision processes which go into consumer purchases are complex. . . . Fortunately, work which will ultimately unravel the complex processes of consumer decision making is being continued at various research centers.<sup>46</sup>

One such notable source of consumer research is the Survey Research Center (SRC) of the University of Michigan, who continues to issue quarterly reports on consumer buying plans. This Center's research technique differs from the aforementioned government surveys in that clusters of attitudinal measures are used as predictive variables. These SRC reports are regularly published by the major news media and are widely utilized by business organizations as indicators of consumer buying confidence.

#### Home Furnishings and Textile Related Studies

Consumer studies in the areas of textiles and home furnishings are limited primarily to those of laboratory-type investigations featuring fabric and product performance analyses. Such experiments were thought to be irrelevant to the basic objective of this study. A single exception to this decision rule was the laboratory study of terry cloth bath towels conducted by Morrison, who investigated the

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<sup>46</sup>F. Gerard Adams, "Commentaries on McNeil, Federal Programs to Measure Consumer Purchase Expectations," Journal of Consumer Research, Vol. 1, No. 3, December, 1974, pp. 11-12.



absorbency qualities of two types of terry towels as part of a survey<sup>47</sup> to determine consumer preferences for fabric softeners.

Morrison used Chi-Square tests in comparing towel preferences with demographic variables of marital status, age, educational level, and family income. Sheared towels (described by the author as "velour" bath towels) were owned by 50 percent of the respondents, and of these, she noted,

. . . 52 percent rated velour towels as not very absorbent. All of the respondents owned terry cloth towels [unsheared towels] and 70 percent of these rated terry cloth as very absorbent. . . . Velour towels were preferred for aesthetic value, but the overall preference was for the terry cloth towels. . . . The results revealed that terry cloth was superior to velour in absorbency.<sup>48</sup>

Comparative analyses also indicated that there were no significant differences between towel preferences and demographic factors.

In 1962 Compton developed the Compton Fabric Preference Test [CFPT] in a study of the relationships between color and design preferences and selected personality and physical characteristics. Her subjects, 145 female college students, made paired-comparison choices between fabrics of different color hue, color value, and design scale. The findings pointed to significant differences between personality scores and certain color and design preference groups, whereas color and design variables were found to be independent of the physical characteristics of subjects.<sup>49</sup>

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<sup>47</sup>Janice A. Eide Morrison, "Laboratory Investigation and Consumer Opinionnaire of Velour and Terry Cloth Bath Towels" (unpublished Master's thesis, California State University, Northridge, 1972), p. 1.

<sup>48</sup>Ibid., pp. 42-46.

<sup>49</sup>Norma H. Compton, "Personal Attributes of Color and Design Preferences in Clothing Fabrics," Journal of Psychology, Vol. 54, 1962, pp. 191-195.

In subsequent replications the CFPT test was administered to additional female college student groups, high school students and various groups of adult females, including mental hospital patients.

Compton suggested possible uses of the test:

. . . the CFPT is designed primarily for girls enrolled in junior high, high school and college and for girls and women participating in Cooperative Extension Service programs. It can also be used advantageously with juvenile delinquents and psychotic patients. Results of reliability and validity studies, and a more detailed description of the development of the CFPT are being prepared for presentation in professional journals.<sup>50</sup>

Sailor utilized the CFPT in an investigation of the relationships between fabric preferences and personality dimensions of mentally retarded teen-agers, concluding that

. . . findings suggest promise for the CFPT variables in describing clothing fabric preferences. In its current form the test would seem best suited to older students in normal populations because of its method of administration. . . . further analysis and enlarged studies of this nature could prove helpful when attempting evaluations of clothing behavior.<sup>51</sup>

Reviewing the CFPT in Mental Measurements Yearbook, Clendenen evaluated the test as

. . . the manual (CFPT) is inadequate in its presentation of statistical data and . . . some data need amplification. Much more detailed and complete information should be collected and presented in the manual before the test is a truly useful tool in research. It is still in the experimental stage with respect to the hope that it will be of value in understanding the "perceptual dynamics" involved in color, design, and texture preferences in clothing fabrics.<sup>52</sup>

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<sup>50</sup>Norma H. Compton, Compton Fabric Preference Test Manual. Special Report No. 19, Utah State University Agricultural Experiment Station, August, 1965, p. 3.

<sup>51</sup>Patricia J. Sailor, "Color and Design Preferences," Journal of Home Economics, Vol. 59, No. 8, October, 1967, p. 663.

<sup>52</sup>C. Clendenen, Mental Measurement Yearbook, ed. Oscar Krisen Buros (Highland Park, N.J.: Gryphon Press, 7th ed., 1972) pp. 619-20.

Since the evidence suggests that the CFPT is appropriate primarily for clothing fabric preference studies, it was rejected for possible use in this study of home furnishings fabric preference.

Shannon reported the difficulties encountered in observing the affect of hand in consumer choice-making decisions in an investigation of factors influencing cotton apparel fabric purchases.<sup>53</sup> Post-purchase interviews were conducted with 34 consumers approximately a year after the purchase date, eliciting information regarding satisfaction with the purchased fabric. Results indicated that sensory satisfaction was ranked first as the most important consideration in purchasing fabrics, while fabric reaction in use and maintenance of original condition were ranked second and third respectively. Shannon commented:

. . . because of the method of the study, it was not possible to observe the extent to which the consumer utilized the qualities of hand in her choice of these fabrics . . . however, the investigator was conscious that it was considered in the choice of many fabrics (from in-store observations). . . . the consumer did not indicate that the price of the fabric was of primary importance. . . . qualities which contribute to sensory satisfaction . . . were the most influential in the selection of cotton piece goods in these stores.<sup>54</sup>

Jordan's study also was concerned with the elements of texture and color in apparel fabrics. Utilizing tactual and visual texture preference tests, she concluded that tactual and visual responses to

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<sup>53</sup>Lucy Elizabeth Shannon, "Consumer Satisfaction with Cotton Fabrics in Relation to Selected Physical Characteristics," (unpublished PhD dissertation, Florida State University, 1961), pp. 1-18.

<sup>54</sup>Ibid., p. 42.

texture preferences are not separable, and they must be considered as  
<sup>55</sup>  
 a single dimension of preference.

In a study of college students' apparel fabric preferences Caddell found significant relationships between texture preferences and student social status. Students in upper socio-economic classifications selected fabric first by texture, while those in lower socio-economic classes were more likely to select fabrics according to  
<sup>56</sup>  
 individual figure-types.

King found significantly higher ratings for rough and smooth texture preferences in a study concerned with the relationships between texture and color preferences and personality characteristics. The author recommended that ". . . further studies should be conducted to determine similarities and differences in fabric preferences of  
<sup>57</sup>  
 persons of different socio-economic levels."

Several studies were reported as part of a large householder survey undertaken at Iowa State University to determine household textile consumption practices. An exploratory report by Smith provided

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<sup>55</sup>Karen B. Jordan, "A Study of Fabric Perception: Preliminary Work for the Development of a Conceptual Framework for Responses to Texture and Color," (unpublished Master's thesis, Ohio State University, Columbus, 1965), p. 1.

<sup>56</sup>Kay Wildman Caddell, "The Relation Between Personality Traits and Color Selection of Fabrics as Found in a Group of Students at Texas Technological College," (unpublished Master's thesis, Texas Technological College, Lubbock, 1966), p. 56.

<sup>57</sup>Patsy Ruth Brake King, "A Study of the Relationship Between Selected Personality Characteristics with Texture and Color Preferences of Clothing Fabrics of Selected Home Economics Students at a University in Southeastern Ohio," (unpublished Master's thesis, Ohio University, 1968), p. 69.

information on interviewing techniques, data collection and hypotheses development for the larger study reported by Greeley in 1973.<sup>58</sup> In the Greeley study there were 630 families interviewed in two midwestern areas, generating data on family composition, economic well-being, education, occupation, race, housing characteristics, and buying practices. Interrelationships with textile consumption variables were examined through the use of multiple regression analyses. Greeley reported findings which indicated:

. . . higher income families were more likely than other families to have specific household textile items for "special" or occasional use. Household textiles consumption was less highly associated with family composition, characteristics of individual family members (e.g. age, education, occupation, race), and characteristics of family housing. . . . Few distinct patterns were apparent in the association of selected independent variables with . . . giving or receiving household textiles.<sup>59</sup>

Newton investigated the relationship of the cognitive domain of 100 textile consumers, identified by a Textile Knowledge Awareness Test (TKA), with the affective domain identified by a Degree of Satisfaction Scale (DS) for a recently purchased carpet. Her conclusions were, among others:

. . . there is no significant relationship of cognitive domain [TKA] with the following independent variables: education, experience, income, number of children at home. . . . age of consumer, fiber choice, retail store, reasons for purchase and informational source. . . . this does not indicate that a knowledgeable consumer is without merit but gives emphasis to the

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<sup>58</sup>Joyce Ann Smith, "Consumption of Household Textiles by Twelve Iowa Families," (unpublished Master's thesis, Iowa State University, 1971), pp. 1-4.

<sup>59</sup>Rosemarie Greeley, "Household Textiles Consumption by Midwestern Urban Families: Selected Aspects," (unpublished Master's thesis, Iowa State University, Ames, 1973), p. 52.

difficulty in identifying consumer behavior . . . [the study] emphasizes the need for additional instruments to be used in identifying textile consumer behavior.<sup>60</sup>

Turner and Edwards developed hypotheses testing instruments and techniques to determine preferences for selected furniture product characteristics. In addition to using the Compton Fabric Preference Test, the investigators developed three measures of product characteristics associated with consumer furniture preferences. Summarizing the results obtained from the administration of these instruments to a random sample of families living in public housing, the authors commented:

. . . this investigation was a descriptive study, . . . the results indicated that it is possible to develop instruments to determine preferences for the product characteristics of furniture. . . . the instruments developed to determine such preferences need refinement; testing for validity and reliability is also essential, so that the data can be analyzed for statistical significance.<sup>61</sup>

Turner and Edwards further noted that the Compton Fabric Preference Test had limited use when adapted to furniture fabrics, especially with respect to the cool and warm color categories. It was theorized that:

. . . the findings presented here support the position that preference for a product or the characteristics combined in a

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<sup>60</sup>Audrey Evelyn Newton, "Consumer Behavior: Relation of Cognitive and Affective Domains of the Textile Consumer," (unpublished PhD dissertation, The Ohio State University, 1967), p. 84.

<sup>61</sup>Carolyn S. Turner and Kay P. Edwards, "Determining Consumer Preference for Furniture Product Characteristics," Home Economics Research Journal, Vol. 3, No. 1, September, 1974, p. 41.

product [author's emphasis] can be measured and quantified, thereby making it possible to test various hypotheses on the subject of consumer preference.<sup>62</sup>

### Business and Industry Sponsored Research

As cited earlier, market research with specific emphasis on consumer behavior is known to be in general usage by most producers of consumer products; however, it is largely in unpublished form due to the competitive nature of the market place. Through special permission of the corporate author, Cotton, Incorporated, one such study was made available. Consumers and their towel purchasing habits were the foci of this study conducted by Opinion Research Corporation in 1972 for Cotton, Incorporated.<sup>63</sup> Probability sampling techniques were used to draw the sample of 1,025 female householders, age 18 years or over, using population figures from the 1970 Bureau of the Census. Personal at-home type interviews generated data concerning towel purchase behavior and demographic characteristics of age, education, occupation, city size, geographic region, family income, race, size of family, and home ownership. Among the findings reported were:

. . . women say that color is the most important single characteristic influencing their towel purchases. . . . By a substantial majority, women prefer towels looped on both sides to those looped on one side, sheared on the other.<sup>64</sup>

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<sup>62</sup>Ibid., p. 42.

<sup>63</sup>Market Research Service, Cotton, Incorporated, "Consumers and Their Towel Purchasing Habits," (unpublished study conducted by the Opinion Research Corporation, Princeton, N. J., May, 1973) Reprinted by special permission of Cotton, Incorporated, New York, N. Y., 1975).

<sup>64</sup>Ibid., p. iv.

The question asked respondents concerning the looped [unsheared] versus the sheared towel is noted with corresponding tables:

Do you prefer towels that are looped both sides or looped one side, sheared on the other?

Total Sample (1,025)

1. Looped Both Sides	49%
2. Looped and Sheared	30%
3. Don't know	21% <sup>65</sup>

Subjects evaluated "Value, Good Quality for the money" as the most important consideration in the purchase of towels, followed closely by "price" and "durability, long life." Seventeen percent of the sample population indicated "absorbency, ability to dry" as the most important characteristic, while the "feel of fabric" was rated first by seven percent of the respondents.

#### SUMMARY

Empirical evidence points to a traditional use of psychological theory in the development of models of consumer behavior. Social psychology, in particular, has made major contributions toward the integration of the various theories and hypotheses underlying consumer behavior, only recently providing behaviorists with broad theoretical models around which consumer research has been designed.

The semantic differential, a psychological technique developed by Osgood for the measurement of perceived meaning, empirically has been

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<sup>65</sup>Ibid., p. 15.



shown to be a valid and reliable method of measuring consumer choice-making behavior within a marketing situation.

It was reported in the literature that many of the Federal government consumer survey programs were found to be of limited predictive value in determining future consumer buying behavior, resulting in some cases in the elimination of these studies by the sponsoring Federal agency. Although evidence of business sponsored consumer studies was noted in marketing literature, they were largely unavailable in published form.

A review of consumer related studies in textiles indicated that the large majority of investigations focused on laboratory analyses of textile products and product performance. Studies in consumer preference and perception were widely reported in clothing and apparel fabric research, but there was little evidence of this type research in the general area of home furnishings, and more specifically, in the product class of terry towels. This lack of information substantiated the interest in investigating consumer preferences and perceptions of terry towels within a simulated buying situation.

## Chapter 3

### PROCEDURE

The purpose of this study was to investigate perceptions and preferences of consumers for differentiated types of terry towels as these factors relate to selected demographic characteristics. The investigation was prompted by the market introduction in 1972 of a new type terry towel, raising questions concerning consumer perception of this product and other members of the product-class. A review of pertinent literature revealed a limited number of studies in consumer decision-making behavior with respect to home furnishings categories. In the selected product-class of terry towels, the number of related investigations available in published form was even more limited, thus providing a rationale for the focus of this research paper.

### METHODOLOGY

The research method used for the collection of data was a field survey of adult female householders in Greensboro, North Carolina. A random sample, stratified for computing proportionate breakdowns of age, income and educational levels, was drawn from the upper classes of the city. Information necessary for these various computations of the sampling procedure was obtained

from the 1970 Block Statistics, for Greensboro, North Carolina, compiled by the U.S. Bureau of the Census. Probability sampling<sup>1</sup> techniques were utilized.

Personal at-home interviews were conducted by the investigator and one trained assistant. The instruments developed for data collection were (1) the semantic differential instrument, (2) the rank-order preference rating instrument and (3) the demographic information instrument.

The following procedure was used:

1. Selection of the Sample.
2. Development of the Measuring Instruments.
3. Pretesting and Modification of the Instruments.
4. Development of Testing Conditions.
5. Collection of the Data.
6. Analysis of the Data.

A detailed description of each stage of the investigation follows.

#### SELECTION OF THE SAMPLE

Simple random sampling techniques were employed to select a sample of 100 white, female, adult householders from the upper-upper and lower-upper social classes within the city limits of Greensboro,

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<sup>1</sup>U. S. Bureau of the Census of Housing: 1970 Block Statistics Final Report HC (3)-168 Greensboro, N.C. Urbanized Area. (U. S. Government Printing Office, Washington, D. C., 1971), p. 28.

North Carolina. The social class designations are those developed by Warner.<sup>2</sup> The social and economic variables of age, income and educational levels were stratified to approximate the population parameters of a statistical profile developed by the market research department of the funding organization. This profile consists of social and economic statistics from a national sample of 8000 female householders surveyed by W. R. Simmons and Associates Research, Inc., a private market research firm.<sup>3</sup>

Proportionate breakdowns were computed for each of the independent variables of age, income and educational classifications, using block statistics from the U. S. 1970 Census Tracts for Greensboro, North Carolina.<sup>4</sup> Probability sampling techniques were utilized in determining the sample size for each of the independent variables, with a confidence interval of  $p < .05$ .

#### DEVELOPMENT OF THE MEASURING INSTRUMENTS

##### Semantic Differential Instrument

The primary focus of this study was the investigation of consumers' perceptions of terry towels. It was determined from a review of the literature that the semantic differential, developed by Osgood

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<sup>2</sup>W. Lloyd Warner and others, Yankee City (New Haven, Conn.: Yale University Press, 1963), p. 43.

<sup>3</sup>W. R. Simmons and Associates Research, Inc., A Study of Selective Markets and the Media Reaching Them (New York: W. R. Simmons and Associates Research, Inc., 1971), pp. 4-8.

<sup>4</sup>U. S. Bureau of the Census, op. cit., pp. 2-27.

and others in 1957, was an appropriate technique for measuring the psychological meaning of concepts.<sup>5</sup> Following Osgood's recommendations for the selection of relevant concepts and appropriate scales, a semantic differential instrument was designed to measure the psychological meaning of terry towels to consumers.

It was noted by Osgood that there are no standard concepts and no standard scales for a semantic differential instrument; their selection depends upon the purposes of the research. It was further noted that a sampling analysis is not mandatory; rather, Osgood suggests, the investigator should use "good judgment." He advises:

. . . In exercising "good judgment" here, the investigator will usually (a) try to select concepts for the meanings of which he can expect individual differences, . . . (b) try to select concepts having a single, unitary meaning for the individual, and . . . (c) try to select concepts which can be expected to be familiar to all his subjects.<sup>6</sup>

Osgood recommends using the following criteria in selecting appropriate scales: (1) factorial composition, (2) relevance to the concepts being judged, and (3) semantic stability.<sup>7</sup> On the basis of these criteria concepts were selected by a panel of textile specialists from the areas of product research and development, product design, market research, and advertising. Exhaustive lists of textile terminology were judged individually by the panel for relevance to terry towel concepts and for appropriateness to consumer testing. All

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<sup>5</sup>Charles E. Osgood, George J. Suci, and Percy H. Tannebaum, The Measurement of Meaning (Urbana: University of Illinois Press, 1957), p. 3.

<sup>6</sup>Ibid., pp. 77-78.

<sup>7</sup>Ibid., p. 78.

concepts falling below the 90 percent agreement level were rejected, resulting in a final selection of seven concepts. They were: (1) absorbency, (2) durability, (3) luster, (4) texture, (5) thickness, (6) touch (or feel), and (7) weight.

This procedure was then repeated with the textile specialists in order to develop bi-polar adjective scales for pairing with the selected concepts. The resultant list of sixteen scales was combined with five standard reference scales developed by Osgood, who recommended:

. . . Such scales (those developed for other studies and of unknown factorial composition) may, of course, be used and their factorial composition determined directly from the data of the experiment (either through factor analysis of the results or less rigorously from inspection of its correlations with other scales)--but in this case it is necessary to include standard reference scales in the total set.<sup>8</sup>

Scales and concepts were matched and ordered on five-point scales to produce the semantic differential instrument to be used for pre-testing. The semantic differential instruments are included as Appendix A.

#### Rank-Order Preference Rating Instrument

The instrument developed to rank terry towel preferences directed subjects to first indicate their color choice in towels. Although color preference was not a variable under study, it was thought that the selection of a favored towel color would provide subjects with a mental set more consistent with decision-making processes involved in selecting home furnishings products. Designers of textile products are aware of

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<sup>8</sup>Ibid., p. 79.

the interrelationship between color and texture, for example, and recommend against the separation of these two elements in projecting visual images. Maitland Graves, color specialist, noted this phenomenon:

. . . Because texture affects light absorption and reflection-- that is, color--texture and color are directly related. For example, the same color may appear different when wet, dry, rough, and smooth.<sup>9</sup>

Subjects were asked to rank the four experimental towels in a descending order from their first through fourth preference. Ranking without replacement was used, with subjects permitted to handle the towels. These techniques follow the recommendations of Tuckman.<sup>10</sup>

The rank-order preference forms may be found in Appendix B.

#### Demographic Information Instrument

A single-page questionnaire was designed to generate demographic information on age, income, and educational levels for each subject, and is included in Appendix C. In addition, employment status data were collected for possible future research. Subjects were assured of personal anonymity and confidentiality with respect to the use of the research data on this form. It is suggested by Tuckman:

. . . to guarantee this (anonymity and confidentiality) the research should (1) roster all data by number rather than by name, and (2) destroy the original test protocols as soon as the study is completed.<sup>11</sup>

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<sup>9</sup>Maitland Graves, The Art of Color and Design (New York: McGraw-Hill, 1951), p. 221.

<sup>10</sup>Bruce W. Tuckman, Conducting Educational Research (New York: Harcourt Brace Jovanovich, 1972), p. 181.

<sup>11</sup>Ibid., p. 16.

Data collectors were provided with letters of introduction for purposes of identification. This letter is included as Appendix D.

#### PRETESTING AND MODIFICATION OF THE INSTRUMENTS

The Semantic Differential Instrument was pretested with a group of fifteen female householders drawn from a convenience sample whose population characteristics corresponded to the demographic variables in the random sample population. These individuals were not included in the final sample. The principles of interviewing as outlined by Adams<sup>12</sup> were followed.

In an open-ended interview which followed the administration of the Semantic Differential Instrument each subject was asked to evaluate the questionnaire for clarity, familiarity of concepts and scales, and ease of usage. It was found from these evaluations that the instrument was (1) too lengthy, (2) confusing, and (3) repetitious with respect to the combined use of a large number of scales and concepts. Subjects averaged fifty minutes in completing the three instruments, with the Semantic Differential form accounting for forty-five minutes of that time.

Bi-polar adjective scales were reduced from 21 to 12, eliminating those scales which drew neutral responses and which were thought to be non-differentiating. Concept names were removed to improve general clarity, resulting in a modified instrument which was estimated to require

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<sup>12</sup>J. Stacy Adams, Interviewing Procedures (Chapel Hill: The University of North Carolina Press, 1958), p. 51.



approximately twenty minutes to complete. A second pretest was administered to a group of ten randomly selected female householders, confirming the accuracy of the time estimate and the improved format of the instrument. This modified instrument is included in Appendix A as the Semantic Differential Instrument Form # 2.

It was also found in pretesting that the ranking summary in the Rank-Order Preference form was confusing to respondents, as was the designated name of the instrument. Thus the rank summary items were eliminated and the name of the questionnaire changed to Towel Preference Ratings. This revised instrument is shown in Appendix B as the Towel Preference Rating Form # 2.

#### DEVELOPMENT OF TESTING CONDITIONS

Four different types of terry bath towels were selected as the dependent variables of this study. The towels chosen were a representative sample of the product-class of terry towels. They were:

1. "A" Towel, 50 percent cotton, 35 percent rayon, 15 percent polyester, sheared, medium pile terry towel.
2. "B" Towel, 100 percent cotton, unsheared, high pile terry towel.
3. "C" Towel, 100 percent cotton, sheared, medium pile terry towel.
4. "D" Towel, 100 percent cotton, unsheared, medium pile terry towel.

A table showing absorbency, thickness, density and pick count data for the experimental towels may be found in Appendix F.

The following testing conditions were observed throughout the study:

1. A single neutral color (beige) was selected by the panel of textile specialists, in order to control color bias.
2. A solid-color was used for each of the experimental towels, with no design features other than those of the hem and border treatment. Removal of towel borders was rejected as a possible control condition, as this treatment was thought to be generic to the general meaning of the product class of terry towels.
3. All name-brand and fiber identification labels were removed from the experimental towels.
4. No references were made, either verbally or written, as to the pricing of the towels. Data collectors were instructed not to discuss any aspect of towel prices during the administration of the questionnaires. Detailed instructions for filling out the Semantic Differential Instrument are found in Appendix E.

In order to simulate a hypothetical choice-making situation during the selection of towel preferences, subjects were asked to visualize themselves in the "bath linens" area of a retail establishment where they had formerly shopped for "bath linens." Respondents were encouraged to handle and manipulate the experimental towels freely. This widely used practice had been observed by the investigator during numerous visits to retail stores across the United States.

As noted earlier, the association of a favorite towel color was suggested as a means of providing subjects with a frame of reference appropriate to the selection of terry towels, a practice followed by a

majority of observed retail stores in the displaying of towels by individual color groups. By this means of suggesting color, subjects were thus aided in holding color preference constant while considering other towel concepts under study.

The reality of a simulated buying situation was further reinforced by informing the subjects that they would be given two finger tip towels of their color choice.

#### COLLECTION OF THE DATA

Data were collected for this study through personal at-home type interviews from a randomly selected sample of one hundred adult female householders from the upper social classes in Greensboro, North Carolina. The interviews were conducted by the investigator and one trained assistant during the period between November 18, 1974 and December 20, 1974.

#### ANALYSIS OF THE DATA

Interval, ordinal and nominal data were collected through the administration of: (1) the Semantic Differential Instrument, (2) the Towel Preference Rating form, and (3) the Demographic Information Instrument. Seven statistical tests were employed in the treatment of the data. Rank-order preference data were analyzed using the Kolmogorov-Smirnov test, t-tests, and chi-square tests for significant differences

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<sup>13</sup>Sidney Siegel, Nonparametric Statistics (New York: McGraw-Hill, 1956), pp. 47-52.

in preference rankings and demographic data. The semantic differential data were analyzed using D-scores, the Mann-Whitney U test, t-tests, and Spearman-rho correlation coefficients. Differences were considered significant at the  $\leq .05$  level of probability.

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<sup>14</sup>Ibid.

<sup>15</sup>SPSS Statistical Package for the Social Sciences (Research Triangle Park, N. C.: Triangle Universities Computation Center, 1974), Document No. LSR-102-2.

## Chapter 4

### ANALYSIS OF THE DATA

The data for this investigation were obtained from three instruments of measurement:

1. The rank-order preference rating instrument.
2. The semantic differential instrument.
3. The demographic questionnaire.

These instruments were administered to a random sample of 100 female householders residing in Greensboro, North Carolina. Personal interviews were conducted during the period between November 18 and December 20, 1974.

These data and other relevant information will be presented in the following sequence:

1. Coding and scoring of the data.
2. Analysis of the rank-order preference data.
3. Analysis of the semantic differential data.
4. Analysis of the demographic data.

### CODING AND SCORING OF THE DATA

Each of the instruments was coded and tallied, with the following designations assigned to the four experimental towels:

Towel A - 50 percent cotton, 35 percent rayon, and 15 percent polyester, sheared, medium pile terry towel.

Towel B - 100 percent cotton, unsheared, high pile terry towel.

Towel C - 100 percent cotton, sheared, medium pile terry towel.

Towel D - 100 percent cotton, unsheared, medium pile terry towel.

The demographic data were categorized by groups of age, income, and educational levels.

#### ANALYSIS OF THE RANK-ORDER PREFERENCE DATA

As noted earlier, each subject ranked the four experimental towels (A, B, C, and D) in a descending order from her first through fourth choice. These preference frequencies were tallied across all subjects and are shown in Table 1.

Table 1  
Frequencies of Towel Preference Rankings  
(n = 100)

Preference Ranking	A Towel	B Towel	C Towel	D Towel
1st n = 100	39	40	15	6
2nd n = 100	17	27	28	28
3rd n = 100	16	27	32	25
4th n = 100	28	6	25	41

The subjects' first preference rankings were tested for statistical significance of differences by the Kolmogorov-Smirnov test.<sup>1</sup>

<sup>1</sup>Sidney Siegel, Nonparametric Statistics (New York: McGraw Hill, 1956), pp. 47-52.

The results of this test (value = .29) showed that the differences in the first preference rankings of towels were statistically significant at the  $\leq .01$  level of confidence.

It was determined from an inspection of the rank-order frequencies in Table 1 that the major source of statistical significance occurred in comparing towel A with towels C and D, and in comparing the B towel with towels C and D. Also there appeared to be little or no difference in the first preference rankings of towels A and B.

This similarity of first preference rankings for the A and B towels suggested the necessity of further analysis to determine possible differences in towel preferences. Accordingly, the mean preference ranking for each of the four experimental towels was computed by assigning a value of "1" to "4" in a descending order for first, second, third, and fourth preference. These mean preference rankings are shown in Table 2.

Table 2  
Means of Preference Rankings for All Towels  
(n = 100)

Towel Group	n of Group	Mean of Towel Rankings	S.D.
A Towel	100	2.35	.83
B Towel	100	1.99	.27
C Towel	100	2.66	.46
D Towel	100	3.00	.21

The data shown in Table 1 and Table 2 indicated the following order of preference for the first experimental towels:

First Preference - Towel B

Second Preference - Towel A

Third Preference - Towel C

Fourth Preference - Towel D

The differences in the mean rankings of each towel in paired comparison with all the other towels were tested for statistical significance. The t-values generated from this testing are presented in Table 3.

Table 3

t-Values for Mean Towel Preference Rankings  
with All Possible Towel Comparisons  
(n = 100)

Towel Pairs	Mean Difference	t-Value
A vs. B	0.36	2.36**
A vs. C	0.31	1.99*
A vs. D	0.65	2.41**
B vs. C	0.67	2.49**
B vs. D	1.01	2.67**
C vs. D	0.34	2.33**

\*p = < .05, one-tailed.

\*\*p = < .01, one-tailed.

All towel pair differences except the A versus C pair were statistically significant at the < .01 confidence level. The A versus C towel pair was statistically significant at the < .05 confidence level.



### ANALYSIS OF THE SEMANTIC DIFFERENTIAL DATA

Responses of the subjects on the semantic differential instrument were scored for each of the towel attributes and for each of the four experimental towels. Each scale consisted of a pair of bi-polar adjectives separated by a five-point interval. An example of a single scale and the scoring used is as follows:

1            2            3            4            5  
 ROUGH \_\_\_\_\_ :   x   : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ SMOOTH

The numbers above the scale, which were not part of the actual instrument, designate the score for the corresponding space below it, with the "X" mark indicating a subject's position on the continuum. This scoring procedure resulted in a score for each towel attribute on each of the four types of towels and for each individual subject.

Data generated from the semantic differential instrument were analyzed using two methods to describe quantitatively the perceptions of subjects for the product attributes of the four experimental towels.

The first method consisted of the computation of D scores (distance scores) as recommended by Osgood and his associates to show similarities in meaning between two concepts. The D is based on the distance formula of solid geometry, providing an index of both the distance between pairs of concepts in semantic space, and the relative magnitude of different D scores. The D formula used was:

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<sup>2</sup>Charles E. Osgood, George J. Suci, and Percy H. Tannebaum, The Measurement of Meaning (Urbana: University of Illinois Press, 1957), pp. 101-102.

$$D_{i1} = d_{i1}^3$$

" . . .  $D_{i1}$  is the linear distance between the points in the semantic space representing concepts  $i$  and  $1$ , and  $d_{i1}$  is the algebraic difference between the coordinates of  $i$  and  $1$  on the same dimension or factor."<sup>4</sup>

Applying this formula, the various  $D$  scores were computed between each possible pair of experimental towels for each of the towel product attribute scales. Table 4 lists the  $D$  scores obtained for towel pairs across towel attributes.

It can be seen from this table that low  $D$  scores indicated high similarity in the overall meaning of towel attributes, while high  $D$  scores reflected low similarity between towel attributes.

$D$  score frequencies were plotted, resulting in a multimodal distribution of these scores which is shown in Figure 1. Since these data were not normally distributed, the Mann-Whitney U-test<sup>5</sup> was used to test the statistical significance of the differences in the  $D$  scores, as recommended by Osgood.<sup>6</sup> The  $U$  statistic was computed for each towel attribute across all possible combinations of towel pairs. This was to test the hypothesis that the differences in perceived towel attributes were statistically significant at the  $\leq .05$  level of confidence. These data are presented in Table 5.

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<sup>3</sup>Ibid., p. 91

<sup>4</sup>Ibid., p. 92.

<sup>5</sup>Siegel, op. cit., pp. 120-126.

<sup>6</sup>Osgood, op. cit., pp. 101-104.

Table 4  
 D Scores (Semantic Distances) for Towel Attributes  
 Between Pairs of Experimental Towels  
 (n = 100)

Towel Attributes	Towel Pairs					
	D AB	D AC	D AD	D BC	D DB	D CD
SMOOTH	26.64	25.04	14.73	30.72	22.29	20.03
RUGGED	26.53	21.33	19.85	28.99	20.28	15.69
ABSORBENT	26.29	19.11	20.81	26.00	19.55	12.54
THICK	23.04	21.86	18.55	23.30	19.00	12.81
SOFT	16.19	24.64	12.88	25.87	16.49	24.04
SHINY	25.77	20.08	21.21	30.51	18.95	13.39
FLUFFY	27.06	18.19	19.35	25.46	21.49	15.20
HEAVY	23.54	19.47	15.56	22.72	18.72	15.81

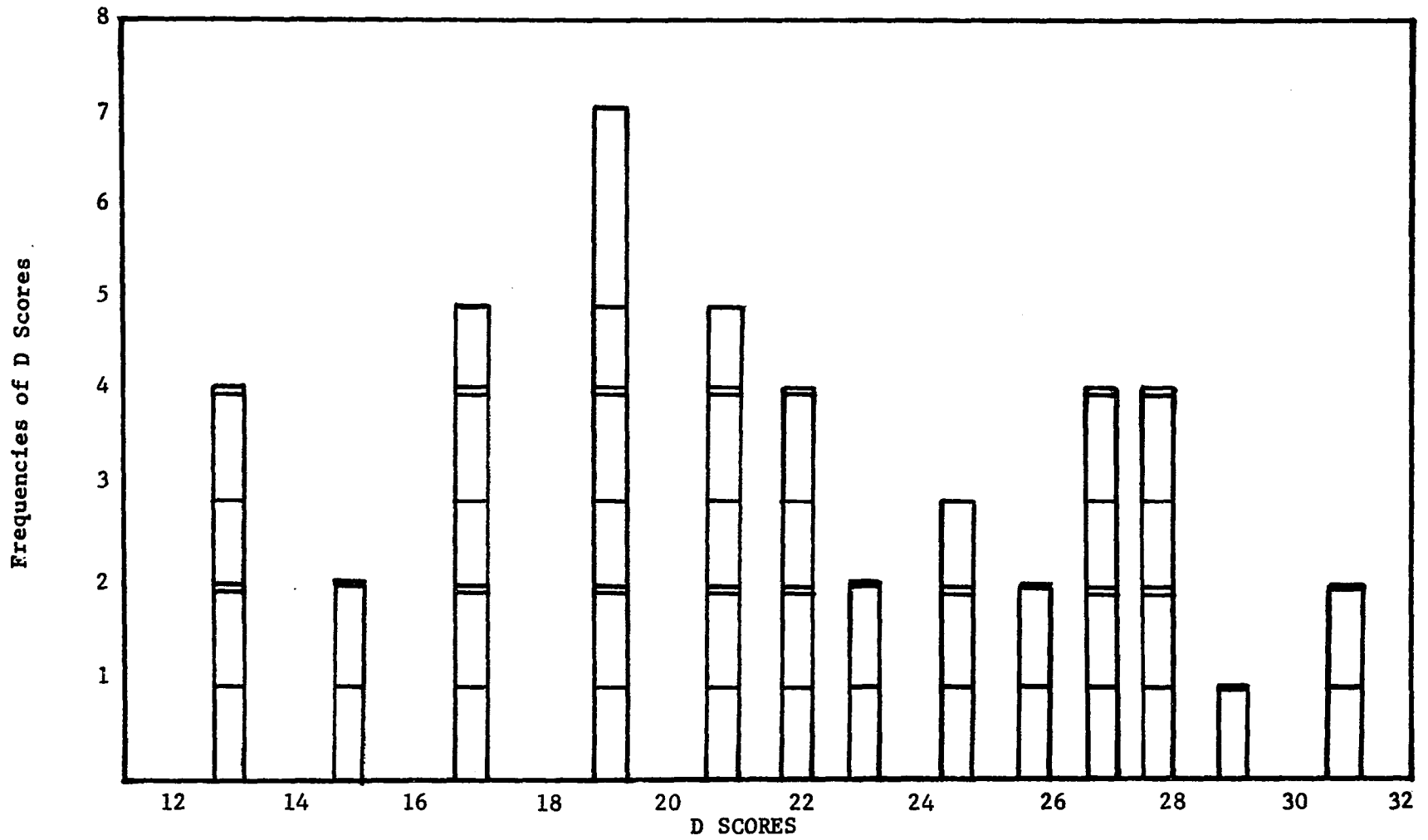


Figure 1

Frequency Distribution of D Scores

Table 5  
 Mann-Whitney U Tests of Differences  
 Among D Scores  
 (n = 100)

D Score Pairs	U	Probability
$D_{AB} - D_{AC}$	5	.001
$D_{AB} - D_{AD}$	26	.287 n.s.
$D_{AB} - D_{BC}$	8	.005
$D_{AB} - D_{BD}$	4	.001
$D_{AB} - D_{CD}$	12	.019
$D_{AC} - D_{AD}$	0	.000
$D_{AC} - D_{BC}$	22	.164 n.s.
$D_{AC} - D_{BD}$	23	.191 n.s.
$D_{AC} - D_{CD}$	14	.032
$D_{AD} - D_{BC}$	0	.000
$D_{AD} - D_{BD}$	2	.000
$D_{AD} - D_{CD}$	4	.001
$D_{BC} - D_{BD}$	13	.025
$D_{BC} - D_{CD}$	21	.139 n.s.
$D_{BD} - D_{CD}$	8	.005

It was found that the differences in perceived towel attributes were statistically significant at the  $\leq .05$  confidence level in 11 of the paired comparisons out of a total of 15 paired towel comparisons.

The four nonsignificant U-test scores indicate that subjects' perceptions of these paired towel attributes were relatively similar. The 11 statistically significant U-scores indicate significant differences in perceptions of the attributes of these 11 towel pairs.

The means of the scores for each of the eight towel attributes were computed for each of the experimental towels, as shown in Table 6.

Table 6  
Means of Towel Attribute Scores  
Across All Towels  
(n = 100)

Towel Attributes	A Towel	B Towel	C Towel	D Towel
SMOOTH	4.75	2.66	3.97	1.96
RUGGED	1.98	4.05	2.95	4.42
ABSORBENT	2.52	4.72	3.27	4.34
THICK	2.76	4.46	3.27	4.34
SOFT	4.61	4.11	4.26	2.51
SHINY	4.64	2.27	3.20	1.84
FLUFFY	2.08	4.43	2.97	3.78
HEAVY	2.47	4.16	2.99	3.99

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T-tests were performed on the mean towel attribute scores for each possible towel pair to determine if the differences in these mean scores were statistically significant. These data are shown in Table 7. The obtained t-values indicated that the differences in mean towel attribute scores were statistically significant at the  $\leq .01$  confidence level in 45 of the 48 paired comparisons.

Two towel attributes, "Thick" and "Heavy," were not perceived significantly differently on the B-D towel pair, nor was the "Soft" attribute of the B-C towel pair. The 45 statistically significant t-values indicated significant differences in subjects' perceptions of the towel attributes of these 45 towel comparisons.

As recommended by Osgood, the mean towel attribute scores from the semantic differential were plotted in statistical profile to show visual relationships of the perceived towel characteristics.<sup>8</sup> This profile is presented in Figure 2. An inspection of this profile pointed to paired similarity of the B and D towels and the A and C towels. These two towel pairs, however, profile in reverse direction from each other, indicating seemingly greater perceived differences between the B and D towel pairs and the A and C towel pairs than differences within the overall group of experimental towels.

In this respect the most preferred towel, B, and the least preferred towel, D, were perceived similarly over all of the towel attributes with the exception of the "Soft" concept. The greatest distance

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<sup>7</sup>Siegel, op. cit., pp.

<sup>8</sup>Osgood, op. cit., p. 91.

Table 7

t Values for Mean Towel Attribute Scores  
with All Possible Towel Comparisons  
(n = 100)

Towel Attributes	Towel Pairs					
	A-B	A-C	A-D	B-C	B-D	C-D
SMOOTH	12.84**	6.32**	21.95**	-7.48**	4.03**	12.04**
RUGGED	-12.08**	-5.93**	-16.20**	6.06**	-2.74**	-8.95**
ABSORBENT	-13.52**	-4.50**	-11.05**	9.37**	3.46**	-6.62**
THICK	-10.83**	-3.58**	-10.27**	7.60**	0.98	-6.73**
SOFT	3.32**	2.59*	13.50**	-1.29	9.50**	10.18**
SHINY	18.98**	11.25**	23.10**	-5.28**	2.65*	8.15**
FLUFFY	13.19**	-4.44**	-10.44**	9.69**	4.63**	-5.97**
HEAVY	-9.59**	-3.44**	-8.58**	8.28**	1.69	-6.22**

\* p < .01, two-tailed

\*\*p < .001, two-tailed



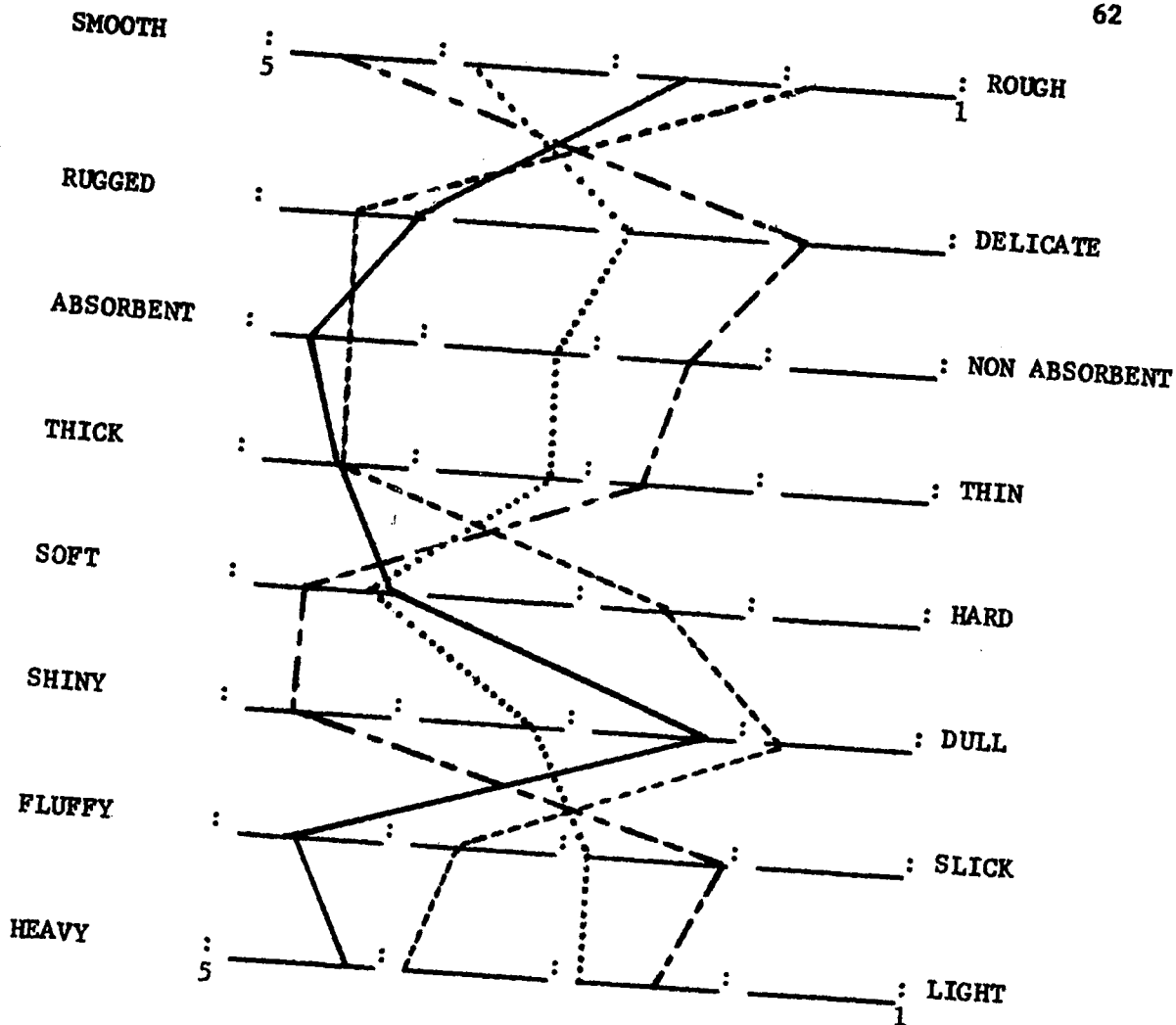


Figure 2  
 Mean Profiles of Towel Attribute Scores  
 for the Four Experimental Towels  
 (n = 100)

- Key:
- A Towel -----
  - B Towel \_\_\_\_\_
  - C Towel .....
  - D Towel -.-.-.-

observed on the "Smooth" profile was between the A and D towels. This was also the case with the "Rugged," "Soft," and "Shiny" attributes. The A and B towels reflected the greatest profile distances on the attributes of "Absorbent," "Thick," "Fluffy," and "Heavy."

The most preferred towel, B, was perceived as a rugged, absorbent, thick, soft, fluffy and heavy towel. By contrast, the least preferred towel, D, was also perceived as rugged, absorbent, thick, fluffy and heavy, but in addition it was perceived as rough, somewhat hard and dull. The second most preferred towel, A, was perceived as smooth, soft, and shiny, but delicate, nonabsorbent, thin, slick, and of medium weight.

The third ranked C towel was perceived as smooth and soft, but it was also perceived as delicate, nonabsorbent, thin, dull, slick and of medium weight.

#### ANALYSIS OF THE DEMOGRAPHIC DATA

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Chi-square tests were performed to determine whether or not the demographic variables of age, income and educational levels were related to the preference rankings of the four experimental towels. It was found that each of the resultant chi-square values fell below the statistically critical value, indicating that there were no statistically significant relationships between subjects' preference rankings of

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<sup>9</sup>Siegel, op. cit., pp. 175-179.

selected towels and the demographic variables of age, income and educational levels. These data are exhibited in Tables 8, 9, and 10.

The final step of this analysis was to determine whether there was a significant relationship between the demographic variables of age, income, and educational levels and the towel attribute scores from the semantic differential measuring instrument. Spearman-rho coefficients of correlation were computed for this purpose, using an SPSS packaged program.<sup>10</sup> They are shown in Table 11.

An examination of the correlation table revealed that age was positively correlated with the "Rugged" towel attribute, while education was negatively correlated with this concept. Both of these coefficient correlations were statistically significant at the  $\leq .05$  level of confidence. The income variable showed no statistically significant relationship with any of the towel attributes measured by the semantic differential instrument. From a total of 24 computed correlations only two towel attributes were significantly related to the demographic variables. This low number of significant correlations is probably of no predictive value and could have happened by chance. It was concluded, therefore, that no statistically significant relationship existed between the demographic variables of age, income and educational levels and subjects' perceptions of towel attributes measured by the semantic differential instrument.

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<sup>10</sup>SPSS Statistical Package for the Social Sciences (Research Triangle Park, N. C.: Triangle Universities Computation Center, 1974), Document No. LSR-102-2.

Table 8  
 First Preference Towel Ranking Distribution  
 Based on Age Level Variable  
 and Chi-square Tests  
 (n = 100)

Age Level	Towel A	Towel B	Towel C	Towel D	Total
1 - 18-34	13	11	7	1	32
2 - 35-49	12	16	6	2	36
3 - 50 plus	14	13	2	3	32
	39	40	15	6	100

$x^2 = 4.696$  n.s.

$x^2/cv < .05 = 12.59$

Table 9  
 First Preference Towel Ranking Distribution  
 Based on Income Level Variable  
 and Chi-square Tests  
 (n = 100)

*Income Level	Towel A	Towel B	Towel C	Towel D	Total
1- under \$15,000	15	17	9	2	43
2- \$15,000-\$25,000	16	14	3	4	37
3- over \$25,000	8	9	3	0	20

\*Pre-tax per annum family income

$x^2 = 5.487$  n.s.

$x^2/cv < .05 = 12.59$

Table 10

First Preference Towel Ranking Distribution  
Based on Educational Level Variable  
and Chi-square Tests  
(n = 100)

Educational Level	Towel A	Towel B	Towel C	Towel D	Total
1- High school (attended or graduated)	15	7	3	2	27
2- Attended college	6	13	4	0	23
3- Graduated college	18	20	8	4	50

$\chi^2 = 7.621$  n.s.

$\chi^2 / c.v. < .05 = 12.59$

Table 11

Spearman-Rho Correlations of the Demographic Variables of  
Age, Income and Educational Levels with  
Perceived Towel Attributes  
(n = 100)

Perceived Towel Attribute	Age Level r	Income Level r	Educational Level r
SMOOTH	-.06	.09	.11
RUGGED	.18*	-.11	-.18*
ABSORBENT	.02	-.05	-.02
THICK	.06	.14	.09
SOFT	.05	.08	.12
SHINY	-.16	-.04	.12
FLUFFY	-.04	.10	.00
HEAVY	.06	.11	.03

\*p =  $\leq .05$

## SUMMARY OF THE ANALYSIS OF DATA

The data for this study were presented in the following sequence:

1. Rank-order preference data.
2. Semantic differential data.
3. Demographic data.

It was found from statistical testing that the rank-ordering by subjects of first preferences for the experimental towels was statistically significant at the  $\leq .05$  level of probability. This confirmed Hypothesis 1, which postulated that there would be significant differences among consumers in their preference rankings of selected terry towels.

Towels A and B were the two most preferred towels, with almost identical first preference frequencies. Further statistical testing was performed on these data to determine whether there were statistically significant differences between these numerically close preference rankings. The results indicated that the differences among each pair of mean towel preference rankings was statistically significant at the  $\leq .05$  level of confidence.

Various statistical tests of significance were computed to test Hypothesis 2, which predicted that there would be significant differences among consumers in their perceptions of product attributes of selected terry towels. In a paired comparison test, it was found that among 15 pairs of towel comparisons 11 were statistically significant at the  $\leq .05$  level of confidence. Therefore Hypothesis 2 was confirmed.

The demographic data were analyzed to test Hypothesis 3, which predicted a significant relationship between the demographic variables and respondents' preference rankings of the experimental towels. This hypothesis was rejected, as it was found from statistical testing that there were no statistically significant relationships between rankings of the selected towels and age, educational and income levels of the subjects. The demographic data were also analyzed to determine whether, as stated in Hypothesis 4, there were statistically significant relationships between perceived towel attribute scores from the semantic differential instrument and the demographic characteristics. The results indicated that the observed relationships between the perceptions of towel attributes and the age, educational and income levels of subjects were not statistically significant. Hypothesis 4, therefore, was also rejected. It was concluded from these tests of significance that the demographic variables of age, education and income were not predictive of either these subjects' towel preference rankings or their perceptions of selected towel attributes.

## Chapter 5

### SUMMARY, DISCUSSION AND RECOMMENDATIONS

#### SUMMARY

This investigation was concerned with the study of consumer perceptions and preferences for textile products. The specific product focus of this study was prompted by the market introduction of a new type terry towel, raising questions concerning consumer reaction to this new textile product.

It is generally believed by consumer and marketing specialists that a knowledge of the behavior underlying consumer choice-making in the market place contributes importantly toward the maximization of consumer satisfaction and an efficient marketing economy. There was little evidence, however, of empirical research specifically designed to study consumer decision-making in the textile market. For this reason it was determined to investigate selected aspects of consumer behavior germane to an understanding of the perceptual process in a preference-making buying situation.

Specifically, this study focused on consumer perception of product attributes of selected terry towels under conditions of a simulated choice-making situation. A secondary consideration was the study of the relationships between consumer perception and preference for terry towels and selected demographic characteristics of the consumer population under study.



Based on these areas of interest, the study was developed in the following sequence:

1. Formulation of Hypotheses.
2. Identification of Variables under Study.
3. Development of Instruments of Measure.
4. Sample Selection and Collection of the Data.
5. Development of Testing Conditions.
6. Results of Data Analysis.

A summary of each aspect of the investigation is presented, followed by conclusions and recommendations for further experimentation.

#### Formulation of Hypotheses

The purpose of this study was to investigate consumer preference and perceptions of terry towels and the relationships between these factors and selected demographic variables. The following alternative hypotheses were formulated:

Hypothesis 1. There will be significant differences among consumers in their preference rankings of selected terry towels.

Hypothesis 2. There will be significant differences among consumers in their perceptions of product attributes of selected terry towels.

Hypothesis 3. There will be significant relationships between consumer perceptions of product attributes of selected terry towels and demographic factors of age, educational and income level. These hypotheses were tested at the  $\alpha .05$  level of confidence.

### Identification of Variables under Study

Consumer perceptions and preferences for terry towels were identified as the central focus of this study, with a secondary interest in the moderating effect of the demographic variables of age, educational and income levels on these preferences and perceptions of terry towels.

Four different types of terry towels were selected as the variables to be used in generating consumer response. They were:

1. "A" Towel, 50 percent cotton, 35 percent rayon, 15 percent polyester, sheared, medium pile terry towel.
2. "B" Towel, 100 percent cotton, unshaired, high pile terry towel.
3. "C" Towel, 100 percent cotton, sheared, medium pile terry towel.
4. "D" Towel, 100 percent cotton, unshaired, medium pile terry towel.

### Development of Instruments of Measurement

The semantic differential technique developed by Osgood for measurement of the psychological meaning of concepts was found to be an appropriate hypothesis testing instrument for this study. Following recommended procedures, a semantic differential instrument was designed to elicit responses from subjects concerning their perceptions of terry towel concepts. A panel of textile specialists developed towel concepts and bi-polar adjective pairs to produce five-point interval scales for the measurement of perceived towel attributes. Pretesting of this instrument with a group of 15 subjects resulted in the modification of the instrument. The modified instrument was

pretested with a second group of 10 subjects to evaluate the format and clarity of the semantic differential instrument.

The second instrument developed for this investigation was a rank-order preference form for the ranking of towel preferences. In addition, a questionnaire was designed to generate demographic information on age, educational and income levels of each subject.

#### Sample Selection and Collection of the Data

The subjects for this study were 100 adult, female householders living within the city limits of Greensboro, North Carolina. A random proportionate sample was drawn from the upper class population of the city, utilizing probability sampling techniques to compute sample proportions at the  $< .05$  level of confidence. Block Statistics from the 1970 U. S. Census Tracts for Greensboro and the 1973 Greensboro City Directory provided pertinent information and data.

Personal interviews were conducted in the homes of respondents by the investigator and one trained assistant during a four week period in late 1974. Interval, ordinal and nominal data were collected from the administration of the three instruments of measurement.

#### Testing Conditions

In order to provide a hypothetical choice-making situation during the administration of the instruments, subjects were cued by word association and physical handling of the experimental towels. Testing conditions specified controls for color, design, name-brand identification and pricing factors. No time restrictions were imposed on the subjects for the completion of instruments and the physical

examination of towels. By encouraging respondents to be spontaneous, however, the average interview lasted approximately thirty minutes, approximating a typical choice-making situation.

### Results of Data Analysis

The rank-order preference data were analyzed to test the hypothesis that the differences among consumers in their first preference rankings of the experimental towels would be statistically significant. The results of t-tests performed on this ordinal data indicated that there were statistically significant differences in first towel preference rankings at the  $\leq .05$  level of confidence, thus supporting the hypothesis.

Interval data generated by the semantic differential instrument were statistically analyzed to test the hypothesis that there would be significant differences among subjects in their perceptions of towel attributes. D scores were computed for each possible towel pair to measure the perceived distance between each pair in semantic space. A Mann-Whitney U-test was employed to test the statistical significance of each of the 15 D scores. Eleven of the D scores were found to be significant at the  $\leq .05$  confidence level. Mean towel attribute scores were subjected to t-tests to test the statistical significance of the differences between the mean scores, yielding 45 out of a possible 48 statistically significant t-values at the  $\leq .01$  level of confidence. The results of the U-tests and t-tests confirmed the hypothesis that consumer perceptions of the product attributes of the selected towels were significantly different.

Two statistical tests of significance were computed with the demographic data. Relationships between preference rankings of the experimental towels and the demographic variables of age, educational and income levels were found not to be statistically significant, using Chi-square methods to test this hypothesis. Spearman-rho correlation coefficients were computed to test the relationships between the demographic data and semantic differential scores. These correlations also yielded results which were not statistically significant, pointing to a rejection of the hypothesis that the relationships between consumers' perceptions and preferences for towels and demographic factors of age, education and income were significant.

#### DISCUSSION

A new type terry towel introduced to the market in late 1972 raised many questions within the textile business community concerning consumer reaction to this new product. How consumers accepted the towel was understandably of prime interest to those companies and individuals involved with the manufacturing and retailing of the product. This study was an outgrowth of the investigator's personal interest and involvement in the market testing and introduction of new textile products. These experiences indicated a recognized need for information regarding consumer choice-making behavior in the textile market place.

Among the many questions prompted by the market introduction of the new towel, three were selected for the focus of this investigation, namely:

1. In a preference-making situation, how do consumers prefer terry towels, including both novel styles and more familiar types?

2. Are there differences in consumer perceptions of towels, or are their perceptions of the new terry towel similar to their perceptions of more familiar towel types?

3. Are there identifiable relationships between consumer perceptions and preferences for towels and age, educational and income levels?

These questions provided the framework for the development of three directional hypotheses, each of which will be discussed individually.

Hypothesis 1 predicted that there would be significant differences among consumers in their preference rankings of selected terry towels. The frequencies of first preference towel rankings were not normally distributed, primarily because the most preferred towel and the second most preferred towel, B and A respectively, accounted for 79 percent of all first preferences. The C and D towels accounted for only 21 percent of the total first preference distribution, and were ranked third and fourth respectively in preference ratings. This clearly indicated that subjects preferred the B and A towels over C and D, but the closeness of the ranking frequencies of the B and A towels suggested that subjects had differentiated very little in their first preference rankings of these towels.

The fourth preference rankings, or the least preferred towels, were similarly grouped. Sixty-six percent of the subjects selected either the C or D towel as their fourth preference, while 34 percent selected the A or B towel as their least preferred towels. Second and

third towel preference frequencies were more normally distributed, thus pointing attention to the most and least preferred towel rankings.

While an almost equal number of subjects ranked the A and B towels as their first preferences, a disproportionately smaller number of respondents ranked the B towel fourth than did the number ranking the A towel. This seemed to suggest that the A towel was both most preferred and least preferred by a large number of subjects. This was not the case with the B towel; it was most preferred by a large number of respondents, yet least preferred by comparatively few people. It is possible that the newness of the A towel could have accounted for the large number of first and fourth preferences assigned to the towel. It was noted by the data collectors that many of the sample population indicated that this was their first exposure to towel A. The novelty factor associated with the rate of adoption of new consumer products is the subject of many consumer studies, but there is general disagreement as to the extent and degree that preference is influenced by the newness of a product. The two schools of thought postulate that (1) consumers are more attracted to new products than older ones and (2) consumers tend to avoid products that are new, and generally prefer more familiar things. It is obvious that both interpretations could be applied to these findings, but purely in an arbitrary sense.

An examination of the mean preference rankings indicated that while towels A and B were most preferred by a similar number of consumers, towel A was least preferred by a proportionately larger number of consumers than was towel B. T-tests of the differences between the mean preference ranking scores also supported this conclusion.

The average rankings of the experimental towels were as follows:

First Preference - Towel B

Second Preference - Towel A

Third Preference - Towel C

Fourth Preference - Towel D

Hypothesis 1, which predicted that there would be significant differences among consumers in their preference rankings of the selected towels, was accepted.

Hypothesis 2 predicted that there would be significant differences among consumers in their perceptions of the product attributes of the experimental towels. D scores were computed from the semantic differential data to measure the semantic distance between subjects' perceptions of two different towels on the same product attribute. A low D score indicated that individuals tended to perceive the two towels similarly; a high D score indicated, however, that individual subjects tended to perceive the paired towels differently. The results of statistical testing showed that the differences in perceived towel attributes were statistically significant.

An inspection of the mean profile of towel attribute scores resulted in the conclusion that towels B and D were perceived in a similar manner across towel attributes. Towels A and C also were perceived similarly, it was concluded. Of particular interest, however, was the difference in the overall perceived attributes of towels B and D and the overall perceived attributes of the A and C towels. From the description of the experimental towels it can be seen that the B and D towels are both unshaired, while the A and C towels are both sheared.



This may account for the similarity of perceived attributes to these two paired towel groups. Also, it may imply that the subjects tended to view towels as either sheared or unsheared, and that they did not differentiate among the characteristics of fiber content and pile height.

In this respect the sheared and unsheared characteristic of the towel could have influenced the perceptions of towels across all the towel attributes. The sheared towels, A and C, generally were perceived as smoother and softer than the unsheared towels, B and D. Subjects perceived unsheared towels as more absorbent, a finding which is not supported by the laboratory analysis of the absorbency qualities of the four experimental towels, as shown in Appendix F. In reality, the absorbency rates of towels A and B are both higher than those for towels C and D.

The consumers in this study also perceived both unsheared towels as thicker and heavier than the sheared ones. Scientifically controlled physical measurements of the experimental towels, however, were not in agreement with the perceived attributes of the towels. It is possible that consumers perceive sheared towels as generally less rugged, less absorbent, thinner and lighter in weight than unsheared ones. The shearing factor could also be a logical explanation for the shinier rating perceived in the A and C towels. Velour surfaces, such as in the sheared towels, reflect more light, and appear to have greater luster than unsheared fabric surfaces.

It is obvious that consumers perceived sheared and unsheared towels differently in the large majority of the towel attribute scales.

Hypothesis 2, which predicted that there would be significant differences in consumers' perceptions of selected terry towels, was accepted.

Hypothesis 3 stated that there would be significant relationships between consumers' preference rankings of the selected terry towels and the demographic variables of age, educational and income levels. Hypothesis 3 was not accepted. The results of statistical tests indicated that the towel preference rankings were not dependent upon consumers' age educational and income levels. Perhaps this lack of relationship is due to the composition of the sample for this study. This sample was composed of upper class female householders living in Greensboro, North Carolina. It is possible that a less homogeneous sample would have yielded significant relationships between the demographic variables and preference rankings of towels.

Hypothesis 4 predicated that there would be significant relationships between consumers' perceptions of product attributes of selected terry towels and demographic variables of age, educational and income levels. Hypothesis 4 was not accepted. The results of statistical testing again showed that perceptions of towel characteristics did not depend upon age, income and educational levels. As with Hypothesis 3, this lack of relationship may be attributed to the homogeneity of the sample drawn for this study.

It could also be postulated that consumers' perceptions and preferences for towels are related to variables not measured in this investigation. Such variables might include the effect of advertising exposure, past experiences in the selection, use and care of towels, preferences of family members and friends, income restraints, and a myriad of other social, economic and psychological factors.

### RECOMMENDATIONS FOR FURTHER STUDY

The effects of color, design, price and name-brand identification were controlled for this study. It is recommended, therefore, that future studies be conducted to examine the effects of these variables on consumer perceptions and preferences for terry towels.

It is also recommended that middle and lower class samples be studied to determine possible relationships between social class and perceptions and preferences for terry towels. In addition, future research should focus on the preferences and perceptions of male consumers to measure possible differences between their perceptions and preferences for terry towels and those of female consumers.

It is hoped that this study has provided a framework for the development of future research in the general area of consumer decision-making in home furnishings textiles. Satisfying consumer tastes and preferences contribute importantly to the efficient functioning of the American economy and the ultimate satisfaction of consumers. In conclusion, it is also hoped that this investigation will point toward the need for future cooperative research between educational and business communities. In essence, they both serve the same master — the consumer.

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**APPENDIX A**



## APPENDIX A

## SEMANTIC DIFFERENTIAL INSTRUMENT

Form # 1

LUSTER:	shiny _____: _____: _____: _____: _____ non-shiny
	dull _____: _____: _____: _____: _____ brilliant
	good taste _____: _____: _____: _____: _____ tasteless
TEXTURE:	smooth _____: _____: _____: _____: _____ rough
	fluffy _____: _____: _____: _____: _____ slick
	good _____: _____: _____: _____: _____ bad
DURABILITY:	rugged _____: _____: _____: _____: _____ delicate
	fragile _____: _____: _____: _____: _____ sturdy
	long wearing _____: _____: _____: _____: _____ short wearing
WEIGHT:	light _____: _____: _____: _____: _____ heavy
	awkward to use _____: _____: _____: _____: _____ easy to use
	masculine _____: _____: _____: _____: _____ feminine
ABSORBENCY:	wet _____: _____: _____: _____: _____ dry
	absorbent _____: _____: _____: _____: _____ non absorbent
	important _____: _____: _____: _____: _____ unimportant
TOUCH (OR FEEL):	soft _____: _____: _____: _____: _____ hard
	silky _____: _____: _____: _____: _____ slick
	cool _____: _____: _____: _____: _____ warm
THICKNESS:	thin _____: _____: _____: _____: _____ thick
	slow drying _____: _____: _____: _____: _____ fast drying
	practical _____: _____: _____: _____: _____ impractical

APPENDIX A  
SEMANTIC DIFFERENTIAL INSTRUMENT

Form # 2

Towel Ratings

THIN	_____	:	_____	:	_____	:	_____	:	_____	THICK
HARD	_____	:	_____	:	_____	:	_____	:	_____	SOFT
FEMININE	_____	:	_____	:	_____	:	_____	:	_____	MASCULINE
ROUGH	_____	:	_____	:	_____	:	_____	:	_____	SMOOTH
WARM	_____	:	_____	:	_____	:	_____	:	_____	COOL
EXPENSIVE	_____	:	_____	:	_____	:	_____	:	_____	INEXPENSIVE
ABSORBENT	_____	:	_____	:	_____	:	_____	:	_____	NON-ABSORBENT
FLUFFY	_____	:	_____	:	_____	:	_____	:	_____	SLICK
EVERYDAY USE	_____	:	_____	:	_____	:	_____	:	_____	GUEST USE
DELICATE	_____	:	_____	:	_____	:	_____	:	_____	RUGGED
HEAVYWEIGHT	_____	:	_____	:	_____	:	_____	:	_____	LIGHTWEIGHT
DULL	_____	:	_____	:	_____	:	_____	:	_____	SHINY

**APPENDIX B**

## APPENDIX B

## Rank-Order Preference

Form # 1

We would like to give you a towel of your choice, and ask that you indicate your color choice here: \_\_\_\_\_  
(Color)

Now will you please indicate which of the four towels you would select for yourself: \_\_\_\_\_  
(Towel letter)

Assuming your first choice was not available, what would be your second towel choice? \_\_\_\_\_  
(Towel letter)

Assuming your first and second choices were not available what would be your third choice? \_\_\_\_\_  
(Towel letter)

And if choices one, two and three were not available, what would be your fourth choice? \_\_\_\_\_  
(Towel letter)

Now will you please rank the towels in order of your preference:

FIRST CHOICE \_\_\_\_\_

SECOND CHOICE \_\_\_\_\_

THIRD CHOICE \_\_\_\_\_

FOURTH CHOICE \_\_\_\_\_

WE WANT TO TAKE THIS OPPORTUNITY TO THANK YOU FOR YOUR COOPERATION  
IN THIS RESEARCH PROJECT. YOUR PARTICIPATION IS VERY MUCH APPRECIATED.

## APPENDIX B

## Rank-order Preference Instrument

Form # 2

Towel Preference Ratings

We would like to give you a towel of your color selection. Will you indicate your color choice.

---

(COLOR)

Now will you please rank the four towels as you would select them for your own use.

FIRST CHOICE

---

Assuming your first choice was not available, which towel would be your second choice?

SECOND CHOICE

---

Rate your third choice.

THIRD CHOICE

---

And your fourth choice.

FOURTH CHOICE

---

WE WANT TO TAKE THIS OPPORTUNITY TO THANK YOU FOR YOUR COOPERATION IN THIS RESEARCH PROJECT.

APPENDIX C

## APPENDIX C

DEMOGRAPHIC INFORMATION FORM

PLEASE ANSWER THE FOLLOWING BY CHECKING THE APPROPRIATE BOX IN EACH GROUP WHICH BEST DESCRIBES YOU. THE INFORMATION YOU PROVIDE WILL BE KEPT CONFIDENTIAL AND WILL BE USED ONLY FOR STATISTICAL ANALYSIS.

AGE

18 - 24	_____
25 - 34	_____
35 - 49	_____
50 Plus	_____

EDUCATION

Some high School	_____
Graduate High School	_____
Attended College	_____
Graduated College	_____

FAMILY ANNUAL INCOME . . . (Before Taxes)

Under \$7,500	_____
\$ 7,500 - 9,999	_____
\$10,000 - 14,999	_____
\$15,000 - 24,999	_____
\$25,000 - or more	_____

EMPLOYMENT STATUS

Homemaker Full Time	_____
Employment Part Time	_____
Employment Full Time	_____

**APPENDIX D**



## APPENDIX D

## LETTER OF INTRODUCTION FOR DATA COLLECTORS

John P. Robertson, Vice President

Fieldcrest

60 West Fortieth Street

New York, New York 10018

Telephone: (212) 695-6800

To Whom It May Concern:

This letter will serve to introduce to you Mrs. J. F. Mohler from the University of North Carolina, Greensboro. Mrs. Mohler is conducting research under the auspices of the University's Textile and Clothing Department and the sponsorship of Fieldcrest Mills, Inc.

We would very much appreciate your cooperation in this project and as a small token of appreciation, we would like to give you a Fieldcrest towel.

We thank you in advance for participating in this consumer research and welcome any comments you may have.

Sincerely,

/s/ John P. Robertson

John P. Robertson

JPR/ds

**APPENDIX E**

## APPENDIX E

## INSTRUCTIONS TO SUBJECTS

INSTRUCTIONS: In filling out this questionnaire please make your judgments based on what the individual towels mean to you. After each word on the left, and before each word on the right you will find a five-point scale which you are to rate in the order which it has meaning for you. For example:

ATTRACTIVE X : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ UNATTRACTIVE

This is the way in which you would make the scale if the towel seemed to be very attractive to you; if, however, the towel you are rating seemed to be very unattractive to you, you would have marked the other end of the scale in this manner:

ATTRACTIVE \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : X UNATTRACTIVE

If you feel the word is closely related to how you feel, that the towel is either moderately attractive or unattractive, you would have marked the scale in this manner:

ATTRACTIVE \_\_\_\_\_ : X : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ UNATTRACTIVE

OR

ATTRACTIVE \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : X : \_\_\_\_\_ UNATTRACTIVE

If you consider the word to be neutral on the scale, both sides of the scale equally associated with the word, place your mark in the middle:

ATTRACTIVE \_\_\_\_\_ : \_\_\_\_\_ : X : \_\_\_\_\_ : \_\_\_\_\_ UNATTRACTIVE

IMPORTANT: (1) Place marks in the middle of the lines, not in between:  
THIS                      NOT THIS

ATTRACTIVE \_\_\_\_\_ : \_\_\_\_\_ : X : X \_\_\_\_\_ UNATTRACTIVE

(2) You may feel as though you are repeating words; this will not be the case, so please do not look back and forth.

(3) Do not try to remember how you checked similar items in the questionnaire. Make each word a separate judgment.

(4) Complete each scale as fast as you can. Do not puzzle over individual items. We want your first impressions.

\*\*\* PLEASE TURN THE PAGE AND PROCEED \*\*\*

**APPENDIX F**

APPENDIX F

Laboratory Analysis of the Four Experimental Towels

Towel	(1) Thickness (inches)	Standard Unit Weight (ozs.)	Standard Dimensions (inches)	Standard ozs/sq. yd.	Centigrams Absorbed Before Laundering		Centigrams Absorbed After Laundering		Number Tested
Towel "A"	0.172	19.32	50 x 28	17.89	$\frac{S}{200}$	$\frac{T}{198}$	$\frac{S}{212}$	$\frac{T}{211}$	6
Towel "B"	0.237	17.87	50 x 27	17.15	199		200		26
Towel "C"	0.151	14.67	50 x 25	15.21	$\frac{S^{(2)}}{201}$	$\frac{T^{(3)}}{201}$	$\frac{S}{196}$	$\frac{T}{198}$	13
Towel "D"	0.192	16.21	50 x 25	16.81	205		218		1

Key

(1) One Inch Presser Foot  
One Tenth Pound Pressure

(2) Sheared Side

(3) Terry Side (Unsheared)

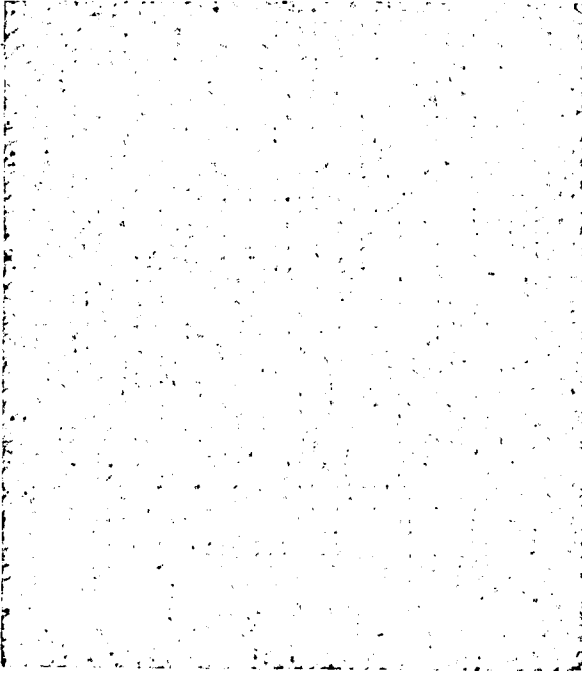
## APPENDIX F

## GOOD HOUSEKEEPING ABSORBENCY TEST RESULTS

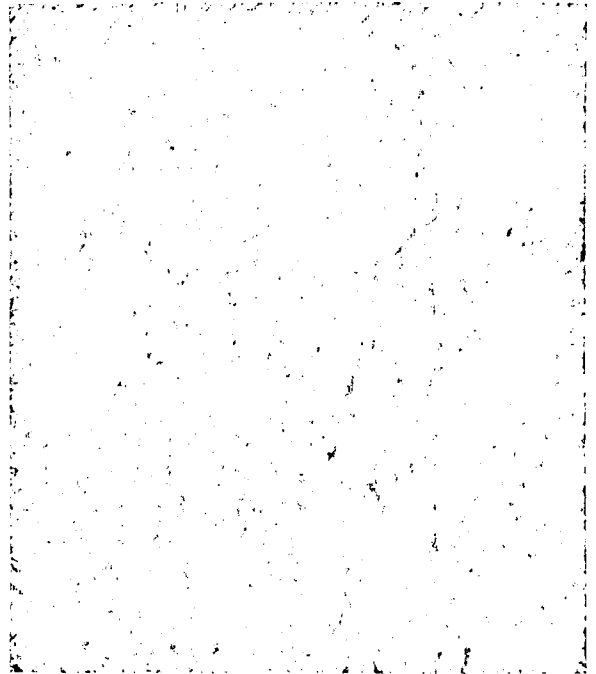
	<u>Rate of Absorbency (inches)</u>		
	<u>1</u> <u>Minute</u>	<u>5</u> <u>Minutes</u>	<u>10</u> <u>Minutes</u>
Towel "A"			
Warp	1.99	3.21	3.81
Filling	2.02	3.26	3.89
Towel "B"			
Warp	1.98	3.10	3.87
Filling	1.80	2.77	3.54
Towel "C"			
Warp	2.03	3.07	3.66
Filling	1.89	2.91	3.43
Towel "D"			
Warp	1.72	2.61	3.13
Filling	1.76	2.56	3.05
	<u>Total Absorbency (Percent)</u>		
Towel "A"	688%		
Towel "B"	794%		
Towel "C"	740%		
Towel "D"	663%		

APPENDIX G

**towel D**

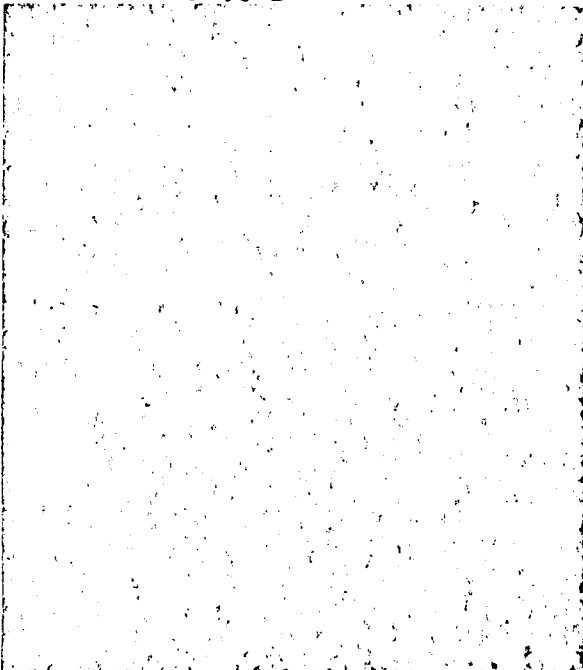


**towel B**



**Experimental Towels**

**towel C**



**towel A**

