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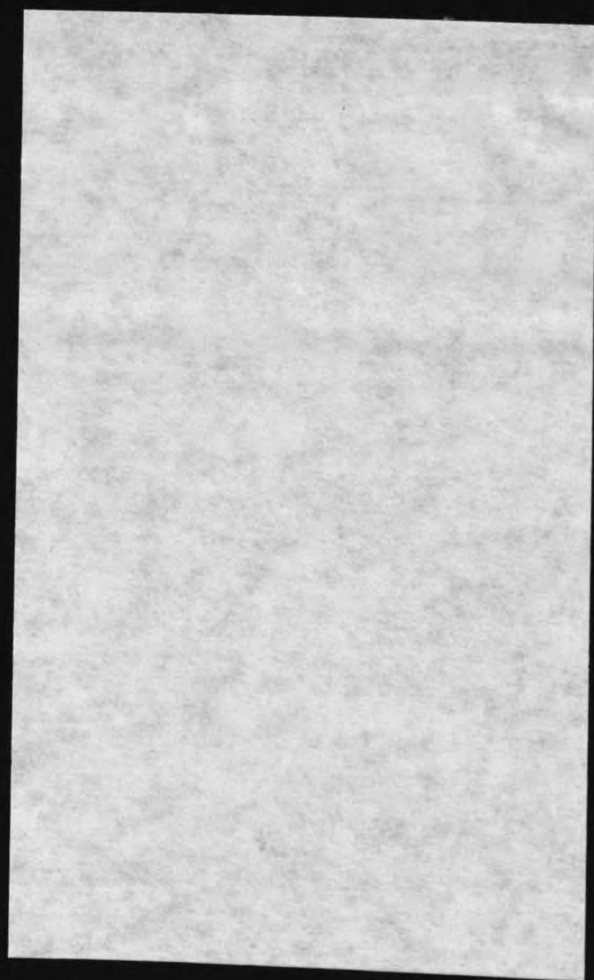
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A SURVEY OF OPINIONS REGARDING RESEARCH IN BASIC
DESIGN AS RELATED TO INTERIOR DESIGN

by

Mildred Moore Chapel

A PROBLEM

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CHAPTER I

INTRODUCTION

Because the problems of design in our society are complicated, this study attempts to deal only with the areas which relate to interior design. Manufacturers concerned with designing materiel for interior design are faced with many of the complications which relate to their product.

One of the problems not yet recognized by many industries is the effect of intuitive methods utilized in making decisions on the basic design components as they are related to the various materiel. The intuitive approach needs to be critically and objectively re-examined in terms of its appropriateness in our culture today which is characterized by increased competition, both at home and abroad.

A second problem is related to the length of time which lapses from the development of a design until the product reaches the market. This time lag adds to the cost of the finished product and results in a non-competitive price.

Deviations in the transferral of the design from its conception to the end product poses still another problem. Changes can occur which alter the preconceived appearance of the article. For example, a designer creates a

two-dimensional representation of a rug pattern in color. Due to the fact that modes of appearance (texture) change color attributes (hue, lightness, brightness) the preconceived appearance of the article may be altered in production. If this change is unacceptable to management and designers, there results an unnecessary expense in production time and materials for the manufacturer, as well as loss of time and creative effort for the designer. Research can make a valuable contribution in solving problems such as this.

All industries have been extensively affected by social and economic change in the world in the past two decades. Although many industries have responded quickly to these changes, most manufacturers of products for use in interior design have remained, to all appearances, almost unaware of the implications in their field. The effect of world changes on supply and demand and on the potential for new and creative approaches to design have gone largely unrecognized. Olga Gueft voices her concern for the inability of the industry to cope with these changes.

Our traditional American attitudes and habits are changing. Fifteen years ago a demoralized Europe was not able to buy the luxuries of life, nor able to compete with the industrial efficiencies of the United States. We did not anticipate this change.¹

¹Olga Gueft, "Change," Interiors, CXXII, No. 8 (March, 1963), p. 85.

The effect of competition, brought about by social and economic change, can be a healthy and invigorating influence on the industry or deadly and debilitating. Added to the increased internal competition within the United States, the advent of the Common Market further intensifies the challenge to the manufacturers of products for interior design. Could basic design research contribute to solving some of the current problems in the industry which have developed from swift and continuing social and economic changes throughout the world?

Because of problems briefly mentioned here and others related to them, many manufacturers who supply articles for interior design are facing serious economic problems. As competition increases and sharpens, companies must find ways of minimizing losses in all stages of planning, production, and marketing. The potential contribution of basic design research to the present dilemma of the industry is at once obvious and elusive: the industry continues to pay "lip service" to the essential importance of basic design and, at the same time, exerts its efforts to solve its problems primarily toward research in production, marketing methods, and the technological development of new fibers, fabrics, and other materials used in interior design.

Relatively little research has been reported in any phase of basic design by the industries supplying articles and materials for interior design. Even in the area

of color, always an essential focus for the interior designer, the leaders in research have been industries concerned with colored television, packaging, color film, cosmetics, food processing, pigments for paints, and other fields. Evidence of research in shape and texture in the furnishings is even more scarce than in the area of color. The effect of one basic design component on other components remains virtually unexplored through research.

The changing conception of the meaning of design in recent years has led to some confusion. As a result, recognizing the need for research in basic design components and identifying truly basic researchable problems may have faltered. From the earlier interpretation of design as the patterns applied to surfaces of an object, the term today encompasses a much broader concept. For this study the investigator has chosen to use Ball's concept of design.¹

Design is defined in the art forms as having visual components of shape, color and texture. Each component has several attributes. Line, volume, and mass are attributes of shape. Hue, lightness-darkness and brightness-dullness are attributes of color. Light reflection, material structure, reaction to handling, reaction to the tactile sense and reaction of the kinesthetic sense are attributes of texture embodied in this study.

¹Victoria K. Ball, The Art of Interior Design (New York: The Macmillan Co.), p. 12.

An understanding of the visual components of design, their attributes, and the relationship of one component to another are the areas to be researched in basic design. Meaningful research for the industries concerned with interior design must focus upon the components of design and their relationships to each other.

The purpose of this study is three-fold: (1) to discover what basic research in design is currently being conducted by or for the industries which produce materiel for the interior design field, and (2) to determine from a selected group of designers and manufacturers what research might be conducted which would be useful to the industry, and (3) to try to determine the kinds of research programs which universities might develop to meet the needs of industries concerned with interior design materials.

CHAPTER II

REVIEW OF THE LITERATURE

Many companies engaged in manufacturing articles and materials used in interior design may be conducting a variety of tests and studies related to their own products. However, very few report any of their investigations to other members of the industry or to educators who prepare students for professional roles as designers who will work in many facets of the industry. In the highly competitive business world, this careful guarding of trade secrets and special processes is understandable.

However, if the industry, as a group with common major goals, could see fit to engage in cooperative efforts to encourage and support research in basic design components, many benefits could accrue for all members. Sharing the findings of basic research in scientific fields has advanced these areas in an unprecedented manner in the past quarter of a century. Similar rewards may well await coordinated efforts in the fields of art and design.

The scarcity of published research on the components of basic design and their relationship to each other suggests the existence of a fertile field for research. At this time the research potential here seems to be

virtually untapped. Perhaps an important contributing cause for slowness in this area has been the confusion and lack of agreement among those in the field about concepts of design.

Design Concept

Marianne Strengell, a textile designer, interprets the meaning of design in this way:

Good design is a way of life. Whether a textile is woven of straw in a native village or of the latest man-made fibers on a high-powered loom, the approach is identical. First and always research. It is necessary to build a framework of facts within which to design. Some of the facts to explore: the human element, available labor and raw material, color, climate, and use, price range, and merchandising methods. Only after this framework is fully explored and understood can one freely experiment and create a valid statement of good design.¹

Scott considers design today as a "fundamental human discipline, one of the basic techniques of our civilization,"² a relatively new concept of what design means. Today design implies much more than the pattern applied to an article. Scott further expands his concept thus:

The time is not so long past when design meant a two dimensional pattern . . . to almost everyone. . . . What we mean by design today still includes such patterns. The magic in the word for contemporary ears certainly lies elsewhere . . . essentially we have changed our focus of attention from various

¹Alice Adams, "Marianne Strengell," Craft Horizons, XXXII, No. 1 (January-February, 1963), p. 36.

²Robert Gillam Scott, Design Fundamentals (New York: McGraw-Hill Co., 1951), p. 2.

specific kinds of design to the activity itself.¹

Architect-designer George Nelson says that there are many ways to consider the meaning of design. In his book, Problems in Design, Nelson emphasizes that design is a medium of social communication, despite the lack of words and regardless of the intent of the creator.²

An orderly, systematic approach to meaningful research in basic design will require clarification and definition of terminology in the design field before much can be accomplished. Without reasonable agreement on the meaning of widely used terms, it is doubtful that much significant research can be conducted or that any research which is done can be effectively communicated. The responsibility for making a decision regarding this basic language difficulty could be met by the cooperative efforts of industry representatives and educators.

The Role of the Designer

In all probability the general lack of recognition of the importance of the role of the designer in our society today has also contributed to the limited research activity in the design field. The present emphasis on science and the scientist has tended to draw attention away

¹Ibid., p. 7.

²George Nelson, Problems in Design (New York: Whitney Publications, 1957), p. 3.

from the esthetic needs and accomplishments of the members of society all over the world. However, expressions of concern are becoming more and more evident that we be mindful of our need for both the scientific and the esthetic contributions to our way of life. Alice Adams expresses a belief in the interdependence of the scientist and the designer in her comment: "If the two are going anywhere, it will have to be together."¹

The need for both the designer and the scientist has been recognized by some designers. Jules Langsner voices his concern in this way:

While the vital role of the scientist in the affairs of civilization has become increasingly apparent even to persons who do not understand what he does, the significance of the artist's contribution to the scheme of things in the modern world has become less evident. Things are changing so fast in our time that it seldom occurs to us to assess the phenomenon of change itself. Neither change nor tradition is good in itself.²

As changes occur in our society it becomes even more important that we become aware of the role that individuals can play. With increased specialization we become more dependent on the knowledge of many individuals and we must learn how to coordinate their efforts. Langsner expresses this need when he states that:

¹Alice Adams, "Fabrics International," Craft Horizons, Vol. XXI, No. 5 (September-October, 1961), p. 6.

²Jules Langsner, "The Artist and the Scientist," Part II, Craft Horizons, Vol. XXII, No. 6 (November-December, 1962), p. 18.

The artist brings a different set of purposes to his work than the scientist. The concepts and discoveries of the scientist transcend him as an individual person, and require crystallization in a form that may be tested independently by others. The artist on the other hand directs his efforts to a certain life enhancement.¹

Langsner further suggests that the artist or designer has been alienated from the mainstreams of modern life in his statement that, "our society has fissioned two cultures, the scientific culture at the intellectual control, and the traditional culture of the arts, out of touch with the crucially important realms of the sciences."²

Although the designer has not always clearly understood himself or his role in relation to other professional organizations, C. N. Parkinson suggests that he is now beginning to realize that big corporations need him for effective communication with the business world and the general public. Parkinson also urges designers to establish a truly professional discipline as follows:

It must use designers . . . to convey its corporate image to the public. Corporations are coming to need and are seeking creative individuality. The big corporation brings a number of real problems. The main one being the "stupefying forces of mediocrity" to which the work of the designer is extremely important. Lack of agreement on broad essentials is apparent. If the same question were addressed to different members, the answer should be essentially the same. If each lawyer gave a different answer, my opinion is as good as his.

¹Jules Langsner, "The Artist and the Scientist," Part II, Craft Horizons, XXIII, No. 1 (January-February, 1963), p. 52.

²Ibid., p. 18.

Designers should establish a professional discipline. Genius is rare. Life is too short to develop a new style for every building.¹

A contributing factor of the lack of recognition of the role of the designer may be the problem of communication with others who are engaged in designing and/or producing materiel for the home. The designer, the engineer and the sales personnel must be able to understand each other and work together for a common goal. A concern for lack of communication has been voiced by both manufacturers and designers. Larsen has suggested that his concern is because of the fact that the designer is removed from production and the producer and consumer are strangers.² The same problem is viewed in a similar way by Robert Riley when he says:

The truth is that the designer, the manufacturer and the store buyer never meet with their "mass market" and no expensive opinion surveys are going to help them understand it. There is no IBM machine to replace a merchant's imagination.³

The problem of communication may relate to the changing concept of the meaning of design. It is possible that research can make a contribution to the solution of these two problems. Perhaps it is in this area that a university

¹C. Northkote Parkinson, "The Corporation and the Designer," Arts and Architecture, 77, No. 10 (October, 1961), p. 39.

²Jack Lenor Larsen, "Needed More Imagination in Textile Design," Modern Textiles, XXXXIII, No. 1 (January, 1962), p. 44.

³Robert Riley, "Myriad World of Fabrics," Craft Horizons, XXI, No. 5 (September-October, 1961), p. 7.

might make a valuable contribution.

The Need for Design Research in Our Culture

If a design is successful it fulfills a human need, either personal and/or social. Human needs, both personal and social, are constantly changing. Design that satisfied these needs in the past may not be able to meet the needs of contemporary living. For example, one of the problems of contemporary living that has not been solved in relation to interior design is in the design of furnishings for the aging. Keifetz indicates his awareness of this problem:

With 21 million people already at retirement age (62) it is surprising that most furniture designers and manufacturers are unable to define the desirable design features of furniture for the aged.¹

Any research conducted in designing furniture for the aging could result in better designed furniture for everyone. At this time only one manufacturer has accepted the challenge of this design problem by subsidizing a study done by a group of psychologists, anthropologists, and sociologists for the National Council on Aging.² The question could be raised here, why was there no designer contributing to this group effort? Considering only the economic factor, the furniture industry can scarcely afford to ignore this market.

¹Norman Keifetz, "RX: Prescription for Old-Age Furniture," Contract, IV, No. 2 (February, 1963), p. 31.

²Ibid., p. 33.

The creation of a comfortable chair for various activities has been a problem to consider with many designers working on this problem. Archie Kaplan points to the need for more research on good seating in relation to the table or work space, the activity and the individual:

We are constantly sitting; yet the design of good seating often escapes us. Studies in various fields have uncovered principles which if they were properly applied would enable people to sit more comfortably.¹

The results of research in good seating must be made available to the manufacturer if society is to benefit from the studies. The manufacturer must also be willing to use the results of research or conduct his own investigation concerning the needs of the people he hopes to serve. Jay Doblin points to the fact that furniture manufacturers have not conducted adequate research in the design of their products when he makes this statement:

I have known dozens of furniture designers and have yet to meet one who conscientiously tests his products either for efficiency or for human use. Nor have I met one using any scientific technique whatever.²

The Need for Textile Research

The textile industry is one of the largest industries in the United States carrying on a huge program of research

¹Archie Kaplan, "Good Seating," Industrial Design, 9, No. 11 (November, 1962), p. 52.

²Jay Doblin, "New Directions," Design, 6, No. 7 (July, 1962), p. 119.

in development of fibers, both natural and synthetic. If they have conducted research on the design aspect of textiles, little has been published. Research is needed on textile design for draperies, floor coverings and upholstery fabrics. R. T. Stevens, a textile manufacturer, is aware of these needs and expresses his concern in this statement:

The research performance of this country's textile industry has not been outstanding. Creative scientific research has not been adequately tried by textile manufacturers. The total commitment to research by the textile industry is small, whether measured by research expenditures or by percentage of sales. The only yardage that holds up well is a percentage of profits, but this is more of an indictment of our level of profits. Increased research and development can play an important part in overcoming foreign competition.¹

The feeling of a need for basic design research which the textile manufacturer expresses is shared by many segments of our society today. E. M. Benson, Dean of the Philadelphia Museum College of Arts, also is concerned over the lack of interest in the design factor of today's fabrics.

Benson makes this statement of the problem:

Most fabrics are a commodity as dull as dishwater. They cover people and things, keeping them warm or cool according to the heart's desire. Millions of yards are spewed from looms and presses the world over. Once in a long while someone with love for his craft creates fabrics that sing, and we are all breathless with astonishment and admiration.²

¹R. T. Stevens, "Manufacturers Lag in Scientific Research," New York Times (March 20, 1962), p. 49.

²E. M. Benson, "Fabrics International," Craft Horizons, XXXI, No. 5 (September-October, 1961), p. 5.

Others are also concerned over lack of design research in the textile industry. A well-known designer, Jack Lenor Larsen, states that the fabrics industry is stagnant and often profitless, producing for the most part, characterless volumes of yardage of cloth. The consumer may also be aware of dearth of well designed textiles when she shops for fabrics for her home. Larsen summarizes the fabric story in this way:

Fabrics are still one of the world's largest industries, but without fanfare, the power or profit of many large industries. There is more fiber being consumed today than ever before, and enormous geometric increase can be expected as a growing population seeks the high living standard and high fabric consumption of this country. Fabric wins a smaller fraction of the American dollar as manufacturing expenses in labor, service, and advertising grow, and as the consumer spends a larger percentage in the service and glamour areas, less for food and clothing. . . . Each year there are fewer producers in the textile field, fewer, but larger ones. Small and medium sized operations, unable to compete on price, or to subsidize a losing plant with a winning one, must excel in design quality.¹

There may be many reasons for the problems concerning the textile industry. Some could be overcome through design research. Other solutions may also be needed. Larsen suggests that fabric technology is ancient and universal and he believes this to be a contributing factor to the textile problem.²

¹Jack Lenor Larsen, "Needed, More Imagination in Textile Design," Modern Textiles, XXXXIII, No. 1 (January, 1962), p. 44.

²Ibid., p. 44.

Robert Riley considers the evolution of a fabric as important as its production. Basic design research can contribute to the evolution of well designed fabrics that are a necessity for our way of life and at the same time be more satisfying to the consumer. Riley states that, "we do not produce anything as beautiful as the fabrics of ancient culture."¹ Is it no longer possible to produce fabrics of this quality? Has modern technology provided us with volumes of yardage, and at the same time taken away the possibility of producing good design?

Larsen expresses the feeling that we can improve our fabrics and at the same time produce large volumes of yardage. He makes this statement, "technology can supply whatever man is moved to invent. Production can be accomplished and the market can be found."²

Manufacturers and designers have expressed their concern over the problems of the fabric industry. The consumer concerns are not often expressed or heard; nevertheless, many seek better design in fabrics. Larsen feels that the problems of the fabric industry must be solved. He cites these reasons for his concern:

The world's need for fabrics in the next twenty years will rise spectacularly, to cover the picture

¹Robert Riley, "Myriad World of Fabrics," Craft Horizons, XXI, No. 5 (September-October, 1961), p. 8.

²Jack Lenor Larsen, "The Future of Textiles," Craft Horizons, XXI, No. 5 (September-October, 1961), p. 7.

windows, clothe the exploding populace, upholster furniture and cars. The fabric industry is not prepared to handle this . . . it is a stagnant giant. Power looms turn out miles of fabric as bland and characterless as white bread.¹

As our way of living changes, the design attribute of texture becomes increasingly important. The influence of texture on the other design components needs to be studied. Little research has been published on textural studies, or on the influence of texture on other components of design. Larsen is aware of the need for research in this area. He expresses his concern when he writes:

Textural interest is lacking. Most fabrics today have no inherent textural interest, no sense of fiber, or interlacing structure. . . . Treating the design as a thin veneer on top of the product is merchandising, not designing. Design can be sold and promoted, production cannot.²

Larsen cites one example of research being done in the area of texture: "Annie Albers has been experimenting for several decades with the development of fibers, yarns and finishes, and the rediscovery of fabrics has inherent possibilities texturally."³ Others like Annie Albers are also experimenting in this area; however, the amount of research these designers are able to carry on is extremely small. Apparently

¹Jack Lenor Larsen, "Fabrics in a New Dimension," Industrial Design, 8, No. 10 (October, 1961), p. 79.

²Jack Lenor Larsen, "Needed, More Imagination in Textile Design," Modern Textiles, XXXXIII, No. 1 (January, 1963), p. 44.

³Ibid., p. 44.

only a small amount of the results of their research is made available to, or used by, large textile firms. As a result of the dearth of research for development of new designs for new fibers, textile firms use other methods of selecting new designs in fabrics.

Two designers for a fabric producer gave some insight into their method of developing new styles and color trends. Three main sources of information were listed which are evidently their concept of research:

1. Working directly with furniture manufacturers.
2. Using trade publications showing style trends.
3. Talking with their sales staff, always in close contact with the retail upholstery buyers, merchandise managers and store sales people. The pot-pouri of ideas and trends gleaned from these important sources are weighed, sifted and discussed by the two stylists. Then after careful consideration, thought, and time expenditure, a new line is born.¹

Marianne Strengell suggests that there has been a letdown in a culturally based insistence on good design in all levels of manufacturing.

"It is the designer's responsibility, not to conform to, but to form the public taste by maintaining high standards in his own work."² Strengell also believes that there is too much emphasis on novelty for its own sake and that

¹Ann MacLean, "Difficulty and Challenge of Styling Increasing," Women's Wear Daily (October 24, 1962).

²Alice Adams, "Marianne Strengell," Craft Horizons, XXXIII, No. 1 (January-February, 1963), p. 36.

the basic frame of reference based on research is often neglected.

The president of a textile company, R. T. Stevens, has this to say about the need for research in this field:

Scientific research is no panacea for all the textile industries' problems. However, increased research and development can play an important part in overcoming some of the foreign competition. He pointed out that research efforts of many large companies were preceded by small and eventually profitable programs . . . the Textile Research Institute announced the establishment of a new \$125,000 post-doctoral fellowship program for the expansion of long range basic research in the fiber field.¹

The Institute apparently did not specify the areas of research that would be included in this program. It is possible that this study will follow the traditional pattern of developing new fibers, and ignore the design factor which is important to the textile industry.

C. N. Parkinson expresses the belief that there is a growing awareness that design must be considered in contemporary living. He also expresses his concern for the situation created by the neglect of the design factor:

The American scene is a mess. This is coming to be realized. What do we do now? Technology which created the chaos is capable of creating order. There is a whole new world to re-design: cities and streets, shops and offices, homes and gardens, tables and chairs, pots and pans, plates and glasses, knives and forks--we do not lack the opportunity.²

¹R. T. Stevens, "Manufacturers Lag in Scientific Research," New York Times (March 20, 1962), p. 49.

²C. N. Parkinson, "The Corporations and the Designer," Arts and Architecture, 77, No. 10 (October, 1960), p. 18.

Gropius also studied the problem of design in our culture to determine the cause. He states that he has continually run into the same situation which he feels may be due to:

A naive disregard for what happens beyond the borderline of one's commission, . . . the desire to outdistance everybody else in dramatic appeal is still so irresistible that the necessary balance of the total design is destroyed . . . for the problem is not how to stem the tides of these new trends, but to find proper solutions for them.¹

Can we continue to ignore the need for considering a broader outlook in the field of design? Perhaps the designers, the engineer and the producer need greater vision to understand this balance of total design which our society needs today.

An editor for a design magazine expresses his concern for the problems facing the designer and the industries which need his services. Like Marianne Strengell, he feels a need for a framework of facts for the designer to use. He feels that designers can make use of information that has been compiled through the efforts of many. The editor makes this statement:

During recent conversations with industrial designers the topic of design inheritance has come up. That is, what does industrial design have as a body of information to pass on? What is the designer's legacy: We assume that a body of communicable information is a central necessity for any profession. We ought to communicate information of a factual

¹Walter Gropius, "On the Occasion of the Celebration of His 80th Birthday at Harvard," Arts and Architecture, 80, No. 7 (July, 1963), p. 18.

nature. A body of facts, despite accidents in transmission, can usually be passed on.¹

How can such a body of knowledge be compiled? What are the problems involved? Is it possible to assemble information on basic design research such as this? Would designers and manufacturers use the information? Are there prejudices that must be overcome before this can be accomplished? Arnheim suggests that there are two prejudices that are apparent:

One of these prejudices asserts that visual things cannot be expressed in words . . . another prejudice maintains that verbal analysis will paralyze intuitive creation and comprehension.²

These prejudices may have to be overcome if a body of knowledge is to be compiled and accepted. Adequate communication between the individuals concerned may help to overcome these prejudices.

Who is best qualified to assemble such information? Perhaps the designer can make a contribution to this knowledge. If the designer is to contribute his knowledge, the problem of communication must be considered.

The designer has been unsuccessful in truly communicating himself to the manufacturer (says Mr. Joseph McGarry). One possible reason being his failure to understand himself.³

¹Robert Malone, "Coefficients of Professionalism," Industrial Design, 10, No. 1 (January, 1963), p. 39.

²Rudolph Arnheim, Art and Visual Perception (Berkeley & Los Angeles: University of California Press, 1954), p. 6.

³C. Northkote Parkinson, "The Corporation and the Designer," Arts and Architecture, 77, No. 10 (October, 1960), p. 39.

If designers have difficulty in communicating with manufacturers, possibly there is a need for a mediator. It is conceivable that a university could make a contribution to this problem of accumulation of data and communication of knowledge.

Thus designers and manufacturers have expressed their concern over the problems of design, and the lack of research needed to solve some of the problems.

Research in Progress

The investigator found that the majority of research under study tended to be in scientific areas such as psychology, and the combined efforts of sciences producing computer systems for color measurement. The findings of research in other sciences could be utilized by designers and firms producing materiel for the home. In a recent article on color research reported in the Journal of the Optical Society of America, Robert M. Boynton makes this observation:

There appear to have been four major categories of experiment related to this effort: (the theory of light and colors) these have involved (1) color mixture, (2) color discrimination, (3) chromatic adaptation, and (4) spectral sensitivity. The need for increased mutual understanding and cooperation, among color researchers utilizing vastly differing approaches will increase, and not decrease in the future. . . . However different our approaches may seem we must not lose sight of the fact that we are all dealing with the same basic problems.¹

¹Robert M. Boynton, "Contributions of Threshold Measurements or Color Discrimination Theory," Journal of the Optical Society of America, 53, No. 1 (January, 1963), p. 165.

The designer is not mentioned by Boynton when he discusses the problem of mutual cooperation in research studies. However, the designer could make excellent use of some of the investigations reported by the members of the Optical Society. An example of this is a study titled Color and Efficiency of Luminescent Light Sources reported by Henry F. Ivey for the Research Department of Westinghouse Electrical Company.¹ The report was on research conducted to study the effect on color of light sources. Color changes which occur with the use of various phosphors used in fluorescent lighting were studied in this investigation. Color changes due to the use of fluorescent lights has for some time created problems for designer as well as consumer.

Efforts are being directed toward simplifying methods of determining color differences. Eugene Allen has reported the findings of his study for the American Cyanamid Company.² Several researchers have worked on computer programs to facilitate the calculation of small color differences. One study reported for the American Cyanamid Company

¹Henry F. Ivey, "Color and Efficiency of Luminescent Light Sources," Journal of the Optical Society of America, 53, No. 10 (October, 1963), p. 1185.

²Eugene Allen, "Simple Graphical Conversion of Colorimetric Ratios to Chromaticity Differences; Application to Determination of Chromaticity, Difference of Near-White Samples," Journal of the Optical Society of America, 53, No. 9 (September, 1963), p. 1107.

gave the results of the use of the Burroughs 20 S Computer.¹ The development of the computer can supplement our present color knowledge, but it can scarcely be expected to replace the trained eye.

George Ingle and Frederick Stockton, researchers for Monsanto Chemical Company, reported their study using automatic digital computers to facilitate comparing color difference equations. For the IBM 650 computer a program was devised to compare the color difference equations of Adams, Adams-Nickerson and the National Bureau of Standards.² Researchers for Davidson and Hemmendinger have also reported on computer programs for this same problem of determining color differences.³ The polychemicals department of the DuPont company reported the development of a computer program for an adjusted-hue color order system. They make this statement concerning the value of this research.

A frame of reference such as a color-order system or color space is particularly valuable when psychophysical aspects of color (such as colorimeter readings) must be compared with the psychological

¹Shelia Meyer, "Calculation of Color-Difference Equations," Journal of the Optical Society of America, 52, No. 4 (April, 1962), p. 475.

²George Ingle and Frederick D. Stockton, "Comparison of Color Difference Equations," Journal of the Optical Society of America, 52, No. 5 (May, 1962), p. 604.

³Hugh R. Davidson and Henry Hemmendinger, "Tri Stimulus Difference, Computers," Journal of the Optical Society of America, 51, 12 (December, 1961), p. 1459.

attributes, hue, lightness and saturation of the corresponding color perception. Many color-order systems meet the requirements for relatively low chroma surface colors. Few, however, have been tested for applicability to high chroma transparent specimens, a field of particular interest to this laboratory.¹

Joint operations between the computation laboratory and the photometry and colorimetry sections of the National Bureau of Standards have resulted in the development of better methods for the computation of spectrophotometric and colorimetric data on automatic computers. This is one of the most extensive programs of its kind for the standardization of color for spectrophotometric data with the help of the electronic computer.² Research in the field of color combined with computer data tabulations opens a wide field of endeavor for research in basic design.

Psychologists have also conducted research on the components of design. Studies reported by psychologists are related to the response mechanism of the various components of design, or the attributes of these components. Weight-illusion, aesthetic experiences, and creativity in design are examples of the areas that interest the psychologist. An analysis of the linear relations between color

¹M. E. Faulhaber and P. D. Schnelle, "Cube Root Coordinate Color-Difference Computer," Journal of the Optical Society of America, 52, No. 4 (May, 1962), p. 604.

²Edgmont Arens, "Mechanized Conversion of Colorimetric Data to Munsell Renotations," Journal of the Optical Society of America, 50, No. 8 (August, 1960), p. 803.

connotations and the color perception of hue, lightness, and saturation was conducted by psychologists Benjamin Wright and Lee Rainwater.¹ They sought to find out in what way fairly constant color connotations (happiness, forcefulness, warmth, and elegance) related to the three basic color perceptions of hue, lightness and saturation.

Some studies in consumer research have been conducted in the area of interior design. The results of such research are not clear to this investigator.

Walter Baerm, a consultant designer, expresses his concept of consumer research in this way:

The relationship between manufacturer and consumer--in spite of the so-called consumer research--is an utterly blurred one in terms of consumer desires and consumer needs.²

Eliot Noyes, industrial designer for IBM, shrugs off consumer surveys as, "just a form of reassurance, something a corporate executive leans on because he is scared not to. It has led to all kinds of corruption in designers and in their design."³

The Kroehler Company has recently published its report on consumer research. The findings from this report

¹Benjamin Wright and Lee Rainwater, "The Meanings of Color," Journal of General Psychology, 67 (1962), p. 89.

²Arens Edgmont, "Color Goes Natural," Color Engineering, Vol. 1, No. 2 (June, 1963), p. 16.

³Walter McQuade, "An Industrial Designer with a Conspicuous Conscience," Fortune, Vol. LXVIII, No. 2 (August, 1963), p. 135.

indicate that the consumer is becoming more aware of good design, and more confident in his ability to select furnishing wisely. The consumer is now less inclined to be sold something he doesn't really want.¹ This would indicate a need for producing better designed products for interior design.

Several studies have been made in the area of texture. In a pilot study, "The Effect of Texture of a Pile Weave on Color,"² Shipley found that pile texture affects the apparent color of the finished article.

The study of "The Effect of the Height and Yarn Size of a Pile Texture on Color,"³ was undertaken by Gross. In this study the color change resulting from varying pile heights and size of yarn was measured.

"The Effect of Texture on Additive Color Mixture in Fabric,"⁴ a study conducted by Vela, found that texture does affect the value of additive color mixture in fabric.

¹Dr. Ernest Richter (director), "The New Consumer: Cautious or Confident?" Kroehler Report II (1963), p. 4.

²Mary L. Shipley, "The Effect of the Texture of a Pile Weave on Color" (unpublished study), Western Reserve University, Cleveland, Ohio, 1959.

³Lorraine Haugk Gross, "The Effect of the Height and Yarn Size of a Pile Texture on Color" (unpublished Master's Thesis), College of Home Economics, Michigan State University, 1961.

⁴Gay Wright Vela, "The Effect of Texture on Additive Color Mixture in Fabric" (unpublished Master's Thesis), College of Home Economics, Michigan State University, 1961.

The aforementioned studies have shown that color changes can be measured. Since color coordination of fabrics of various texture is an important part of interior design, information of this kind should be of value to designers and manufacturers.

It is quite obvious in reviewing the literature that few reports are published on basic design research and that only a few designers are deeply concerned over the lack of research in the design area. It is also obvious that research is being carried on by other professions which has bearing on the design field. It is important to know whether the designers and manufacturers of materiel for interior design are interested in research, if they do any research, or if they feel such research could be carried on in the university atmosphere. Guidance is sought from designers and manufacturers as to what direction research efforts should take.

CHAPTER III

METHODOLOGY

The methodology will include: (1) selection of sample, (2) selection of method, and (3) development of the instrument: The study attempts to determine from a selected group of designers and manufacturers what research might be conducted which would be useful to the industry and the kinds of research programs which universities might develop to meet the needs of industries concerned with interior design materiel.

Selection of Sample

The investigator decided for this exploratory study to contact a representative group of designers and manufacturers of materiel for interior design. This group included those engaged in production of fabrics, carpets, upholstery, plastics, wallpaper, and furniture. This sample was not confined to any one area of the country. It included a cross section of all types of industries engaged in manufacturing products for interior design. Several associations involved in research in this area were also contacted.

Names of designers and manufacturers were selected from several sources:

1. The personal knowledge of Mary Shipley, Associate Professor, Michigan State University

2. Designers and manufacturers associated with the Merchandising Mart, Chicago, Illinois
3. The personal knowledge of the home economist for a large plastics producing company
4. Contacts suggested by designers or manufacturers
5. Sources from the executive committee of the Electrical Women's Round Table
6. The personal knowledge of Dr. Carl Frost, Professor of Psychology, Michigan State University

Selection of Method

This study was designed as an exploratory problem to determine the needs for basic design research in the designing and production of materiel for interior design. The data were to be collected from designers and research personnel of manufacturing firms. The instruments used for collecting the data were personal letters and personal interviews. These two techniques were selected to allow designers and manufacturers to give unstructured answers and to encourage freedom of expression. The personal letter (see Appendix A) was structured with the information sought embodied in the letter itself. Questions asked of those contacted were: (1) are you at the present conducting any research in shape, color, texture, (2) could studies conducted in the aforementioned areas be useful to you, and (3) what research in basic design would you like to see investigated under university conditions? Selecting the

individual in an organization that would be most qualified to aid in the study presented a problem. In some cases it was possible to make a direct contact with this person and in others where a definite name was not known the letter was sent to the research director or department of research and development.

Development of Instrument

To test the reliability of the instrument the first letter was sent to seven manufacturers engaged in the production of materiel for interior design. The companies were selected on the basis of their progress in research or in design of products for the home.

Four of the six companies replied to the letter (see Appendix A). As a result of one of these contacts, the first personal interview was arranged. The home economist for a company engaged in research and production of plastics for the home made the arrangements for this interview. Included in the interview were the home economist, the color stylist for the company, the academic advisor, and the investigator of this study.¹

The home economist agreed to evaluate the instrument used for the original contacts. At her suggestions minor changes in the instrument were made to clarify its meaning. The paragraph asking permission to use the name

¹Discussed under Interviews, p. 59.

of the company was deleted because the home economist explained that industry is reluctant to grant permission to use its name in any instance where it may be quoted. The home economist suggested that it was more important to get the company or the designer interested in the project first, then talk to him about using his name. The revised letter (see Appendix B) was then sent out to twenty-five people, including designers and manufacturers.

After receiving the replies from Instrument II it was evident that the letter was not yet clearly understood. For some reason, the results wanted were not forthcoming. It was possible that designers and manufacturers were unwilling to take the time to think through the problem. There was also the possibility that designers found it difficult to communicate. The decision was made to seek out an expert in the field to give guidance to the study.

An interview was arranged with an industrial psychologist who has served as a consultant to corporations engaged in production of interior design materiel to discuss methods of contacting industry and the problems involved in this study. The psychologist suggested that an interview with Robert Probst, Ann Arbor, Michigan, might be of value to this study. Mr. Probst is engaged in design research for a corporation producing furniture and in this capacity might give some thought to the study. The interview was granted.

A second suggestion given by the psychologist was concerned with the particular person in a company that might be best qualified to give guidance in this study. He suggested that seeking out this qualified person might further our study and through his experience he was able to cite several designers that might fit this category.

Two opportunities for making additional contacts were possible at this time. These opportunities were through the Electrical Women's Round Table, and the Merchandising Mart in Chicago.

The Electrical Women's Round Table, a national organization of women in business, had given the investigator a scholarship to be used in graduate study. They were interested in hearing a report on the kind of study being conducted. This request presented an opportunity for the researcher to make personal contacts with representatives of industry. Display of the results of a texture study by Gross¹ was instrumental in interesting the women of this group in the problem being investigated. Several names of individuals who might be interested in the study were supplied by the group.

Designers and manufacturers were contacted personally by the academic advisor at the Merchandise Mart in

¹Lorraine Haugk Gross, "The Effect of the Height and Yarn Size of a Pile Texture on Color" (unpublished Master's Thesis), College of Home Economics, Michigan State University, 1961.

Chicago. They discussed the possibilities of such a study and agreed that it would take some time and considerable thought to provide adequate answers. Several of the men agreed to give some thought to the problem. The instrument was presented for evaluation and the suggestion was made by the designers that enclosing the problem outline with the letter might help to explain the purpose of the study in greater detail than was possible in a letter. Some revision of the instrument was made to explain the inclusion of the problem outline. The letter was revised again to increase its validity (see Appendix C).

Eighty designers and manufacturers were then contacted using the personal letter and the problem outline enclosure. Fifteen of the eighty people had been previously contacted at the Furniture Mart in Chicago. Replies received from contacts suggested the names of individuals and/or organizations that might be interested and the contacts were made. Individuals who expressed interest received a follow-up letter with specific questions enclosed to clarify the nature of the study.

In seeking information the personal letter always preceded the interview, which was also designed to allow freedom of expression on the part of the person interviewed. Two interviews were arranged with the home economists and the industrial designers of a large appliance company.

Additional interviews were suggested by designers and manufacturers, which were arranged with companies in Michigan expressing an interest in discussing the study.

CHAPTER IV

DISCUSSION OF FINDINGS

A descriptive content analysis of the data collected will be used in the discussion of the findings of this study. The instruments used to contact designers and manufacturers and the replies received can be found in the appendixes. Replies were received from 42 of the 142 contacts made with the various instruments. Six personal interviews were granted.

Exploratory Instrument Number I, and Discussion of Replies (Appendix A)

Instrument I was a personal letter with the information sought embodied in the letter. Three specific questions were asked: (1) are you conducting any research in shape, color, texture, (2) could studies conducted by universities in these areas be useful to you, and (3) what research subject matter would you like to see investigated under university conditions? The letter also included an explanation of the investigator's purpose in conducting the study, and asked permission to use the company name in the study.

Six companies were contacted using the original instrument which was a personal letter and with the information sought embodied in the letter (see Appendix A, 1, p. 82).

Four of the companies contacted replied. Information given by these four companies was not helpful in determining the need for research for the investigator. However, the replies did help in making the decision to clarify the letter. The president of a company engaged in the manufacture of furniture replied for his company (see Appendix A,1, p. 82). This reply was a strong, negative one. He definitely was not interested in research carried on by a university. He gave no reason for his feeling concerning research.

A reply was received from a representative for a second furniture company (see Appendix A,2, p. 82). This person wanted to know how the information would be used. Concern was expressed for any participation in such a project which might jeopardize the company's relationship with its leading designer. A follow-up letter was sent to this company which attempted to explain further the purpose of the study. There was no reply to the second letter.

A textile fiber producing company replied that they were satisfied with their arrangement with a well-known designer (see Appendix A,3, p. 83). The home economist who replied for the company stated that the designer was engaged to experiment with new fibers produced by the company, and the company felt that the designer was meeting their needs. Her findings were made available to any industry purchasing their fiber. The home economist stated that the company did not carry on research in the components of design as

their research concerned itself, for the most part, with the development of new fibers. Several other respondents suggested that the investigator contact this company because they were doing the type of research being investigated. The respondents apparently were unable to distinguish between design research and fiber development research.

The home economist for a large plastics producing company expressed interest in the study. After further correspondence (see Appendix A, 4 and 5, p. 83), the home economist suggested that a personal interview to discuss the problems might be of help in understanding the nature of the study, and the interview was arranged.¹

Table I (p. 39) is a summary of the kinds of responses received from Instrument I. There were no answers to the questions asked. One home economist expressed interest in the study. Her interest led to an interview which aided the investigator in refining the instrument which apparently was not understood.

In evaluating the results of the replies received some difficulties in understanding the instrument were indicated.

1. Representatives of industry may not have been willing to think through the problem.
2. The instrument may not have reached the person best qualified to deal with the problem.

¹Discussed under Interviews, p. 59.

TABLE I
SUMMARY OF REPLIES TO INSTRUMENT I

Replies Requested by Instrument I	Designers	Research Personnel	Home Economists	Public Relations	Sales Manager	Stylist	Executives	Totals
Research in progress								
Research needed								
University research not helpful								
University research helpful								
Indicated need for color research								
Indicated need for research on shape								
Indicated need for research on texture								
Totals								
Replies Not Requested by Instrument I								
Importance of consumer preference								
Importance of market research								
Intuition and experience								
Problem of technology and engineering								
Use consultant in design			1					1
Fear of pirating of ideas								
Fear of stifling creativity								
Requested further information			1			1		2
Indicated no interest in study						1		1
Refer to other sources			1					1
Totals			3			2		5

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215	1216	1217	1218	1219	1220	1221	1222	1223	1224	1225	1226	1227	1228	1229	1230	1231	1232	1233	1234	1235	1236	1237	1238	1239	1240	1241	1242	1243	1244	1245	1246	1247	1248	1249	1250	1251	1252	1253	1254	1255	1256	1257	1258	1259	1260	1261	1262	1263	1264	1265	1266	1267	1268	1269	1270	1271	1272	1273	1274	1275	1276	1277	1278	1279	1280	1281	1282	1283	1284	1285	1286	1287	1288	1289	1290	1291	1292	1293	1294	1295	1296	1297	1298	1299	1300	1301	1302	1303	1304	1305	1306	1307	1308	1309	1310	1311	1312	1313	1314	1315	1316	1317	1318	1319	1320	1321	1322	1323	1324	1325	1326	1327	1328	1329	1330	1331	1332	1333	1334	1335	1336	1337	1338	1339	1340	1341	1342	1343	1344	1345	1346	1347	1348	1349	1350	1351	1352	1353	1354	1355	1356	1357	1358	1359	1360	1361	1362	1363	1364	1365	1366	1367	1368	1369	1370	1371	1372	1373	1374	1375	1376	1377	1378	1379	1380	1381	1382	1383	1384	1385	1386	1387	1388	1389	1390	1391	1392	1393	1394	1395	1396	1397	1398	1399	1400	1401	1402	1403	1404	1405	1406	1407	1408	1409	1410	1411	1412	1413	1414	1415	1416	1417	1418	1419	1420	1421	1422	1423	1424	1425	1426	1427	1428	1429	1430	1431	1432	1433	1434	1435	1436	1437	1438	1439	1440	1441	1442	1443	1444	1445	1446	1447	1448	1449	1450	1451	1452	1453	1454	1455	1456	1457	1458	1459	1460	1461	1462	1463	1464	1465	1466	1467	1468	1469	1470	1471	1472	1473	1474	1475	1476	1477	1478	1479	1480	1481	1482	1483	1484	1485	1486	1487	1488	1489	1490	1491	1492	1493	1494	1495	1
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3. The instrument may not have been clearly understood.
4. The instrument may not have been clearly stated.

Instrument Number II. and Discussion of Replies (Appendix B)

Instrument II (see Appendix B, p. 85) was a revised version of Instrument I. The revision consisted of a more elaborate explanation of basic design (shape, color, texture) research. Two specific questions were asked of the company: (1) which studies in the aforementioned areas could be useful to you or your company, and (2) are there other areas of research concerning the components of design which you feel could be carried on best under university conditions? An attempt to clarify the intent of the problem was made by explaining that the study made no attempt to develop a formula for design, and that end product design was not the objective of the investigation. The revised letter was sent to two home economists in industry for evaluation. Further revisions in the instrument were made at the suggestion of the home economists.

Because Instrument Number II was sent to only the two home economists, a table was not compiled for this instrument.

Instrument Number III and Discussion of Replies (Appendix C)

Instrument III (see Appendix C, p. 90) was a revision of Instrument II. At the suggestion of a home

economist and a color stylist for a plastics producing firm, the paragraph was deleted which asked permission to use the name of the company in the study. The more detailed explanation of basic design was retained. The specific questions, (1) which studies in the areas of basic design research could be useful to you or your company and (2) are there other areas of research concerning the components of design which you feel could be carried on best under university conditions, were retained in Instrument III which was sent to ten designers and manufacturers.

Two replies were received from the ten contacts made with this instrument. A well known textile designer stated that he offered such assistance only when acting in an advisory capacity (see Appendix C, 1, p. 92). This designer has written numerous articles expressing his concern for the design of textiles produced in this country and has repeatedly expressed his interest in educational efforts to aid students in becoming better designers. Nevertheless, he was either unable or unwilling to give suggestions for the study and apparently makes his contribution only when reimbursed for his efforts.

A designer, who is one of a team for a design association, stated that he felt that the investigator might better devote the time and effort to educate the public in what design is all about (see Appendix C, 2, p. 92). He felt that the consumer has had great influence on the

quality of design being produced; however, he did not explain how the consumer exerts this influence. Table II, p. 43, was compiled to show the results of the responses to Instrument III. The instrument was sent to ten designers and research personnel. Two designers replied expressing either no interest in the study or mentioning the problem of consumer influence on the selection of design in products for the home.

Instrument Number IV and Discussion of Replies (Appendix D)

At the suggestion of the designers contacted at the Merchandise Mart, the problem outline was included with Instrument IV (see Appendix D, p. 94). The instrument was revised and condensed because of this inclusion. This revision stated the objectives of the study, to determine the needs for research in the components of design, and to determine the kinds of research which would be useful to designers and industries in the fields related to interior design which could be conducted under university conditions. Emphasis was placed on the fact that the study was primarily concerned with basic research in the design elements of shape, color and texture.

A home economist replied for a chain store (see Appendix D, 2, p. 98). She stated that she felt that the problem required more thought than the average person was willing to give. This may have been the reason for the kinds of answers received from many of the respondents.

TABLE II

SUMMARY OF REPLIES TO INSTRUMENT III

Replies Requested by Instrument III	Designers	Research Personnel	Home Economists	Public Relations	Sales Manager	Stylist	Executives	Totals
Research in progress								
Research needed								
University research not helpful								
University research helpful								
Indicated need for color research								
Indicated need for research on shape								
Indicated need for research on texture								
Totals								
Replies Not Requested by Instrument III								
Importance of consumer preference	1							1
Importance of market re- search								
Intuition and experience								
Problem of technology and engineering								
Use consultant in design								
Fear of pirating of ideas								
Fear of stifling creativity								
Requested further informa- tion								
Indicated no interest in study	1							1
Refer to other sources								
Totals	2							2

The stylist for a manufacturer of carpets replied for her company (see Appendix D, 3, p. 98). She stated that research to this company means a study of home furnishing style trends, as shown in the manufacture of products for the home. She did not state the manner in which these trends are developed in the furnishing industry. Public taste was considered of primary importance to this stylist; however, she did not explain how this public taste is determined. The stylist expressed interest in the motivation behind consumer acceptance of a product. She considered basic design research to be of academic interest, but not significant to the carpet industry.

The science coordinator for a society for testing and materials replied for his organization (see Appendix D, 4, p. 99) stating that this society has several projects which relate to the subject under study. Two technical committees have been set up to cover parts of this area. Two symposia on Appearance of Materials have been sponsored by the committees. The symposia were as follows:

1. Visual Aids for Standardizing and Communicating Product Appearances
2. Visual Appearance, A Five-Attribute System of Describing

Another committee on Sensory Evaluation of materials and products is attempting to standardize measurements involving the senses and relating sensory evaluations to

instrumental measurements. The society had attempted to compile a bibliography of papers in this area of research with little success. The group feels rather strongly that research in basic design is needed.

Two stylists for a fabric producing company were contacted by the Promotions and Publicity Manager for his company (see Appendix D, 5, p. 99). Apparently neither stylist understood basic design research. The respondent makes one statement that may have a bearing on the study. He states that stylists and other creative people have difficulty putting their thoughts into words.

The sales manager for a company engaged in the manufacture of furniture replied for his company (see Appendix D, 6, p. 100). This sales manager stated that little research in basic design is being conducted by industry but a great deal is being conducted on materials and methods. The respondent mentioned the fact that a large fiber producing company conducted basic design research on non-woven fabrics. This company was contacted by the investigator and the company replied that they did not carry on basic design research. A well known designer experimented with their new fibers and made the results of her experiments available to their customers. The respondent for the furniture producer also mentioned the problem of consumer research and consumer acceptance as important to this company.

A stylist for automotive interiors interpreted the

problem as pertaining to market research (see Appendix D, 7, p. 101). The instrument was sent to the department of market research for a reply. This department replied by sending the investigator a copy of a recent talk on the car of the future, regardless of the fact that the instrument definitely stated that the study was not concerned with market research.

In replying for his company, the vice president in charge of sales for a textile company gave some interesting comments (see Appendix D, 8, p. 101). He stated that in all of their products, design is a problem of engineering rather than visual effect. It is evident that, like many others, this respondent does not comprehend the breadth of the term design.

The sales manager for a furniture manufacturer interpreted the problem of basic design research as pertaining only to applied design (see Appendix D, 9, p. 101). Apparently he did not feel that a good design would aid in marketing his product. He produced whatever he thought would sell. This same designer replied to specific questions asked in a follow-up letter (see Appendix E, 2, p. 115).

The executive secretary from a learned society directed the investigator to other sources of information (see Appendix D, 10, p. 102). Like many other respondents he was certain that someone else was carrying on the research. When contacted, the investigator learned that the research

was not being carried on by the societies mentioned by the executive secretary.

The vice president in charge of sales replied for a plastics producer (see Appendix D, 11, p. 102). Like many others, he interpreted the study as pertaining to consumer research.

The advertising and sales promotion manager replied for a carpet manufacturer (see Appendix D, 13, p. 102). He evidently interpreted the study as pertaining to consumer research since consumer preferences in color and design were mentioned repeatedly in his letter. Apparently this is of greater concern to the carpet industry than any basic design research, or possibly they do not understand basic design research as defined by this investigator.

The manager of a market research organization replied to the letter addressed to the stylist for interiors for an automobile manufacturer (see Appendix D, 12, p. 102). It was hoped that replies would come from stylists, designers, or research personnel, to whom the letter was addressed. In most cases the replies were not from these people. The reason for this is not known.

A well known designer replied for his own company. He simply agreed with the proposed study and declined to offer any assistance (see Appendix D, 14, p. 104).

A lawyer replied for the National Committee on Design Legislation (see Appendix D, 15, p. 104). This committee

was contacted at the suggestion of another respondent. The respondent stated that he or his committee did not participate in research of this sort.

The chairman of the color committee for a learned society considered the study much too complicated for one investigator (see Appendix D, 16, p. 104). In his reply he listed several contacts to be made that might prove helpful. Several of these contacts had already been made. One had definitely stated that it did not carry on basic design research. Another contact was a large ink-producing company which also manufactures pigments for paints. This company sent a folder of color chips to the investigator as a reply. A third source sent material forecasting color trends. At this point the question might be asked, "What is research?" Can the mixing and development of fashion colors or the forecasting of color trends be considered research?

The merchandising manager for a well-known fabrics producer replied for her company (see Appendix D, 17, p. 105). She interpreted basic design research as consumer research or market research. It was stated that this company was interested mainly in knowing what the customer wants . . . period of design, colors, and patterns. The company finds this information readily available from their own sales figures.

The designer for a furniture manufacturer replied for his company (see Appendix D, 18, p. 106). He stated

that, as head of the department for two art schools before his employment as a furniture designer and due to his experience in the business world, he understood the problem under study and would be happy to assist. An interview to discuss the study was suggested. This was arranged and will be discussed under the section on interviews (see p. 59).

The manager in charge of Public Relations and Public Affairs replied for a company engaged in the manufacture of floor coverings (see Appendix D, 19, p. 106). The reply from this company was a strongly negative one. The manager stated that he was interested in the study but could not suggest any areas to be investigated, partly because of the nature of their products and partly because of the money involved in such a study. This respondent felt that his company might better continue their own research rather than co-sponsor research projects. The company seemed to think that a grant for research would be sought if suggestions for investigation were given.

The director of the research laboratory for a chain store expressed the belief that such a study would stifle creativity (see Appendix D, 20, p. 107). The respondent stated that customer response will shape the trends in the future. He felt that individual taste is more important than basic research in design.

A well known designer of products for interiors was

of the opinion that texture was an unexplored field for the designer (see Appendix D, 21, p. 107).

The manager in charge of consumer and market research replied for a large appliance manufacturer pointing to a need to know more about the people for whom they design products (see Appendix D, 22, p. 107). Like many other respondents, he cited the consumers' wants and needs as being of prime importance. The need for market research was also mentioned in this reply.

An industrial designer employed by a large appliance manufacturer stated his belief that research in basic design was definitely needed (see Appendix D, 23, p. 108). He indicated that knowledge gained from this could be quite helpful. After stating his opinions, he also expressed concern for consumer demands. This designer was one of the few who expressed a feeling of responsibility in producing well-designed articles for the home, expressing a desire to guide public taste and design appreciation into channels that are a little above the present level.

The vice president in charge of Research and Development replied for a plastics producer. This respondent stated that basic research at the university level would be less important than basic training in the arts and sciences (see Appendix D, 24, p. 109). He also pointed out that the research approach would lead to a worse type of academism than the nineteenth century ever knew. This respondent

failed to clarify this statement or to explain upon what premise he based his assumption.

The president of a furniture producing company suggested that an interview be arranged to discuss the problem (see Appendix D, 25, p. 110). He felt that some help could be given if there was an opportunity to ask questions concerning the study. He stated that he did not understand basic research in design. This interview was arranged and will be discussed under the section on interviews (see p. 59).

A stylist for automotive interiors expressed interest in the study, but preferred to discuss the problem in an interview, with the major professor, the investigator and the stylists participating in the discussion. Time did not permit the acceptance of this invitation.

Table III (see p. 52) is a summary of replies received from contacts made with Instrument IV which included the problem outline. It is evident that including the outline helped to clarify the study because a greater number of replies were received and for the first time answers were given to the questions asked. Eighty designers and research personnel were contacted with twenty-six responding. As Table III indicates, replies were received from other personnel in the industries contacted. Nearly half of the responses were from sales managers, public relations personnel and stylists. Designers and sales managers were more aware than other respondents of the need for research

TABLE III
SUMMARY OF REPLIES TO INSTRUMENT IV

Replies Requested by Instrument IV	Designers	Research Personnel	Home Economists	Public Relations	Sales Manager	Stylist	Executives	Totals
Research in progress								
Research needed	3	1		1	1			6
University research not helpful	1				2			3
University research helpful	1	1			3	2		7
Indicated need for color research	2	1			2			5
Indicated need for research on shape	2	1			2			5
Indicated need for research on texture	3	1			2			6
Totals	12	6	0	1	12	2		33
Replies Not Requested by Instrument IV								
Importance of consumer preference	1	1			6	2		10
Importance of market research					1	1		2
Intuition and experience						2		2
Problem of technology and engineering					1	1		2
Use consultant in design								0
Fear of pirating of ideas				1				1
Fear of stifling creativity		1						1
Requested further information	1					1		2
Indicated no interest in study			1			1		2
Refer to other sources		2	1		2			5
Totals	2	4	2	1	10	5	3	27

*Totals are greater than the number of respondents because some respondents indicated more than one area of importance. Other replies had no bearing on the study.

in the field of design. Designers and research personnel were less inclined to consider consumer and market research of great importance, while sales managers favored consumer research. While the number of respondents is small, the distribution of responses in Table III gives some indication of the feeling of a need for basic design research by persons engaged in design and production of materiel for the home.

Instrument Number V and Discussion of Replies (Appendix E)

Specific questions concerning the study were incorporated into a personal letter which was sent to various individuals. These contacts were made as a follow-up with respondents previously contacted. One home economist and one executive replied to these questions: (1) Is there a need for research in basic design shape, color, texture? (2) Would you consider research in texture and its effect on color useful to industries in this field? (3) Could a body of knowledge in this area be compiled that would be useful to designers and manufacturers? (4) Do you feel that the Common Market may force industries to up-grade the design quality of their products? (5) Could basic design research aid industries in meeting this competition? A home economist for a mail order chain store suggested that adequate research has been conducted on color unless it applied to a specific problem (see Appendix E, 1, p. 113). This

respondent recognized the need for research in texture, but did not appear to know what research was needed in this area. She has also stated that there was no need to be concerned about foreign competition because there was not enough competition to have an effect on United States markets. This competition has been keenly felt in areas not related to this study, and it is possible that competition from foreign countries may be increased among the industries producing articles for interior design.

In another response to the same questions (see Appendix E, 2, p. 115) the executive for a furniture manufacturing company expressed the belief that the basic research in design is needed and could be helpful, but failed to state what research he felt should be conducted. The respondent also mentioned a problem that relates to the field of interior design which was concerned with the education of the buyer and/or salesman in the understanding of design. The executive also recognized the problem of mediocrity in goods produced in the United States. He stated that foreign competition could eventually have some influence in the design quality of products for interiors.

Table IV (see p. 55) summarizes the replies received from the Instrument V. Both the home economist and the executive could see some need for research in shape, color and texture, as they relate to a specific problem, when direct questions were asked of them.

TABLE IV
SUMMARY OF REPLIES TO INSTRUMENT V

Replies Requested by Instrument V	Designers	Research Personnel	Home Economists	Public Relations	Sales Manager	Stylist	Executives	Totals
Research in progress								
Research needed								
University research not helpful								
University research helpful								
Indicated need for color research			1				1	2
Indicated need for research on shape			1				1	2
Indicated need for research on texture			1				1	2
Totals			3				3	6
Replies Not Requested by Instrument V								
Importance of consumer preference							1	1
Importance of market research								
Intuition and experience								
Problem of technology and engineering								
Use consultant in design								
Fear of pirating of ideas								
Fear of stifling creativity								
Requested further information								
Indicated no interest in study								
Refer to other sources								
Totals							1	1

Several of the responses to the instrument were not pertinent to the study. A wallpaper producer sent a folder of new designs in wallpaper with no letter of explanation accompanying this folder. A stylist for automotive interiors sent an illustrated copy of a talk given on market research. A set of color chips was received from an ink producing company which was said to be engaged in extensive color research. Another source replied with a brochure of color trends for the coming year. The brochure was the work of a well-known colorist. A paint company replied by sending educational material on using color in the home. Other respondents mentioned that this company was also engaged in extensive color research.

The materials which were not pertinent to the study may have been sent by a secretary for the designer or manufacturer. It is possible that the instrument never reached the person to whom it was addressed. Where possible, contacts were made with an individual in an industry. If no information was available concerning the best qualified individual to contact, the instrument was addressed to the Research Division for the company.

Table V (see p. 57) summarizes all of the responses to all of the instruments. As can be seen from this table, the replies came from a number of contacts which the investigator did not intend to make. Designers and sales personnel made the greatest contribution to the study; however, the

TABLE V
SUMMARY OF REPLIES TO ALL INSTRUMENTS

Replies Requested by all Instruments	Designers	Research Personnel	Home Economists	Public Relations	Sales Manager	Stylist	Executives	Totals
Research in progress								
Research needed	3	1		1	1			6
University research not helpful	1				2			3
University research helpful	1	1			3	2		7
Indicated need for color research	2	1	1		2		1	7
Indicated need for research on shape	2	1	1		2		1	7
Indicated need for research on texture	3	1	1		2		1	8
Totals	12	6	3	1	12	2	3	39*
Replies Not Requested, all Instruments								
Importance of consumer preference	2	1			6	2	1	12
Importance of market research					1	1		2
Intuition and experience						2		2
Problem of technology and engineering					1		1	2
Use consultant in design			1					1
Fear of pirating of ideas				1				1
Fear of stifling creativity		1						1
Requested further information	1		1				2	4
Indicated no interest in study	1		1				2	4
Refer to other sources		2	1		2			5
Totals	4	4	4	1	10	5	6	34

*Figures do not correspond to number of respondents since some respondents gave more than one area to be studied. Others gave no information that was pertinent to this study.

contribution is not significant due to the small number who responded. Research personnel, to whom the instrument was addressed, offered little assistance to the study. Failure to report research under study which is shown in Table V may be due to lack of communication among personnel in a firm or the fear of the pirating of ideas may have been a contributing factor. It is also possible that the industries contacted did not have an on-going research program. Table V also illustrates the importance of the consumer in the eyes of sales managers and other personnel in the firms contacted.

Many of the replies were received from the market research departments, or the promotion departments, or the consumer research departments. The reason for the wide variation in the sources of replies is not known, other than the fact that they may not have had an on-going research program.

Participants in the study included 142 contacts made with designers and manufacturers of products for interiors. The contacts were as follows:

- 19 designers
- 36 manufacturers of floor coverings, curtains, and draperies
- 12 industrial designers
- 12 home economists in industry
- 8 learned societies
- 18 manufacturers of plastics
- 19 producers of housewares and appliances
- 12 furniture manufacturers
- 2 fiber producing companies
- 3 editors of design magazines

Interviews

Interviews were undertaken to obtain more information that was pertinent to the study than could be obtained by correspondence.

The interview was structured to allow freedom of expression on the part of the person being interviewed. The purpose of the study was explained which included an explanation of basic design research. The questions asked were, (1) are you at present conducting research in shape, color, texture, (2) could studies conducted by universities in these areas be useful to your company, and (3) what research subject matter would you like to see investigated.

Interview Number I

The first interview was arranged with the color stylist and the home economist for a large plastics producing company. Both of these people had difficulty in understanding the nature of the problem. This may have been due to the inexperience of the investigator. Information gained from this interview can be summarized as follows:

1. Both the home economist and color stylist had difficulty in understanding the investigator's concept of basic research in the components of design.
2. Promotion was of most importance to industry.

3. The company feared the pirating of ideas, styles, or color selections.
4. Industry might be difficult to approach because of the aforementioned fears.
5. After lengthy discussion both of these people agreed that there was a need for research in this area, but they had no idea where a university could start, or how to disseminate the information to industry.
6. Since many in industry did not understand basic design research, they were unaware of the need for research in this area.
7. The home economist and the color stylist considered the study to be ahead of the times.

In conducting this interview it became apparent that neither the home economist nor the color stylist understood basic design research. However, they could express problems of their own that could be solved by such research. The home economist displayed the results of some recent experiments in the texture of plastics. Texture or visual appearance of new materials is of real concern to the industries engaged in the production of synthetic materials. The home economist also expressed a need for research in the design of a child's chair which could be made of a plastic material. The functional aspects of the chair she had in mind included the possibility of designing a shape that

could be used in play activities as well as a chair for seating.

Interview Number II

A research consultant for a company engaged in the production of furniture expressed his views. He stated that basic design was an area that should be researched by departments of interior design. He felt that research in this area should have been well established by this time. This consultant gave the following suggestions:

1. Research should be conducted in fibers, paints, coatings.
2. Synthetic materials need research. What texture or effect should a synthetic material have? Should vinyl look like the raw material itself? Is it attractive in itself? Or should it look like cane or marble or brick? Is the synthetic wood appearance of vinyl successful?
3. Research could consider the basic fibers and raw materials. These could be reduced to the best natural appearance. He cited as an example the great progress in the design of concrete blocks.
4. Research could seek the best qualities for materials to aim toward, for human use. Both opinion and physical data are needed.

Interview Number III

The home economist and her assistants employed by an appliance manufacturer offered their assistance in this study. The following information was given by the home economist:

1. Design is a relatively new field for this company.
2. Design must be considered in conjunction with the functional aspects of the appliance. Examples cited were: cleanability of panels, visibility of dials, readability of clocks.
3. Color-coding was important to this industry.
4. Little is known of visual texture.
5. The home economist cited the company's experience with a well known colorist in selecting colors for a refrigerator. The cerise interior with blue trim, selected by the colorist, was discarded in favor of the color of a new car purchased by one of the design staff.
6. The home economist stated that the company was interested in consumer preferences, but she added that these findings often are changed in the process of manufacturing the article.

Interview Number IV

The Industrial Designer for the same appliance company also agreed to aid the investigator in the study. He

expressed these ideas:

1. Good design is not readily available in the low price field.
2. One of the biggest problems in design relates to the buyers and salespeople who sell the product in the store. He felt that these people were responsible for much of the poor quality of design that appears on the market.
3. The designer creates beauty, then the mentor (i.e., manufacturer) takes over, and the result may be far from beautiful.
4. Industrial designers have no sense of social responsibility to the public, nor have they an understanding of human values. The industrial designer cited as an example the design of ranges. The things women asked for were often omitted to save a few cents.
5. Engineers and designers must work together if good design is to be achieved.
6. Market research should ask what consumer dislikes, not what she wants.
7. Psychologists state that light green is the easiest color to live with, but they fail to say to which light green they refer.
8. There is a need for more research on normal people. The psychologist has been more interested

in the abnormal person. Industry needs to know more about the normal human being. More research is needed concerning the homemaker's function in the home.

9. Only a little is known about texture.
10. The common market will create stiff competition for United States industries. This may be good, in the opinion of this industrial designer.

Interview Number V

A designer for a small company engaged in production of furniture invited the investigator to discuss the problem under consideration. This designer stated that he had experience as head of two different art schools previous to his employment in industry. In his letter this designer stated that his various experiences in the design field enabled him to understand the study. During the interview he expressed the following views:

1. He did not understand how basic research could be useful to industry.
2. The designer was not interested in any research that would be available to his competitors.
3. Pirating of ideas would prevent an industry from suggesting research problems for study in a university research program.
4. He expressed concern for what will sell rather than the quality of design.

5. The designer felt that a good idea from one of his designers was more useful to the company than any research.
6. The time element in industry is of utmost importance.

Interview Number VI

The manager and a designer for a furniture company expressed their views in an interview. They made the following statements:

1. This industry was not interested in any research which would be available to its competitors.
2. Industry is not particularly concerned over the quality of design in its products.
3. Industry has no conscience where making money is concerned.
4. Salespeople are expected to move merchandise, which they do not relate to the customer's needs.
5. Selling is a game, an emotional experience to a salesman.
6. When art can be researched, it will be the end of the world.
7. Intuitive design offers the best solution.
8. If basic design research provided factual material, how would you police or control this material to keep it from getting out of hand.

The aforementioned information was gained as a result of six personal interviews which were arranged with representatives in industries engaged in the production of articles for the home. Interviews were conducted with the following people:

The home economist, and the color stylists for a plastics producing company

A research consultant for a furniture producing company

The home economist, her assistants and the industrial designer for an appliance producing company

The designers for a small furniture producer

The manager and designer for a furniture producing industry

Table VI shows the results of the interviews and the contribution to the study which were made by the various persons contacted. The research consultant was the most valuable source of information for the investigator. He saw real need for research in the area of texture or the visual appearance of new materials to make them acceptable for use in materiel for the home.

Executives were more concerned with the fear of pirating of ideas by other industries and with the problem of consumer acceptance.

In evaluating the findings of this study several problem areas are indicated: (1) methodological problems, (2) a lack of understanding of the concept of design, and (3) a failure to understand the nature of research.

TABLE VI
RESULTS OF INTERVIEWS

	Designers	Research Personnel	Home Economists	Public Relations	Sales Manager	Stylist	Executives	Totals
Research in progress								
Research needed		1	1					2
University research not helpful								
University research helpful								
Indicated need for research on color	1	1	1					3
Indicated need for research on shape		1						1
Indicated need for research on texture	1	1	1					3
Totals	2	4	3					9
Importance of consumer preference	1		1				1	3
Importance of market research	1						1	2
Intuition and experience								
Problem of technology and engineering								
Use consultant in design								
Fear of pirating of ideas			1				2	3
Fear of stifling creativity								
Requested further information								
Indicated no interest in study								
Refer to other sources								
Totals	2		2				4	8

Methodological problems which were indicated related to finding the individual in an industry who was best qualified to give aid to the study. The success of the study would be determined by the instrument reaching the proper person. In some cases it was possible to secure the name or names of persons who could make a contribution, and the instrument was addressed accordingly. However, the instrument did not always reach the intended individual. Personal contacts have indicated that a secretary had written the reply to the instrument as a part of her obligation to screen her employer's mail. The inquiry was discarded by the secretary who did not realize the importance of the instrument and thus the response did not include the information sought.

Obtaining the name of a qualified individual was not possible in all cases. In seeking information from industries where a personal contact was not available the instrument was addressed to the research division of the industry. From the great variety of respondents to the instrument it appears that the letter might have been passed from one person to another in the industry in search of an answer. The problem was most often interpreted by this group as one of market research or of consumer research, regardless of the fact that the instrument stated that this was not an objective of the study.

In evaluating the two techniques used, (1) the personal letter, and (2) the interview, the investigator

considered the personal interview to be the more effective method of obtaining the information. The personal interview was more costly and more time consuming.

Interviews with representatives of industry required tact and patience for best results. Designers and researchers wanted first to explain their ideas and projects, and they wanted to discuss the problems that concerned them. After this was accomplished the interviewer could probe for information. It is interesting to note that the results obtained from Instruments I, II, and III were similar to the interview in that the individuals were inclined to state the problems that personally concerned them, rather than to give serious thought to basic design research. The respondents failed to see that basic research in the components of design could aid in the solution of some of their problems.

A lack of understanding concerning the concept of design was indicated by many respondents. This may be due to a change in concept of design definition. The meaning of basic design as interpreted in the university classroom today, which was outlined in the instrument, is a much broader interpretation of the terms than industry uses. Several of the replies received point to this. The concept of design as surface decoration was indicated. Most of the respondents did not break design down into its components of shape, color, and texture; those who made this distinction gave texture as the area needing research.

Respondents who were most aware of research problems needed in the area of design were the science coordinator for a society for testing and materials, and the research consultant for the furniture company. Both of these people were concerned with the visual appearance or texture of new materials. The national sales manager for a furniture company also saw a need for research in the visual appearance of new materials as well as research to develop these new materials to make them acceptable to the consumer.

Some designers and manufacturers felt that intuition was the most valuable method of creating good design. Others denied that intuition played any part in design creation. Neither group understood how basic design research would be helpful.

Industry's failure to understand the nature of research was also indicated and their fear of the pirating of ideas is one of the most frequent answers which points to this. Another reply which supports this was the expressed fear that research would stifle creativity. Their expression of concern for a need to police the results of research also points to a lack of understanding of research.

There was little evidence of any concern for the design quality. The industries and designers contacted felt that good design was not of great importance in marketing a product. Several of those questioned stated that industry has no conscience or feeling of social responsibility

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in producing good design. Of the replies received, only one designer and one manufacturer expressed concern for the responsibility of creating well designed articles, and by doing so attempt to raise the taste level of the consumer.

Closely related to the problem of producing design of quality was the manufacturer's desire for keeping costs at a low level. There was some evidence of a feeling that good design costs more to produce, or that poorly designed products would bring greater profit. Other respondents felt that their company would be asked to finance a project if they expressed a need for it.

The lack of knowledge of the attributes of design on the part of buyers and/or sales personnel was of real concern to some of the designers contacted. They felt that the sales personnel were often responsible for the quality of design that reaches the consumer. Perhaps more training is needed for this group of people.

Only two of the individuals contacted felt that the Common Market would have any influence on industries concerned with materiel for interior design. One industrial designer felt that competition from other countries might be good. This designer suggested that industries from abroad might now be in a position to "tool up" in sufficient capacities to compete on a much greater scale than in the past.

Consumer preferences were of some concern to many respondents who indicated that the quality of the design

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that this is crucial for ensuring transparency and accountability in the organization's operations.

2. The second part outlines the specific procedures for recording and reporting these activities. It details the steps involved in data collection, analysis, and the preparation of reports for management review.

3. The third part addresses the role of the audit committee in overseeing the financial reporting process. It highlights the committee's responsibility for ensuring that the information provided to the board of directors is reliable and complete.

4. The fourth part discusses the importance of internal controls in preventing and detecting errors or fraud. It describes how these controls are implemented and monitored to ensure the integrity of the financial statements.

5. The fifth part concludes by summarizing the key points and reiterating the commitment to high standards of financial reporting and transparency.

6. The sixth part provides a detailed overview of the organization's financial performance over the reporting period. It includes a comparison of actual results with budgeted figures and an analysis of the variances.

7. The seventh part discusses the organization's financial position and liquidity. It provides information on the balance sheet, including assets, liabilities, and equity, and explains the implications for the organization's long-term sustainability.

8. The eighth part addresses the organization's capital structure and financing activities. It details the sources of funds, the terms of any debt, and the plans for future capital raising.

9. The ninth part discusses the organization's risk management strategy. It identifies the key risks facing the organization and describes the measures in place to mitigate these risks.

10. The tenth part concludes the document with a statement of the organization's commitment to ethical conduct and responsible financial management.

11. The eleventh part provides a detailed breakdown of the organization's revenue and expenses. It includes a line-item analysis of the income statement, showing the contribution of different business segments to the overall performance.

12. The twelfth part discusses the organization's tax position and compliance with applicable tax laws. It provides information on the tax expenses recognized and the steps taken to ensure accurate reporting.

13. The thirteenth part addresses the organization's pension and post-employment benefit obligations. It details the assumptions used in the valuations and the funding status of the plans.

14. The fourteenth part discusses the organization's derivative financial instruments and hedging activities. It explains the purpose of these instruments and the impact on the financial statements.

15. The fifteenth part provides a summary of the organization's financial performance and outlook for the future. It includes a discussion of the challenges and opportunities ahead and the management's strategy to address them.

of their products was the result of consumer demands. Just how this influence is exerted was not made clear to the investigator. Apparently many designers and manufacturers cling to the belief that the consumer influence is significant. The investigator has had considerable experience in working with consumers in the selection of articles for their homes. As a result of this practical experience this investigator would be inclined to agree with Eliot Noyes who considers consumer surveys to be a form of reassurance for an industry.

If the consumer has such great influence on the materials produced, one might ask why there has not been a greater amount of research on furniture for our aging population. In the small amount of research projects conducted, the participants have included anthropologists, sociologists, and psychologists. Designers have not participated in this area of research which could offer some guides to better furniture for everyone.

CHAPTER V

SUMMARY AND RECOMMENDATIONS

One of the objectives of this study was to investigate current literature to determine where and to what extent research in basic design as related to interior design has been conducted.

In attempting to achieve this objective, it became apparent from publications that little basic design research has been conducted which relates to interior design. Some research has been done in the component of color. Little of this research relates directly to interior design. Research in the component of shape has been conducted in the search for a comfortable chair and even this research has not been applied to problems of interior design. A few studies have been conducted in the component of texture. The results of this study indicate to this investigator that the need for research in texture has not been recognized until recently.

In reviewing the literature it was evident that some investigators in psychology, anthropology and sociology are aware of a need for research in the design of furnishings for the aging. The designer is also needed in this research effort.

1. The first part of the document

2. The second part of the document

3. The third part of the document

4. The fourth part of the document

5. The fifth part of the document

6. The sixth part of the document

7. The seventh part of the document

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20. The twentieth part of the document

The investigator found little published evidence of research concerning the effect of one component on another. Some evidence of this type of research was found to have been undertaken by one university.

A second objective was to investigate the needs for research in basic design as it relates to interior design. The results of the study concerning this objective were disappointing. The misunderstandings which seemed to prevail even after terms were defined seemed to spring from the wrong person receiving the inquiry, not enough time to give thought to the problem, or a "couldn't care less" attitude.

Those who did give thought to the problem and saw its implications indicated that the area of color and texture needed to be researched. Other areas of research suggested were related to synthetic materials and their visual attributes, the best natural appearance of any raw material, the best qualities of materials for human use (both preference and physical data are needed), color coding, functional aspects of design, problems of design transferred from board to production, definitive terminology for color attributes, psychological research on normal people, and problems involved in obtaining good design in low cost products.

A few designers and manufacturers expressed their concern over the quality of design produced and the lack

of research in the components of design. However, none of the respondents were willing and/or able to make a definite statement as to what research projects should be conducted.

Several of the men who were interviewed stated that the quality of design produced was not of great concern to manufacturers. They produced whatever they thought would sell and expected the salesman to promote the articles.

A third objective attempted was to determine the kinds of research programs in basic design research, as related to interior design, which universities might develop to meet the needs of industries concerned with interior design products.

The designers and manufacturers contacted were unwilling or unable to make any suggestions for achieving this objective. It was apparent that there was great misunderstanding concerning the nature of research. The designers and manufacturers did not understand that basic research should be available to all. Research projects that would be beneficial to their competitors were of no interest to industry. Pirating of ideas was of great concern to industry and they thought that the findings of research could also be pirated by another company. Consumer preferences were considered more important than basic design research in many industries while others feel that research on consumer preferences produced no worthwhile results.

Developing an instrument in an attempt to learn how to contact industry was not one of the stated objectives of this study. However, some knowledge was gained in this area. Interviews following a contact made by letter proved to be the most valuable technique. Tact and patience were required of the investigator and before any pertinent information could be sought the designer or manufacturer wanted to discuss his problems in production of materials for interior design. After this was accomplished the interviewer could seek the information desired. The investigator learned that questionnaires are unacceptable to industry and the secretary is expected to discard this type of correspondence. A personal letter is acceptable to representatives of an industry and they stated that they feel obligated to answer this kind of communication. However, it is evident that industry does not always adhere to this policy.

Interviews and responses from designers and manufacturers indicated to the investigator that the value of basic design research will have to be demonstrated to industries if they are to recognize the value of design research. Evidence of this was gained through the interviews with home economists and the display of results of research in the talk given for the Electrical Women's Round Table meeting.

Findings from basic design research will have to be compiled in a brief and concise form if these findings

are to be useful to industry. Representatives from industry stated emphatically that they did not have the time to read academic papers. The summary was most often read to find out if the research was pertinent to their products.

Disseminating the results of research would pose some problems. Several of the respondents indicated that they were not completely satisfied with their present methods of creating good design in the articles produced by their companies. Perhaps the designers for these companies would be most receptive to the findings of research which would aid them in their task.

Several respondents indicated that education for sales personnel could contribute to the solution of the problem of providing better designed articles for the consumer. The publication of the Kroehler Report¹ indicates that the consumer is steadily becoming more aware of the quality of design. Thus it might be assumed that the training of sales personnel needs to be intensified in the area of understanding quality in design. It is interesting to note that the positive suggestions for research came from only four of the one hundred and forty-five people contacted.

Recommendations for Further Research

1. It is recommended that the interview technique

¹David Richter (Director), "The New Consumer, Cautious or Confident?", Kroehler Report II, 1963.

1. The first part of the document
describes the general situation
of the country and the
state of the economy.
2. The second part of the document
describes the state of the
economy and the state of the
economy.
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describes the state of the
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should be utilized for any further study of the problems involved in research on basic design, because this technique gave the investigator more specific answers as well as a better understanding of the problems of designers and manufacturers in this field.

2. Any further investigation similar to this study should incorporate into its methods a visual example of basic design research, because the results of the few studies carried on helped in clarifying the value of basic design research.

3. A study could be undertaken to define design terms as they relate to the various areas of production in industries concerned with materiel of interior design. This could aid the designer in his problem of communicating with others.

4. A great deal of color research has been conducted by psychologists, psychophysicists, illuminating engineers, and physicists; however, much research is needed in the color preference area or in the visual area of color discrimination. This need was expressed in the interviews by the research consultant, the industrial designers and in many of the responses to the letter.

5. The field of texture has remained virtually without research. In this area innumerable avenues of approach are open to the investigator since the development of new materials has presented problems relating to the effect of texture on color.

6. More research is needed on the component shape, particularly to fulfill the needs of the aging and all age levels including young children. One respondent was especially interested in research for furniture for the young child.

7. The effect of one design component on another has had little research. The interaction of all the design components is of great importance since the three compete, along with light in the visual world. The research consultant and the science coordinator for a society for testing materials were aware of the need for this research.

8. From the interviews conducted and the review of the literature the investigator is led to believe that personnel involved in the designing and production of materials for interior design do not understand clearly the relationship of research to design. Research might investigate some of these concepts such as the interpretation of research as related to the various areas of endeavor, the relationship of the designer to the production staff, and the many changes which seem to occur in the interim between creation by the designer and its appearance after production.

If this study has raised questions in the minds of a few people in the field of interior design, it has met with some success. Perhaps the study can be likened to dropping a pebble in the ocean. Eventually the waves may reach the shore.

APPENDIX A
INSTRUMENT I
AND
REPLIES TO
INSTRUMENT I

Instrument I

Dear Sir:

For some time I have been employed as a County Extension Agent in Home Economics. During that time I have been most interested in the problems of homemakers in Interior Design.

At present I am enrolled in the Masters program in Interior Design at Michigan State University. I am studying under Miss Mary Shipley, Associate Professor, Department of Textiles, Clothing and Related Arts, College of Home Economics.

We are attempting to find out what current research is being done in the design area of Home Furnishings.

There are many studies being done in Consumer Research. We are not including this area in our investigation. We are interested in a different facet, that of basic design research.

Are you at present doing any research in your particular field in the following areas:

1. Shape (space, line, volume, mass, etc.)
2. Color
3. Texture

Universities carry on research programs in these areas. We would like to know if:

1. Studies conducted by universities in the aforementioned areas could be useful to your company and:
2. What types of research subject matter would you like to see investigated that could be carried on under university conditions?

We will appreciate your help in this study. Any information will be completely confidential. No names of firms will be used in this study unless permission is granted. If you are willing to grant permission to use your company name, please indicate this.

Sincerely

(Mrs.) Mildred Chapel
County Extension Agent
Home Economics

Replies to Instrument I

A-1

I am sorry but we would not be interested in the studies you mentioned in your letter of June 13 such as space, color, and texture to be conducted by Michigan State University.

We feel that studies of this sort are most advantageously carried on by individual private business organizations, and are areas in which state support is unnecessary.

A-2

Please excuse our delay in answering your letter of June 13. The questions which you pose are challenging, and we wish to cooperate by providing you with the most useful information possible.

Due to the unusual relationship that our company enjoys with its designers, we find it somewhat difficult to supply you with information about research work or needed research in the areas of motivation, etc. without more specific knowledge of the intended use of the information that we may forward to you.

If it would not be too inconvenient, would you mind advising us what the ultimate use of the information is.

I will be looking forward to hearing from you.

A-3

We use as a consultant,, New York City, who is an outstanding authority on color and texture.

She develops color combinations and textures for carpets, casements, draperies, and upholstery that are particularly suitable for our fibers.

As a service to our customers, we submit many of her ideas (actual samples) to them. They are free to reproduce or interpret them as they see fit. Through work (actual research, we feel), it helps us to spark interest among our customers in developing new color combinations and textures in home furnishing fabrics and carpets.

At present, we feel is meeting our needs. I wonder if it wouldn't be well for you to contact manufacturers of carpets, draperies, and casements, even for types

of research in the areas you mentioned. I should think they would feel that the University could perform a valuable service through the type of research it is able to conduct.

Do feel free to write me if you have questions.

A-4

Your letter of June 13 has been referred to my attention, since one of my major responsibilities in the Plastics Sales Department is the development of Markets for the use of plastic in housewares and home furnishings.

Textiles do not fall in the category of my responsibilities, therefor, I am sending your letter to Merchandising Manager of our Fabric Division in the New York Sales Office. I hope that he will be able to supply you with the information per your letter.

I thought you might be interested in some of the color forecasting we do in the housewares field for plastic housewares.

Our Color Styling Service in Plastics has been in existence for some twelve years and has been very successful in influencing and forecasting color for the housewares industry. I hope can be of assistance to you and please feel free to contact us at any time.

A-5

Your third paragraph was of keen interest to me, and I am not being facetious, but to answer your questions would involve quite a long dissertation. May I extend to you and a very cordial invitation to come up to ...; have lunch with me and spend some time talking about color. We are always very interested in assisting Michigan State in any way we can--personally, I am extremely interested as I took my Masters from Michigan State. Why not look over your schedule and drop me a line when it might be convenient for both of you to come up for a visit.

APPENDIX B
INSTRUMENT II
AND
REPLIES

Instrument II

Dear Sir:

For some time I have been employed as a County Extension Agent in Home Economics. During that time I have been most interested in the problems of homemakers in Interior Design.

At present I am enrolled in the Masters program in Interior Design at Michigan State University. I am studying under Miss Mary Shipley, Associate Professor, Department of Textiles, Clothing and Related Arts, College of Home Economics.

We are making a survey of the current research being done in basic design as it relates to interior design. There are many studies being done in consumer research. We are not including this area in our investigation. We are interested in a different facet, that of basic design research.

We feel that universities could carry on objective research in this area which could benefit all industries producing goods for interior design. The only way universities could institute such design research programs is through the interest and guidance from these manufacturers and designers concerned.

In order to institute such a program, we must know the kind of research that has been done, or is being done by industries and their designers. Thus, we come to you for information concerning this matter.

The following areas of research are those which we feel will give us answers to our survey.

1. Space (shape, line, volume, mass, as related to fabrication).
2. Color (hue, value, saturation).
3. Texture (light reflection, material structure, reaction to handling, reaction to the tactile sense, kinesthetic sense).
4. Research on the reaction of these components on one another.

Using these four components as a guide, could you please take time from your busy schedule to send us a reply concerning the following questions?

Instrument II continued

If universities carry on research programs in these four areas:

1. Which studies in the aforementioned areas could be useful to you or your company, and in what way would they be useful?
2. Are there other areas of research concerning these components of design which you feel could be carried on best under university conditions?

We are not interested in end product design, but in research which would lessen the time lapse between creation and production so that a well designed end product may reach the consumer rapidly enough to meet the challenge of changing world competition. Even though we are not interested in end product design, we feel that research in basic design would contribute to all industries concerned with products for interior design.

We will appreciate your help in this study. Any information will be kept completely confidential. No names of firms or individuals will be used in this study unless permission is granted. If you are willing to grant permission to use your company name, please so indicate.

Sincerely

(Mrs.) Mildred Chapel
County Extension Agent
Home Economics

Replies to Instrument II

B-1

I reviewed your last letter with some of our people who I felt were in a position to advise. They feel that the type of information which you are seeking is beyond the scope of any activities which we do or the people whom we reach in our marketing activities. They feel that your best contacts would be leading industrial designers, architects, etc. They felt that contact with the national headquarters of A.I.D. might be helpful to you as I mentioned before, might be one to contact from the standpoint of color.

Your letter is well done and should bring results.

I do feel your proposed research is most worthwhile, and I regret I cannot be more helpful to you.

B-2

Your second form letter came some weeks ago. I must admit that I was remiss in not settling down to thinking this letter out sooner. I did some thinking on it myself; and when was up here last week, we further discussed your letter.

I think that both and myself are still concerned about the cooperation and support you might get from some industry on this research project. I personally feel you still have not clearly stated what you are proposing to do and how the results of this research may be of benefit to industry. Unless this is clearly stated, I believe your cooperation from industry will be held to a minimum. I also wonder exactly what the interior designer of note would think, how he would react to this project and what suggestions he might make before you further embark on the undertaking.

In reference to the third paragraph of your letter, I did not feel that you delineated specifically what you mean by basic design in relation to interior design. Maybe a quick example of what you mean by basic design research at the end of this paragraph would clear up one's first impression. I would make this example very down to earth. It might even be an addendum that you add to the letter.

I also feel the next to the last paragraph in your letter should come at the beginning of the letter as it more

quickly sets the stage. The closing sentence--"If you are willing to grant permission to use your company name, please so indicate." I would say get the company or the interior designer interested in the project, and then later talk to him about using his name or the company name. But industry scares very easily when its name is to be used. You would be surprised at the red tape and policies set up to guide us when we participate in any public relations and our name is to be quoted.

Mrs. Chapel, I do not want to seem negative at this point, but I recognize such a project could be long, drawn out and fraught with many uncooperative minds. If we can be of any further assistance to you, please feel free to keep in touch with us.

APPENDIX C
INSTRUMENT III
AND
REPLIES

Instrument III

Dear Sir:

For some time I have been employed as a County Extension Agent in Home Economics. During that time I have been most interested in the problems of homemakers in Interior Design.

At present I am enrolled in the Masters program in Interior Design at Michigan State University. I am studying under Miss Mary Shipley, Associate Professor, Department of Textiles, Clothing, and Related Arts, College of Home Economics.

We are making a survey of the current research being done in basic design as it relates to interior design. There are many studies being done in consumer research. We are not including this area in our investigation. We are interested in a different facet, that of basic design research.

We feel that universities could carry on objective research in this area which could benefit all industries producing goods for interior design. The only way universities could institute such design research programs is through the interest and guidance from these manufacturers and designers concerned.

In order to institute such a program, we must know the kind of research that has been done, or is being done by industries and their designers. Thus, we come to you for information concerning this matter.

The following areas of research are those which we feel will give us answers to our survey:

1. Space (shape, line, volume, mass, as related to fabrication).
2. Color (hue, value, saturation).
3. Texture (light reflection, material structure, reaction to handling, reaction to the tactile sense, kinesthetic sense).
4. Research on the reaction of these components on one another.

Using these four components as a guide, could you please take time from your busy schedule to send us a reply concerning the following questions?

Instrument III continued

If universities carry on research programs in these four areas:

1. Which studies in the aforementioned areas could be useful to you or your company, and in what way would they be useful?
2. Are there other areas or research concerning these components of design which you feel could be carried on best under university conditions?

We are not interested in end product design, but in research which would lessen the time lapse between creation and production so that a well designed end product may reach the consumer rapidly enough to meet the challenge of changing world competition. Even though we are not interested in end product design, we feel that research in basic design would contribute to all industries concerned with products for interior design.

Sincerely

(Mrs.) Mildred Chapel
County Extension Agent
Home Economics

Replies to Instrument III

C-1

I write in reply to your letter of November 8th. I regret I am unable to review this matter with you at this time. I receive so many requests of this nature that it is terribly difficult for me to comply with all of them. I occasionally can do this when acting in an advisory capacity but otherwise owing to my heavy business and travel schedule, it is virtually impossible.

My regrets again that I must say no.

C-2

Thank you for your very interesting letter of November 9; however, I do not agree with your basic premise for the research you have outlined.

I feel that gaining information in such vague areas is of little value. All good product and furniture designs stem from a need, real or imagined, and must relate to its environment. It is also directly related to the technological development of any given time.

I feel much more should be done to educate the public in what design is all about, to overcome some of the conditioned thinking that has been put off by many manufacturers--that of planned obsolescence, of fads and applied-chrome type of designing.

If the demand from the public is there, then manufacturers will be quick to pick it up. Most manufacturers are reluctant to change from established cliches in what the public wants.

APPENDIX D
INSTRUMENT IV
AND
REPLIES

Instrument IV

Dear Sir:

We are trying to find out from designers, manufacturers, and others, in the fields related to interior design, what the needs are for research which could be conducted objectively and efficiently under university conditions.

We are interested primarily in basic research in the design elements of shape (form), color, and texture.

We realize there is great concern about consumer education and consumer market research. We are doing all that we can at this time to further consumer education. We feel that there are many others more capable than we are of conducting market research. However, if you have ideas on either of these types of research, we would be glad to take them into consideration.

The type of research which we are interested in would not come up with a formula, or stifle creative design. However, there are many things which could be researched which could be helpful in production, after the creative design is finalized on a two-dimensional drawing.

Basic research could help put this design on the market more quickly, and accurately according to the designer's plans. Surely a body of knowledge could be assembled that could be useful to many of those who are interested in the field of design.

Since a great deal of time and effort are expended in university research programs, we feel that these research problems should be designed to make worthwhile contributions to the field of interior design.

Can you give us some idea of the type of research that would be useful to you or your company?

I am enclosing an outline of the problem I am studying. Perhaps it will help explain the nature of the study.

I will appreciate your help in this matter.

Sincerely

(Mrs.) Mildred Chapel

PROBLEM OUTLINE
Master's Degree

DEPARTMENT: Textiles, Clothing and Related Arts
ADVISOR: Mary L. Shipley
STUDENT: Mildred Chapel
CREDITS: 6

TENTATIVE TITLE: A Survey of Current Research in Basic Design* as Related to Interior Design.

JUSTIFICATION: Academic personnel concerned with interior design need to know the extent to which basic design research as related to interior design is being carried on either in other institutions or by the industries concerned with interior design products.¹

Before research in basic design as related to interior design can be instituted in a University the University must ascertain not only the kind of research being done by others, but, more important, the exact needs in research of those industries whose products are related to interior design.²

Basic design research, out of necessity, will play an ever increasingly important role in the economy of those industries concerned with interior design if they are to compete in the rapidly changing world competition.³ If industries concerned with interior design can be alerted to this coming need in time to support basic design research as they have supported research in production,⁴ this is adequate justification for an investigation of this nature.

One of the major problems, not often yet realized by the majority of industry related to interior design is the outmoded, intuitive methods utilized in making decisions on basic design components as they are related to the various products. It is here that the University could make the greatest contribution to research in basic design as related to interior design if a starting place can be found.

ASSUMPTIONS: I. There is need for research in basic design which can be utilized in the field of interior design.

- II. Industry related to interior design could give guidance to universities with respect to the type and extent of basic design research needed.

- OBJECTIVES:
- I. To investigate current literature to determine where and to what extent basic design research as related to interior design has been conducted.
 - II. To investigate the needs for research in basic design as it relates to interior design.
 - III. To try to determine the kinds of research programs in basic design as related to interior design which universities might develop to meet the needs of those industries concerned with interior design products.

- PROCEDURE:
- I. Research Design
 - A. For this exploratory study a survey of literature will be made to determine the kinds of research, if any, that have been carried on in basic design as related to interior design.
 - B. Industries will be contacted to determine the needs for a research program in basic design as related to interior design.
 - II. Methods
 - A. Review of the literature
 - B. Contact designers and manufacturers by personal letter. Follow up letters will be sent when necessary.
 - C. Personal interviews with designers and manufacturers whenever possible.
 - III. Data Collection
 - Data will be compiled from:
 - A. Literature
 - B. Designers
 - C. Manufacturers and Manufacturers' Associations
 - IV. Analysis of Data
 - A. A descriptive content analysis of the data will be made.
 - B. Recommendations for further study.

LITERATURE INVESTIGATION:

- 1 The 90 articles investigated to date for information as to on going research in basic design were gleaned from:
 1. The Readers Guide to Periodical Literature.
 2. The Industrial Arts Index.
 3. New York Times Index.
 4. The Art Index.
 5. The Applied Science and Technology Index.
 6. Business and Periodicals Index.
 7. Titles of Completed Thesis in Home Economics and Related Fields in Colleges and Universities of the United States.

2,3 and 4

These footnotes are not literature cited but are articles found which support the problem justification, but are concerned with only one phase of interior design, textiles.

- 2 Stevens, R.T., "Manufacturers Lag in Scientific Research," New York Times, March 20, 1962, p. 49.
- 3 Larsen, Jack Lenor, "Fabrics in a New Dimension," Industrial Design, Vol. 8, No. 10, October, 1961, p. 79.
- 4 Uribe, Rodrige, "I.F.C. and Six Banks Reach Loan Pact," New York Times, August 11, 1962, p. 21.

*Research in basic design as related to interior design refers to research in the components of design, shape, color and texture and the attributes of these three components.

Replies to Instrument IV

D-1

My son-in-law was greatly interested in your project. He suggested that you write to When you write, tell him you met the mother of wife, and also explain your difficulty. He is certain you will receive help from the Company. As I told you has coordinated the decoration at the Ford Museum at Dearborn.

He also suggested you contact who do all the coordinating at Williamsburg and fabricate the popular Williamsburg fabrics. He also suggested who do wonderful things with silk.

D-2

Thank you for sending the outline of your research project. I have read it briefly but haven't had time to give it much thought. It does require thought. Perhaps more than the average business person is willing to give.

D-3

Our company manufactures all types and styles of carpet to be sold nationally. Maximum consumer acceptance of each styling effort is our primary concern.

Toward accomplishing this purpose, we continually study regional as well as national home furnishing style trends as they are reflected in our sales and the observations of our regional representatives. Further, we closely observe the style and design developments and performance in associated home products such as, draperies, paints, etc. In this effort my own responsibility rests in close association with such organizations as the National Home Fashions League, and associated groups concerned not only with current trends but forecasting new marketing demands.

Intuitive methods as described in your outline play a very minor part in determining our styling direction. Experience in the field, inspiration and talent play the greater part in meeting the styling challenges of a diversified, demanding, and always changing, public taste.

In our library we have available for our use the whole designer experience in textile development; and through our field contacts, we keep informed of present trends and related creative efforts.

A study of basic design elements, while of academic interest, would not be as significant for us as, say, an investigation into the motivation behind consumer acceptance of a given product.

D-4

This is in reply to your letter of January 30 describing your research project for your masters degree. This Society has several projects which relate to the subject you have selected. In particular, two technical committees cover parts of this area, Committee E-12 on Appearance of Materials has sponsored two symposia as follows:

Visual Aids for Standardizing and Communicating Product Appearance STP 258

Visual Appearance, A Five-Attribute System of Describing STP 297

Also, Committee E-18 on Sensory Evaluation of Materials and Products is attempting to standardize measurements involving the senses and in particular relating these sensory evaluations to instrumental measurements. The committee has endeavored to collect a bibliography of papers relating sensory evaluation to instrumental measurement but with little success. This is an area which needs research efforts.

D-5

After having presented your problem to both of our stylists, I am sorry to advise you that neither of them seemed to understand what you are trying to find out.

For what it is worth, I am enclosing the reply of one of our stylists; the other one had no comment.

I'm sorry that your request for help from us hasn't been more productive but from my own experience, I know that stylists and other creative people find it very difficult to put their thoughts in words.

I have thought about this some and feel that I probably don't get the point.

If she means research from the standpoint of whether square motifs are more popular than round ones, perhaps this would be interesting to know. But no more than interesting since there are times when the designer feels the need to use one or the other, regardless of popularity.

Other kinds of research such as documentary motifs would be of little value since I feel that the designer should seek and find his own inspiration. We are naturally guided in this field by past performance of a style (i.e. Early American, etc.,) and are therefore able to make an educated guess as to future designing. If we could be told that Russian Provincial will be highly desirable from a sales potential point of view in spring of 1965, this would be helpful!

D-6

I can only give you some ideas and opinions which I hope might be useful to you.

#1 In general, I think the "assumptions" are valid and the "objectives" follow logically.

#2 In relation only to our upholstered furniture business:

- A. Little "basic design" research is done by the industry. Lots of research has been done and is being done on materials and methods. How much is published, I really don't know. A good lead on this question might be the addition of upholstery magazine.
- B. One thing we can't get away from in our industry is the basic shape of human anatomy. There has been basic research on this, research on average dimensions, shapes, and proportions of the human frame. Whitney Publications, who publish "Interiors" magazine, published a book for designers giving the results of this research.
- C. Much technical research has been done on textile designs, fibers, and mill methods. Basic design research is being done by and possibly others, on non-woven fabrics.

On the question of what research might be helpful to our industry, here are some ideas:

#1 Given the present market of resilient materials, present methods and technology, what basic design improvements are possible to improve appearance, comfort, or value?

#2 Given desirable basic design improvements what specifications would be required of new materials to make the designs feasible?

[illegible]

#3 Does the consumer feel it important that her decorative home furnishings reflect the architectural flavor of her home? Put another way, - will the consumer accept and desire basic new designs that are not reminiscent of older period designs? Still another way, - does consumer acceptance of radical new contemporary designs follow only after their use in public institutions?

#4 How valid is our industry's assumption that the consumer has pride of ownership in her upholstered furniture and wants high quality and durability with its attendant high prices? What rate of obsolescence in upholstered furniture will she accept? In upholstery textiles?

D-7

The information you requested in your letter of February 8, pertains to market research and your correspondence is therefore being forwarded to Marketing Research Manager.

D-8

Matters pertaining to color and design are entirely in the hands of the I suggest you direct your letter to General Manager.

All our other Products are in the capital goods field where design is a problem in engineering rather than visual effect.

D-9

Forgive my ignorance, but your paper seemed somewhat abstract to me and did not stress specific information that was desired.

Being a manufacturer I am naturally concerned with making products that sell. Many times these items insult my personal appreciation of them, but this does not stop me from trying to make a profit.

I agree that design plays an important part in our business. However, there are many factors that influence the finished product. Cost of manufacture and saleability or public acceptance are only two to name some.

For whatever value it is worth I shall be happy to try to answer some questions. If this is of interest to you would you help me by listing some specific questions you would like answered? Upon receipt of this I shall go to work.

D-10

We have your recent letter following up a previous inquiry on a design problem. We don't seem to be able to locate your original letter.

Our organization is a technical and scientific society of textile chemists and we do not get into the area of design. There are several associations in this field and you might address an inquiry to them. Among them are the

I am sure that these organizations have assembled a substantial body of information which could be used as a basis for advanced degree programs.

D-11

With reference to your letter regarding a "Survey of Current Research in Basic Design," we naturally are interested in the consumer preferences of the various home furnishing categories which I would classify as Contemporary, Early American, etc. Since we are a prime producer of molded dinnerware, we naturally must comply with consumer desires within the home furnishing industry--the preferences and trends in color and interior design.

Therefore, consumer research as to the percentage popularities in the various types of interior designs, would be of great interest to our company.

D-12

We have been searching our files to see if we could locate some information that would be helpful to you in the development of your outline on the current research in basic design. Unfortunately, the work we do is of a highly confidential nature.

Perhaps of not too direct help to you is a copy of a talk I recently gave entitled, "Marketing Research Behind the Future." You will notice reference in this talk to the fact that we have projects outlined in the styling research area--this includes both exterior and interior design of future cars.

D-13

Thank you for your interesting letter in reference to product design. I could say, as an advertising and marketing man, I think you have a good point. The comments following

are purely personal ones from my own experience, not speaking as a production man, but speaking from a point of view of marketing and advertising.

In the carpet industry, we have a very interesting problem as far as design is concerned. First, there are very definite geographical preferences for design and color. As an example, we know that in the Midwest tightly packed loop pile constructions are in demand. Eastern metropolitan areas prefer deep plush cut pile fabrics. Pittsburgh, Boston and Baltimore metropolitan areas like Burgundy. (You can't give this color away in other areas of the country.) On the West Coast, shaggy casual type constructions are preferred. All of this information is not based on research, but general observation of sales records and field trips. Concrete research certainly would be helpful.

I have always had the feeling that, like other carpet manufacturers, we have too many designs in their line. We make 56 different patterns, textures or qualities for residential use. Each of these 56 are made in from 10 to 23 colors. I have often wondered if we might not be more successful, if we researched pattern and texture preferences, found the best sellers, or the most preferred, and then offered them in a range of 60 colors each. From Carpet Institute research, we have found in a survey of 28,000 families, color was twice as important as all other factors determining the consumer selection of carpet.

Here are some questions I think your research could effectively help answer.

- 1 - Geographical design preference. Cause. Can these preferences be changed?
- 2 - Color preference? Would a manufacturer be better with a few good basic designs in a range of 50 to 60 colors rather than 100 designs available in only a few colors?
- 3 - How long does it take for design preferences to change? What are the most important influences in the change?
- 4 - An effective way to establish research on design preferences.

As I said, these are all things that have crossed my mind from time to time. Perhaps they will be of no help to you, but I thought you would like to know some of the problems in the manufacturing and marketing of carpet.

If we can help you further, please do not hesitate to write.

D-14

Thank you for your letter and your "Problem Outline." I think your program is a most interesting one and I have carefully thought about it to see whether I could come up with any additional suggestions.

I am afraid that there is nothing I can add to this since from my point of view the program as you have outlined it is a most well planned one.

Should you be in New York on one of your trips, I would be delighted to meet with you and we could then further discuss the program.

D-15

Your letter addressed to our client The National Committee for Effective Design Legislation was received.

I am very sorry that this organization, which seeks new legislation protecting designs, does not do the kind of work which would furnish the basis for any helpful reply to you.

We wish you the best success in your research endeavor.

D-16

I am the chairman of the Color Committee and as such author a yearly report on "Color Trends" which is published by the Inter-Society Color Council. (Enclosed is a copy of last year's report.) I will try to get you started in the enormous job you have undertaken of learning about what is now being done in the field of prognostication of color trends. Write to for list of members of the and general literature about color that they publish.

There are several experts in this field. Among them,,, etc. etc. Also the design staffs of the automobile companies keep records of public preference of auto colors. Write to their publicity departments for information.

Also the paint and printing ink companies such as,, etc., etc. have literature on color trends.

You might also write to the people whom I addressed as on the blue tissue copies sent herewith.

I think the above will get you started. You will find that Design Prognostication is a complex and crowded field.

D-17

I have read your letter and the enclosed program schedule very carefully. I agree with you that at the present time there are many firms allied to this industry which do a fine job of researching the market with its clients in mind. This type of research for you would be impractical.

Your second suggestion concerned consumer education. To be perfectly honest, your remarks with regard to this topic were very confusing. You speak of educating the consumer by doing research for us which in turn you intend to disseminate to the consumer. Any research for a company such as ours would be of no use to the consumer. The only type of research which a company such as has any use for is done within the company is interested in knowing what the customer wants period of design, colors, and type of design. This information is easily attainable. By using our own sales figures, we can get an accurate picture of what is popular with the consumer. For an outside party to do this by any other means would be impractical and take much too long for the research to be of any use.

While speaking of consumer education, you also mention design. Their relation to each other is, of course, quite important, but you seem to feel we have some information about design which we can give the consumer. As far as designing for our industry is concerned, this involves answers we could give you, and not any which you could give us. If, for example, you were to conduct an investigation as to the type of designs which are suitable for use by those in the decorating field, or contact design buyers in textile firms asking for the technical requirements involved, i.e. size of design, repeat, method or presentation etc. this would be worthwhile. However, such an investigation would benefit the art student primarily (not the consumer) and only secondarily aid the textile firm as it would save time for our Art Department who have to translate accepted designs according to the requirements for textiles for upholstery and drapery.

I feel that you are tackling your problem from the wrong angle, and were you to consider my suggestions and try to go at the problem from the above viewpoint, would be only too happy to provide you with the information you would need. And I am sure that other companies such as ours, though their needs would undoubtedly be the same as ours, would be willing to assist.

D-18

I believe that I can understand and appreciate your effort, having been for a number of years engaged as an instructor in Industrial Design and then heading up two art schools, with Industrial Design included in their curricula.

Leaving art education and relating with industry (furniture) was in itself an experience, calling for considerable adjustment and a complete revision of my previous thinking and rather glib conclusions relative to industry's responsibility in consumer education and researched product development. The transition was made, today I remember my earlier attitude and also am well acquainted with the problems and requirements of designing for production, production management and sales. So how can I help you?

The ramifications of your subject are considerable and I feel, from my viewpoint, so involved that I could not helpfully treat with it here. The letter would become a thesis in itself, tedious to read and time consuming to prepare, so I am suggesting, if convenient, as you provide in your outline under II c, an opportunity to talk the matter over.

If this is of interest to you please advise and we can arrange a time. I will be away from the office until July 15th.

D-19

Since receiving your letter I have had the opportunity to talk with our Director of Product Styling and Design to see what suggestions he might have on the needs for interior design research which could be conducted under university conditions.

He reports that, while he is in sympathy with your undertaking, it would be difficult to suggest any areas for pursuit, partly because of the nature of our products, but also because of such a project's limitations of money -- unless grants were received from firms interested in interior design. Though we are of course speaking hypothetically,

if this were proposed, might well consider it more beneficial to continue with its own independent research, rather than co-sponsor research of the type you outline. In other words, we don't want to be guilty of putting our mouth where our money isn't.

D-20

My own personal reaction is that elements of shape, color, and texture in design of home furnishings is so much a matter of individual taste that it would be difficult to "freeze" it into any sort of form that could be designated as basic design. I am sure that all manufacturers of furniture and other home furnishings products wish to enjoy complete creative freedom in the marketing of their product, and customer response will shape the trends of what remains popular in the market.

D-21

I am sorry for the delaying reply to your letter of February 13th. This has been caused by the fact that I considered your letter important enough to think about and I haven't had time to think.

The practicing designer's lack of study is reason why yours is a good idea for research in the schools.

I have thought only of the following three projects:

1. The aesthetics of Texture is an unexplored field for the designer.
2. The development of design for landscaping the home, is quite underdeveloped in the United States.
3. There is room for more study and research on the storage of clothes in the American home.

D-22

Before starting on any design work, whether basic or otherwise, we want to know the characteristics of the people - the families for whom we are designing. Some models of the same product have to be designed for one type of family, other models for other types. And different products that we manufacture are purchased by different types of families. So our research must develop information as to the characteristics of the families that represent the principal market for each of our products. With such knowledge in hand we can then design our products to fit the needs of those families.

Speaking of needs, we think continuing research is needed to ascertain consumers' wants and lacks - what they would like to be able to do that they cannot do with present equipment, what they are doing now that they would prefer not to have to do if something could be designed to do it for them, and what they are doing now that they would like to be able to do better. Answers to these questions, plus information on consumers' pet peeves as to present designs of products, whatever they may be, can direct the efforts of both our engineers and designers in giving people what they want rather than what we think they should want.

Naturally we check the designs our Industrial Designers produce for consumer acceptance - they want this as much as do our Marketing people who have to sell the products they design to the consuming public. Many changes have been made, and will continue to be made in our product designs because Mrs. Consumer has found shortcomings in those designs. In conducting this type of research, usually we use full-size models rather than scale models, pictures or drawings. The closer we can get to realism, the more accurate is evaluation of the design that can be made by the consumer.

These are the principal kinds of research that we as manufacturers of major appliances are interested in from a design standpoint. Anything that universities can do in developing information on the lacks and wants of various segments of our population certainly would be helpful to all manufacturers in varying degrees.

D-23

Your letter to of July 17 has been read and discussed with real interest. Because of his tight schedule, he has asked that I send you an answer.

Your master study is an interesting and an ambitious one--if done well it could very well contribute to a body of knowledge that could be quite functional. We would therefore answer in the affirmative relating to your question of whether or not there is a need for this research. I should further say that I should think that a good part of this can be conducted under university conditions.

If you will allow me I should like to state that as designers both of interiors and of product, we are involved with creating good elements of shape, form, color and texture. To do this we first of all must be well trained as designers, and must acquire as much information as possible related to consumers needs and understandings. We

must of necessity start with what people want today, and hope that we may carefully guide them into buying and appreciating tastes that are just a little beyond them. This is the way we make progress. We do need therefore, as much material as possible related to the likes and dislikes of people in the existing environment, a knowledge of their choices in terms of color, texture and materials, and lastly what other influences are affecting their choices. This last point has many ramifications involving itself in psychological factors, status symbols, etc.

To be a little more specific, we in the appliance industry as designers would appreciate additional information related to the dining habits, types of kitchens desired, and the entertaining activities engaged in. As you know, we are also involved in the analysis and design of Home Laundry equipment and its environment.

In closing I should say your problem outlined if followed should give you the answers you are looking for. Shelter magazines will offer your information directly related to the many factors you wish to obtain.

D-24

Very briefly our point of view in regard to basic research in design consists of the opinion that basic training at the university level would be of greater value to industry than research.

By basic training I would refer to teaching of knowledge of the past and of the present in all of the art forms and the sciences and the academic areas. Along with this is the need for training for the basic skills in scientific thinking, laboratory procedures, apparatus manipulation, the experimental approach, curiosity about the world and nature and people and things, a sense of dedication, the ability to put into concrete form abstract ideas and suggestions of ideas through organized thinking and manual skills (drafting, modeling, painting, etc.) etc.

I realize that what you are asking for is a design subject in which a university can conduct research, but I can give none. I strongly feel that the "research" approach will lead to a worse type of academism than the nineteenth century ever knew. If your university can train an individual in the manner described above, taking as a starting point intelligence and proper attitude, such individuals will be well equipped to solve industry's design problems and the university will have fulfilled its proper function and aided industry and the community as well.

D-25

I find it difficult to respond in a constructive manner to the problem you pose. Partly I think this is due to a felt need I have for the opportunity to ask questions about the project as preparation for a response to it. Partly too, I think it is difficult for me to respond because I am not a designer and, therefore, don't really understand the problems that are suggested when one talks about basic design in the components of shape, color, and texture.

I tested my response in this connection by asking one of the men I work with to comment on your letter as well. His reaction was pretty much the same as mine.

With this in mind it seems to me that I would like to suggest that if we are to be of any help at all (and I'm not so sure, seriously, that we will be of much help) we probably would have to start by having a conversation together so that we can each have a fuller understanding of the problem and perhaps we can trigger each other into some constructive work.

If you feel this is a worthwhile suggestion, we probably can set a mutually convenient time and I can get one or two of the other men here to talk with you as well in an effort to be of help.

APPENDIX E
INSTRUMENT V
AND
REPLIES

Instrument V

January 24, 1964

Dear Miss

We are trying to find out from designers, manufacturers and others in the fields related to interior design, what the needs are for research which could be conducted objectively and efficiently under university conditions.

Would you take time to answer some specific questions concerning the problem under investigation?

1. Is there a need for research in basic design: shape, color, texture?
2. Could a body of knowledge in this area be compiled that would be useful to designers and manufacturers of furnishings for the home?
3. Would you consider that research in texture and its effect on color change, would be useful to industries in this field?
4. Do you feel that the Common Market, with the availability of well designed products from other countries, may force industries in the United States to up-grade the design quality of their products?
5. Could research in basic design aid our industries in meeting this competition?

I will appreciate any help you can give me on this problem.

Sincerely

Mildred Chapel

Replies to Instrument V

E-1

I discussed your specific questions with the former head of our Industrial Design Division. The following answers reflect some of this thinking:

1. SHAPE: It is hard to see what basic research could be done on shape since it must be related to the product.

COLOR: Much basic research has been done on color and it would seem that any further work would be in applying this basic research to a specific problem.

TEXTURE: Basic research in texture might be of value.

2. Possibly in study of texture.
3. Yes, if it is done soon, as use of texture is expanding all the time.
4. The effect of designs from other countries is very limited. The well designed, imported merchandise is extremely expensive and limited in quantity because of limited production facilities abroad. The effect has been chiefly in making less expensive copies, not in upgrading U.S. design.
5. No, because there is not much competition.

Instrument V

January 24, 1964

Dear Sir:

I appreciated receiving your reply with suggestions concerning my graduate study problem design. Would you take time once again to answer some specific questions concerning the study?

1. Do you feel that there is a need for research in basic design components: shape, color, texture?
2. Could a body of knowledge in this area be compiled that would be useful to designers and manufacturers of furnishings for the home?
3. Several studies have been done which show that the color change, due to the variation in pile height, can be measured, could be tabulated and perhaps predicted in advance. Would such information be useful to designers and manufacturers?
4. Would you consider that further research in texture, and its effect on color change, would be useful to industries in this field?
5. My experience in teaching homemakers about the design aspect of articles for the home, indicates that consumers do not make specific demands for the poorly designed products on the market. Many of these homemakers have never seen a well-designed contemporary piece of furniture. Would you agree that perhaps the buyer and/or the salesman might be the person who needs to understand what good design is all about?
6. Do you feel that the common market with its well-designed products from other countries may force industries in the United States to up-grade the design quality of their furnishings?
7. Could research in basic design aid our industries in meeting this competition?

I appreciate your assistance in this study.

Sincerely

Mildred Chapel

E-2

Much of my experience in the design area has been empirical in nature so I am forced to generalize in my opinions.

You can score "Yes" in answer to your questions 1, 2, 3, 4, and 7. Anything that is done to increase and promote the appreciation, understanding, or measurement of design values would be of benefit to all concerned.

In answer to question 5 I must agree that it would help the overall picture if the buyer and/or salesman were equipped with an understanding of good design. At the same time I must also state that this does not assure the success or acceptance of well designed products. There is a saying in our business that says, "any design that sells is a good design." Experience has shown that the average consumer is more likely to be influenced by social status, mass advertising, or price rather than good design. When the merchant is faced with the choice of being a crusader or making a profit he will make the obvious decision.

If one agrees with the premise in the preceding paragraph then the answer to your question 6 would be "not necessarily." If the imported designs sell then you can be assured that U.S. manufacturers will "upgrade" their designs by copying or modifying. Incidentally, if there is common agreement that European designs are better or more advanced than ours it might be well to look into the reasons why this is so and why they have been made commercially possible.

In spite of my disclosures I do not think that I like to be cynical in my opinions. However, after many years of experience in this field I find it almost impossible to be otherwise. There is some solace or escape for me in painting or becoming involved in movements like the Arts Council which are springing up over the country.

I believe that we as a nation have become victims of our own growth. We have lost the desire for excellence and creativity. We are prone to accept mediocrity if it will get us by. With this in mind, I feel the grass roots approach to the elevation or improvement of Design is to find ways to reawaken the desire to do something in the best way we know how. The human mind is a wonderful mechanism. Given half a chance it can produce beautiful and new things. If it cannot produce, it will at least accept and appreciate. To accomplish this state is the difficult task. Like other problems of similar magnitude we generally come to the conclusion that our best bet is to start with the young.

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1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes the need for transparency and accountability in financial reporting.

2. The second part of the document outlines the various methods and techniques used to collect and analyze data. It includes a detailed description of the experimental procedures and the statistical analysis performed.

3. The third part of the document presents the results of the study. It includes a series of tables and graphs that illustrate the findings of the research. The data shows a clear trend of increasing activity over time.

4. The fourth part of the document discusses the implications of the findings. It suggests that the results have significant implications for the field of study and may lead to further research in this area.

5. The fifth part of the document concludes the study. It summarizes the key findings and provides a final statement on the importance of the research.

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