

PREFERENCES OF SELECTED CONSUMERS REGARDING OPTIONS FOR
CHOOSING COLORS FOR TOWNHOUSE INTERIORS

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The research study investigates certain consumer preferences regarding possible options whereby colors may be selected for interior furnishings and equipment in individually owned townhouses in Dallas County, Texas.

The thesis is organized into four chapters, Introduction, Review of Current Status of Interior Design for Townhouses, Methods and Procedures, and Summary of Findings and Interpretations.

The study attempts to determine 1) whether or not consumers want to choose colors for interior goods; 2) whether they agree as to which interior items are most important for color selection; and, 3) whether they prefer to coordinate interior colors for themselves or choose from pre-coordinated color schemes.

For each of the three aspects of the problem, an hypothesis is stated, and appropriate statistical procedures are selected to test the hypotheses.

The principal source of data is a consumer questionnaire which is administered to a specially selected sample of townhouse owners. The questionnaire determines whether consumers want to choose interior colors and whether they prefer to do their own color coordination by asking these questions directly.

To indicate the relative importance of color choices for specific interior goods, participants rank twelve items of interior furnishings and equipment according to how strongly they feel about color choices for those items.

Ninety-one per cent of those who returned the form expressed a desire to select colors for interior goods. A corresponding percentage preferred to do their own interior color coordination, rather than choose from pre-coordinated color schemes. When subjected to a binomial test, the results are found to be significant at the level of .001 leading to the rejection of the two appropriate hypotheses.

Kendall's coefficient of concordance \underline{W} is used to measure the degree of agreement among the sets of ranks obtained from the questionnaire. The calculated value of \underline{W} is tested for significance in terms of Chi Square. Agreement on the rank order of the interior items is significant at the .001 per cent level. The hypothesis related to this portion of the problem is also rejected.

The findings of the study indicate, therefore, that town-house owners do want to select interior colors and that they prefer to coordinate interior colors themselves. Consumers do agree as to which interior furnishings and equipment are most important for color selection.

The rank order established by the sample group is presented, and all findings are discussed in terms of practical applications. The validity of the findings are accepted within certain limitations, and suggestions are made for future research.

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CHAPTER I

INTRODUCTION

Nature of the Problem

This research investigates certain consumer preferences regarding possible options whereby occupants may select colors for interior furnishings and equipment contained in individually owned multi-family housing units in Dallas County, Texas. The investigation is directed to a selected group of consumers, as represented by a sample, who have purchased townhouses, the most prevalent form of multi-family housing available for ownership in Dallas County. The study attempts to determine whether or not consumers want to choose interior colors, whether they agree as to which interior items are most important for color selection, and whether they prefer that interior color choices be pre-coordinated or non-coordinated.

All aspects of the problem are related to the concept of color selection for interiors, rather than to any preferences consumers may have for specific colors per se.

Need for the Study

In the field of residential housing, the current trend in this country appears to be toward occupant ownership within multi-family housing. Builders, faced with constantly rising costs and problems of land availability, have welcomed this trend.

Ownership of multi-family housing is a relatively new phenomenon in Dallas. Until very recently, the residential choices have been limited primarily to renting an apartment or purchasing a private house located on an individual lot. Within the past two years, however, a wide variety of other housing choices have become available, and plans for additional units have been announced for the near future.

Condominiums, cooperatives and homeowners associations now provide the means of ownership for numerous multi-family structural forms in Dallas. These developments are geared to fulfill two strong desires which exist in many families: the longing for actual home ownership, with its tax advantages and psychological satisfaction, together with the preference for an attached house or apartment with its freedom from such typical responsibilities as yard and exterior maintenance.

What appears to be the most successful structural form for ownership in multi-family housing in Dallas is the townhouse. Of particular significance is its use in large, communitylike developments which utilize homeowners associations for maintenance of common elements.

"Housing experts figure that townhouses amount to fully 25% to 30% of single-family houses being built and perhaps 50% of all single-family houses going up in many metropolitan areas."¹ A very large proportion of these townhouses are being incorporated into large, communitylike developments.

¹The Wall Street Journal, March 23, 1972, Sec. 1, p. 1.

As of July 1, 1972, there were an estimated fifteen different communitylike townhouse projects for a total of more than 4,100 units which were either under construction or were in the process of conducting preconstruction sales in the Dallas area. Plans for more than 1,500 additional units had been publicly announced in local newspapers prior to that date. The impact of townhouses on the multi-family housing market becomes apparent when it is pointed out that all other multi-family units available for ownership in Dallas, regardless of ownership plan or structural form, number fewer than 2,000 units altogether.²

Because multi-family housing, by its very nature, requires each resident to share a great deal of his external environment, the interior may assume increased significance as a vehicle of expressing one's individuality in his home. The appearance of the interior may be especially important to the occupant when the unit is purchased rather than rented, inasmuch as ownership usually implies a greater degree of permanence and requires a considerable financial investment. Allowing a consumer to exercise options to select interior colors is one means of enabling

²A comprehensive source for these data could not be located. Therefore, these figures were obtained through a personal investigation of the Dallas multi-family housing market. During a period of several months, information was accumulated and synthesized from a multitude of sources. Formal and informal interviews were conducted with numerous builders, developers, real estate agents, and members of related professional organizations and research firms. Local advertisements, promotional materials and county records were examined and on-site visits were made to multi-family housing projects where units were being offered for sale.

him to personalize, to some degree, the interior of his purchased townhouse unit.

Despite these considerations, most developers in Dallas readily admit that little, if any, formal research has been done by them to determine what options for interior color choices are desired by townhouse owners or how such choices should be offered. Current interior design practices appear to be based on experience with other types of housing or other areas of the country, or on what competitors are doing.

As competition in the townhouse market intensifies, it should become increasingly important for the developer to understand consumer priorities regarding interior color choices. The results of this study, it is hoped, may be useful to designers and developers who are responsible for interior design for townhouses.

Scope and Limitations of the Study

A search of literature produced virtually no research which related directly to the problem of this study. Therefore, a consumer questionnaire was used to gather raw data necessary to answer the problem questions.

Only one townhouse project was used for a sample. This limits the study to one very specific area of Dallas County and to the price range of the project, which has unit sales prices ranging from \$19,400 to \$23,900. Owners in the project have demonstrated a willingness to accept the concept of townhouse living very early in the marketing cycle, and, therefore,

may not be entirely typical of the entire population or of future owners. It is possible that the conclusions drawn in the study are not appropriate for the total townhouse market in Dallas. However, the findings and interpretations should hold some validity for other projects which are marketed under \$25,000 per unit. Typically, these lower priced projects, because of economic considerations, limit both the kinds and numbers of interior color choices which are available to consumers; consequently, these findings should be of some real value to developers of such projects.

It is conceivable that those owners who have a personal interest in selecting interior colors were more inclined to complete the form, though there is no real basis for such an assumption. Owner responses may be influenced by the kinds and numbers of options for color choices available for their own units as well as the manner in which color choices were offered. The sample project did offer some options for interior color choices in the form of pre-coordinated packages.

It should be noted that the study does not determine whether the opportunity to select interior colors would significantly influence purchase behavior. Neither is there any attempt to establish the importance of interior color selection relative to other factors such as location, price or size which influence purchase decisions.

It is felt, however, that these limitations do not negate the usefulness of this research. This study makes no attempt

to answer every question germane to consumer preferences for interior color choices in townhouses. It is, nevertheless, a modest beginning which could serve as a springboard for future research.

Explanation of Terms

In the field of multi-family ownership, the terms condominium, cooperative and townhouse are often confusing to the layman, as well as to many persons directly involved in the housing field. Condominium and cooperative refer to legal forms of ownership, while townhouse is a descriptive term of structural configuration.

"Condominium essentially involves fee title ownership of a designated portion of a building and of an undivided interest in the common elements of that building."³ Under the condominium regime, which has been legally defined in Texas⁴ as well as many other states, a deed conveys full ownership to a specifically defined air space within the building along with a percentage interest of the common elements.

Common elements, which are jointly owned with other residents, include such things as the structural members, parking facilities, lobbies, recreational facilities and lawns. It is important to note that, under the condominium regime, the land

³Terence Burke and others, Condominium Housing for Tomorrow (Boston, 1964), p. 2.

⁴Condominium Act, Texas Revised Civil Statutes, Art. 1301a (Austin, Texas, 1971).

on which the building is constructed becomes a common element. The percentage of the common elements owned by each resident is determined by the size or value of his unit in proportion to other units of the complex.

The condominium owner is able to mortgage, sell or rent his unit without regard to other units much as he would a private residence. Units are assessed and taxed separately and the legal liability of the owner does not affect other owners.

In a cooperative, owners have no individual deeds or mortgages. Instead, the owner holds a share in a corporation which has the master mortgage of the entire cooperative development and, in turn, grants to the owners the right to occupy a designated portion of the building. Monthly payments include the owner's share of the liability, based on his unit's relative value, plus his share of taxes, maintenance, insurance, and other expenses. If the cooperative owner wishes to sell, he sells his share rather than his unit per se, with the corporation normally having right of first refusal.

Cooperatives and condominiums have many similarities. Both are made up of owner membership and are generally managed by boards elected by the members, usually in conjunction with a hired professional management agency. Both provide the tax benefits of the purchase and sale of real estate, and involve cooperative maintenance of common elements. Since condominium and cooperative describe types of ownership, they allow for almost any type of physical structure. Though these ownership

forms have been commonly associated with high-rise apartment buildings such as those on the East coast, both have also been employed in a variety of other shelter forms.

The term townhouse, unlike condominium and cooperative, never refers to a form of ownership, when used correctly, but rather to a type of structural form.

For purposes of this study, a townhouse is defined as any one of a series of residential structures built more or less side by side with no apparent space between the exterior walls of adjoining units. Some builders claim that, in the true townhouse, the common wall between two units is, in fact, two separate walls so that each unit is capable of standing alone, independent of neighboring structures. Others insist that a single, soundproof wall is sufficient. Most do seem to agree that in a townhouse all vertical space from the foundation up, usually two to four stories, is allocated originally to only one unit. This arrangement may be contrasted to a "flat" where no single unit occupies more than one storey. Obviously, the arrangement of a building into flats implies that a resident could have others living above and/or below him.

Some versions of the new townhouse actually share only a portion of a common wall, as modern designs employ staggered entrances and inner courtyards to alleviate the "row" look. Many townhouse developments are no longer built in a row, but along circular drives or winding lanes. Paradoxically, the contemporary townhouse may not be located in town, but in the

wide-open spaces. A townhouse is also called a townhome, cluster home, or attached home, terms invented by the advertising trade to add sales appeal.

Ownership of a townhouse can be accomplished in a variety of ways. A townhouse development may be operated as a condominium or a cooperative. However, an approach to ownership which seems particularly suitable is one which permits the individual to purchase outright his particular unit, along with the land on which it is built. The owner then automatically becomes a member of a homeowners association.

"Home ownership associations that involve community ownership for the bona fide purpose of sharing common facilities is a type of relationship that has won the support of bank and insurance company financing."⁵ Monthly charges, in proportion to unit values, are paid by each owner for maintenance of common elements. Understandably, the common elements involved can vary considerably, but generally include such things as green belts, recreational facilities and exterior maintenance.

⁵David Clurman and Edna L. Hebard, Condominiums and Cooperatives (New York, 1970), p. 222.

CHAPTER II

REVIEW OF CURRENT STATUS OF INTERIOR DESIGN FOR TOWNHOUSES

Inasmuch as the problem of this research is directly related to townhouse interiors, it is appropriate to examine some aspects of interior design for townhouse projects as they are marketed in Dallas.¹

It is customary to include in the sales price most items of permanently installed interior furnishings and equipment necessary to render the unit virtually ready for occupancy. Basic elements which are usually included are floor coverings throughout, paint or wall coverings on all walls, lighting fixtures, bathroom fixtures and hardware, finished bathroom and kitchen cabinets and counters and major kitchen appliances with the frequent exception of refrigerators. Other features such as window coverings, built-in shelves or planters, and special treatments such as decorative ceiling beams or moldings are sometimes included depending on the unit design.

Most townhouse projects allow the consumer to participate, to some degree, in the selection of interior colors. However,

¹Information for this chapter was obtained by making on-site visits to sales offices and/or decorative centers of fifteen different townhouse projects. At each location, an interview was conducted with some individual who was familiar with the interior design for that project.

exactly which items of interior furnishings and equipment may be included for color selection varies widely among different projects. In some cases, specific items for which colors may be chosen are very limited, consisting of one or two items. In other cases, color choices may be exercised for a wide scope of goods. Additionally, there is considerable variation as to the number of choices within each category. For example, one project offers the buyer a choice from among three colors of a single type of carpet. In another project, the customer may choose from among three different types of carpet for a total of thirty-eight colors. As a general rule, both numbers and kinds of interior color choices increase as sales prices increase.

Understandably, the diversity of choices, in terms of style, differs somewhat from project to project. By style is meant a distinctive manner of designing typical of any given time, place, person or group. Such terms as early American, Spanish, traditional and modern are descriptive of style. Sometimes, though there are color choices, the options really are so similar in style as to offer the client little possibility of obtaining any real individuality.

Almost without exception, developers of large townhouse projects are engaging the services of interior designers in conjunction with other design specialists. As might be expected, the degree of authority given to and the scope of service expected from the interior designer is related to the philosophy and objectives of the project developer.

While advertising materials from almost all townhouse projects indicate that interiors are "professionally" designed, the name and/or credentials of the designer are seldom publicized. Since there are no licensing requirements in Texas for interior designers, the term "professional" may have little meaning.

Interior designers generally function in one or more of three ways: decorating the model units, selecting and, if necessary, coordinating materials representative of options available to the customer, and assisting the buyer in making his specific choices.

The use of full-scale model units is a typical means of demonstrating to the future owner how his unit will, or could, look. Ideally, models would be directly representative of actual choices permitted the buyer. Clearly, this is not always the case, as model units are frequently finished out partially or completely with materials which are not available as a standard option. Further, models are, as a rule, completely furnished and decorated to the smallest detail. There is little doubt that these expensively decorated models can be effective sales devices and, theoretically, can help the buyer visualize the unit he is buying. However, there is some question as to how accurately some models reflect the actual product. Not only can the overall appearance be misleading, even if the use of special materials is explained, but the furnishings can actually interfere with examination of the structure.

Obviously, if choices of interior materials or equipment are offered, the developer must establish some method for the buyer to make his selections. This procedure is generally handled in one of two ways, depending on the method of color coordination.

The buyer may make a single choice from a group, usually three to six in number, of pre-coordinated color schemes or "interior packages." These packages are generally represented on presentation boards which support actual sample swatches, each identified as to where it will be used. This method has an advantage of simplicity. Systematic procedures can be set up to record choices and facilitate actual installations. Each buyer can derive the benefit of the designer's expertise in coordinating diverse interior elements without the designer's having to be present at the time of selection. In this sense, a package method can be a very efficient use of the designer's time. A disadvantage of this procedure is its lack of flexibility. Typically, no alterations are permitted within any color scheme.

As an alternate procedure, the developer may have the designer assemble an open selection of materials such as carpet and wallpapers from which the buyer may make his own selections and do his own coordinating. This non-coordinated method probably requires more of the buyer's time. The degree to which he can ultimately arrive at a satisfactory solution greatly depends on the appropriateness and compatibility of available materials as well as his own skill at decorating.

For the open selection method, there must be some special area set aside as a sort of design studio where samples can be displayed for inspection by the buyer. Procedures must be established for recording selections, and there is frequently a designer on the premises to assist, if desired, in the selection process. The availability and skill of the designer as well as the depth of consultation permitted are quite inconsistent from project to project. In some cases, there seems to be a "credibility gap" between the amount of assistance promised by the seller and that actually received by the buyer.

It is not uncommon to find that the models are designed by one interior designer and selection assistance is provided by other staff members. Designers, particularly at the point of selection, may have little actual professional training or experience in interior design and may function more as sales people or order takers. Under such circumstances, the buyer's own unit is not "professionally designed" at all.

In situations where sales are progressing rapidly, it may be necessary for a number of buyers to make their selections simultaneously. Such situations can create considerable demands on both the availability of sample materials and the resident designer. Confusion and chaos can result. There appears to be little advantage to this method unless research clearly demonstrates that the consumer prefers to make color choices in this manner.

A review of literature, which might normally be incorporated into this chapter, is not applicable to this study. A search for written research produced virtually nothing which related directly or indirectly to this research problem. Some materials are becoming available on the subjects of condominiums and cooperatives. The focus of these articles, however, appears to be directed primarily toward investment implications or management techniques of such projects. In addition, a limited number of articles are available which describe some of the amenities, such as recreational facilities, landscaping, and other external features offered by multi-family housing projects.

CHAPTER III

METHODS AND PROCEDURES

Hypotheses to be Tested

1. The number of consumers who prefer to select colors for those items of interior furnishings and equipment included in the purchase price of a townhouse is no greater than might be expected by chance.
2. Any observed agreement by respondents as to the ranking order of those items of interior furnishings and equipment included in the questionnaire for possible color choice is no greater than might be expected by chance.
3. The number of consumers who prefer to coordinate their own interior colors, rather than select from pre-coordinated color schemes, is no greater than might be expected by chance.

Development of the Instrument

The questionnaire is arranged into five sections, each of which is constructed to elicit specific information from the respondents.

Section one is designed to gain personal information, such as marital status, sex and age, which can be used to briefly describe the respondents.

Section two seeks the answer to the question of whether or not consumers want to choose colors for interior items by asking that question directly. Data from this section are used to test the first hypothesis.

Section three is intended to determine whether consumers agree as to the relative importance of particular interior items for color choices, thus providing data necessary to test the second hypothesis.

Participants are asked to rank twelve items of interior furnishings and equipment according to how strongly they feel about exercising color choices for those items. The ranking is done by arranging in rank order, from one to twelve, slips of paper on which are written the names of interior goods. The use of slips of paper allows consumers to compare and adjust the items until they are eventually ranked to their satisfaction. This method of ranking was chosen after a pilot study revealed that it was often difficult for participants to write rank numbers before a single list of so many items. To determine which items should be included in the ranking process, two builders, two architects, and two interior designers, all of whom have been professionally involved with townhouse projects, were contacted. Each individual was asked to list items of interior furnishings and equipment for which, in his opinion, an owner would like to select colors and which might feasibly be included in a selection process. All items which appeared on three or more of the lists were included in a pilot study of six actual

townhouse owners. From the pilot, the final list of twelve items was developed which includes: bathroom counters, bathroom cabinets, bathroom fixtures, bathroom wall tile, bathroom floor covering, kitchen counters, kitchen cabinets, wall paint, carpet, kitchen appliances, wallpaper and wallcoverings, and kitchen floor covering.

In the fourth section of the instrument, two methods of color coordination are described, and participants are asked to indicate the preferred method. Essentially, the choice is one between having interior colors pre-coordinated into schemes before consumer selection or permitting him to do his own color coordination. Pre-coordination involves a single choice from several available interior color schemes. In the non-coordinated method, the owner selects the color for each item separately to develop his own color scheme. Data collected from this section can be used to test the third hypothesis.

Section five provides a means of identifying respondents for follow up.

Selection of the Sample

For purposes of this study, the population consists of all owners of townhouses which fulfill all of the following criteria:

1. The project is located in Dallas County, Texas.
2. The unit is located in a project which consists of more than fifty units.
3. The project is designed primarily for full-time residence.

4. The project utilizes a homeowners association to maintain common elements.
5. The project includes two or more recreational facilities.
6. The unit was purchased prior to July 1, 1972.
7. The land on which the townhouse is built is also purchased by the individual. This excludes condominiums and cooperatives.

The criteria set forth for selection of the target population are characteristics inherent in a group of multi-family housing projects which represent what appears to be a significant housing trend in Dallas.

Ideally, perhaps, the sample would be chosen at random from the entire target population. However, such a procedure was not possible for this study. The total population consisted of owners of units within an estimated fifteen townhouse projects. Because of the common practice of selling units prior to construction, the names and addresses of many owners could only be obtained from the developer. Understandably, some developers were reluctant to release names and addresses of their clients. A few were even unwilling to disclose how many units had been sold. It was, therefore, virtually impossible to achieve a random sample from the total population.

The only feasible means of securing a sample seemed to be to go directly to owners who were already occupying their townhouses. This procedure had the additional advantage of using persons who had already had some experience with actual townhouse interiors. Only one project of the population had more

than mere token occupancy at the time of the research, so all owners within that single project were selected for the sample. The project will consist of 214 units upon completion. At the time of the study, there were 76 households occupied, and the sample was composed of one person from each household.

Collection of the Data

The following step by step procedure was used to gather data from consumers by means of the questionnaire:

1. One questionnaire packet was hand delivered to each household within the sample project for a total of seventy-six questionnaires. At residences where no one was home, the packet was left in the mailbox.
2. Each packet included an explanatory letter and a questionnaire (see Appendices), a small envelope containing twelve slips of paper on which were written the names of interior goods, and a postage paid, self-addressed envelope.
3. Each address was recorded as the packet was left, so that returns could be checked for follow up.
4. The letter indicated a return deadline of three weeks. After two weeks, reminders were dropped at the addresses from which no response had been received.

Statistical Procedures

Three separate hypotheses have been stated. Accordingly, an appropriate statistical test has been selected to test each hypothesis.

Responses from the portion of the questionnaire aimed at determining whether consumers want to select colors for interior goods can be classified as either negative or positive. The first hypothesis can be tested by ascertaining whether the

number of positive responses is greater than might be expected by chance. This determination may be made by subjecting the results to a binomial test. "The binomial test is chosen because the data are in two discrete categories and the design is of the one-sample type."¹

Given the sample size, and the observed frequencies of responses, probabilities associated with those values may be determined by consulting an appropriate table.² The level of significance at which the null hypothesis will be rejected is set at .001.

To test hypothesis number two, two separate statistical techniques are employed. First, Kendall's coefficient of concordance W , a nonparametric statistic, is used to measure the degree of agreement among the sets of ranks obtained from the questionnaire. A nonparametric statistical test is appropriate because, while the subjects can indicate which items are more or less important for color choices, there is no measurement as to how much more or less important each item may be.³

"The coefficient of concordance . . . can only be positive in sign and ranges from 0 to 1."⁴ Maximum agreement may be represented by 1, whereas maximum disagreement may be represented by 0.

¹Sidney Siegel, Nonparametric Statistics for the Behavioral Sciences (New York, 1956), p. 39.

²Ibid., p. 250.

³Ibid., p. 33.

⁴Allen L. Edwards, Statistical Methods for the Behavioral Sciences (New York, 1954), p. 402.

After the value of \underline{W} is calculated, a second statistical technique is employed to test its significance. The probability associated with the occurrence under the null hypothesis of any value as large as an observed \underline{W} may be determined by finding X^2 and then determining the probability associated with so large a value of X^2 by referring to a table of Critical Values of Chi Square.⁵ The level of significance is set at .001.

Hypothesis number three is tested by means of a binomial test. Again, responses fall clearly into two discrete categories depending on the preferred method of color coordination. Here, too, the level of significance is set at .001.

⁵Siegel, Nonparametric Statistics, p. 236.

CHAPTER IV

SUMMARY OF FINDINGS AND INTERPRETATIONS

As previously stated, a total of seventy-six questionnaires were distributed. From these, thirty-four were returned prior to the deadline of September 1, 1972.

This chapter presents the findings which were derived from the questionnaire, along with the conclusions which were drawn therefrom. In addition, suggestions are made for future research.

Results from the Questionnaire

The first portion of the questionnaire produced information necessary to briefly describe those townhouse owners who returned the form. It was suggested that the form be completed by the person in the household who was most responsible for the interior decoration of the townhouse.

Data from the first section of the form were tabulated and are presented in summary in Table I. Because of the limited nature of the sample, the study makes no attempt to compare or analyze various segments of the sample in terms of their responses to other sections of the instrument. However, the data would be useful should such comparisons be desired in the future. For purposes of this study, this table is included simply to provide descriptive background information.

TABLE I
 PERCENTAGES OF RESPONDENTS FALLING INTO CATEGORIES
 ESTABLISHED TO DESCRIBE SAMPLE

Number of Respondents	Percentages of Respondents *							
	Marital Status		Sex		Age			
	M	S	M	F	under 30	31-40	41-50	over 50
34	85	15	26	74	41	38	9	12

* Percentages rounded to nearest whole number.

From the 34 forms returned, 91 per cent, or all but three persons, expressed a desire to select colors for interior goods. The table of probabilities indicates that the probability of obtaining these values, if the null hypothesis is true, is less than .001. The first hypothesis is, therefore, rejected.

The questionnaire produced 34 sets of ranks for 12 interior items according to consumer preferences for color selection. The rankings from all returned questionnaires were cast in a table to record the rank assigned to each item by each person. A sum of ranks, R_j , was tabulated for each item. By dividing the total of all R_j by the number of items ranked, a mean value of 221 was obtained.

Table II presents a summation of the ranked data and records results of the calculations required to compute \underline{W} . Column two of the table shows the sum of ranks for each interior item. Each sum is expressed as a deviation from the mean value

of 221 in column three. Finally, these deviations are squared (column four) and summed to obtain \underline{s} , the sum of squares.

TABLE II
RANKS ASSIGNED TO 12 TYPES OF INTERIOR
GOODS BY 34 TOWNHOUSE OWNERS

Interior Goods Ranked (1)	R_j (2)	$R_j - \frac{R_j}{N}$ (3)	$\left(R_j - \frac{R_j}{N}\right)^2$ (4)
1. Carpet	40	-181	32,761
2. Wallpaper & Wallcoverings	131	- 90	8,100
3. Kitchen Appliances	158	- 63	3,969
4. Kitchen Counters	183	- 38	1,444
5. Wall Paint	191	- 30	900
6. Kitchen Floor Covering	202	- 19	361
7. Kitchen Cabinets	204	- 17	289
8. Bathroom Counters	285	64	4,096
9. Bathroom Wall Tile	301	80	6,400
10. Bathroom Floor Covering	303	82	6,724
11. Bathroom Fixtures	319	98	9,604
12. Bathroom Cabinets	335	114	12,996
Total	87,644 *

*This figure equals \underline{s} , the sum of squares.

The value of \underline{W} is computed by the formula:¹

$$\underline{W} = \frac{\underline{s}}{1/12 k^2 (N^3 - N)}$$

k = number of sets of ranks

N = number of objects ranked

\underline{s} = sum of squares

Using the values presented in Table II, \underline{W} is calculated to be .53. The hypothesis of interest here is that the observed agreement among the rankings is a matter of chance. To test this hypothesis, it is necessary to determine how frequently a value of \underline{W} equal to or greater than .53 will arise by chance when the null hypothesis is true. \underline{W} can be tested for significance by a Chi Square (X^2) test using the following formula:²

$$X^2 = k(N-1)\underline{W}$$

The calculated value of X^2 for this study is 198.22. The table of Critical Values of Chi Square³ indicates that a value of X^2 equal to or greater than 198.22 would occur less than .001 per cent of the time if the null hypothesis is true. It can thus be concluded with considerable assurance that the agreement among the respondents did not happen by chance. The null hypothesis is, therefore, rejected.

¹Siegel, Nonparametric Statistics, p. 231.

²Ibid., p. 236.

³Ibid., p. 249.

It may be assumed that there is a very significant consensus among townhouse owners as to the relative importance of color choices for various interior items. Since there is no relevant external criterion for ordering the interior goods, the pooled ordering may serve as a standard for townhouse owners.

Column one of Table II lists the interior goods in the order in which the sample group indicated the items should be ranked for color choices. The most important item, in terms of color selection, is listed first, the item of next importance is listed second, etc.

An overwhelming number of respondents chose carpet as the item for which they most prefer to select color. From the total of thirty-four, all but three persons placed carpet number one. Second in importance for color selection, according to the sample, are wallpaper and wallcoverings. Kitchen appliances were ranked third. It may be noted that colors for kitchen goods, in general, appeared to assume relatively high priorities. Kitchen counters were ranked fourth, kitchen floor coverings, sixth, and kitchen cabinets, seventh. The color of wall paint, ranked number five, is apparently rather important, despite the fact that it can be more easily changed than some other items. Bathroom furnishings are evidently least important for color choices among those items included in the study. Bathroom counters, wall tile, floor covering, fixtures and cabinets were ranked eight through twelve, respectively.

Results from the segment of the questionnaire designed to determine the preferred method of color selection show that 91 per cent of the respondents favor the non-coordinated method of color selection. These figures correspond exactly to those obtained to test the first hypothesis. Inasmuch as the same statistical procedure is used here, the binomial test, the third hypothesis may also be rejected.

It is interesting to note that the same three persons who preferred not to select interior colors also preferred not to do their own color coordination.

To briefly summarize, the findings of the study indicate that townhouse owners do want to select interior colors and that they prefer to coordinate interior colors themselves. Further, consumers do agree as to which interior furnishings and equipment are most important for color selection.

Interpretations of the Findings

Most developers are offering interior color choices to some degree. The results just presented seem to verify the wisdom of this practice and should encourage developers to give considerable thought to the color choices to be offered. A well-planned, carefully organized program should keep to a minimum any extra expense and finishing time involved with color selection for interior goods.

The developer's decision of what specific interior color options will be offered in his project may depend on the strength of his market position without this extra consumer

incentive. In any case, the rank order established by the sample group can be especially helpful to him in making this decision.

It may be reasonably concluded that carpet is the single most important color choice a developer can offer an owner. For this item it should be especially important to insure that the color selection is adequate, both in quality and quantity. A choice of carpet color would seem almost mandatory, even for projects which do not offer any other color options. Installation of carpet, following custom selection, should be a relatively uncomplicated process and the extra expense involved should be minimal. Properly set up, the mechanics of implementing such a color choice could be handled by almost any member of the project staff.

Consumers rate wallcoverings as a very important color choice, second only to carpet. It appears that developers should definitely offer this color choice if it is feasible. Here, too, it is desirable to present an adequate selection which offers some latitude in style as well as color. Projects which do offer color choices for wallcoverings could simplify the procedure by designating particular walls or areas where wallcoverings are to be applied. The establishment of such areas would standardize measurements and facilitate instructions to workmen.

The high ranking for kitchen appliances is understandable

most projects, the kitchen appliances are purchased primarily from a single manufacturer so that appliances could realistically be lumped together for a color choice. Generally, these products come in a rather limited range of standard colors. From the developer's viewpoint this means that, even if color choices are offered, the number of choices could be limited to three or four colors for appliances. There should be only a short delay in obtaining the chosen appliances, as they are usually readily available. If a satisfactory procedure for ordering and installing appliances can be devised without incurring excessive costs, it appears that most developers should seriously consider allowing options for the selection of appliance colors.

Bathroom fixtures and wall tile for all the housing units occupied by the sample group are white. Satisfaction with white as a color for bathrooms may account for the relatively low rating for these items. From a practical standpoint, there appears to be little advantage to a builder's offering color choices for these goods, not only because of the low ranking, but also because of the difficulties involved in installation. Additionally, colored bathroom fixtures are typically more expensive than white.

The color of bathroom counters seems to be the most important color option to offer for bathrooms. This is, of course, in addition to wallpaper and wallcoverings, a category which is assumed to apply to the entire townhouse.

The relatively high ranking of wall paint could be an indication that owners are interested in having colored walls, since all painted walls of the sample units are white. However, there are literally hundreds of possible paint colors on the market, and it hardly seems feasible to include all of them for selection. On the other hand, any arbitrary limitations of color choices should be based on research. The additional problems of scheduling painters and purchasing small quantities of custom colors seem to discourage options for wall paint colors despite the ranking.

Since the study indicates a strong preference by consumers to coordinate their own interior colors, developers should be encouraged either to use this method, or to allow more flexibility in the pre-coordinated plans. It should be stressed that a system of non-coordinated color selection does not mean that preplanning is not required. Consumers are not likely to be satisfied, even through the use of their chosen method of color selection, unless the choices offered are such that colors can be successfully coordinated. This implies that for every color of every item there must be compatible colors available for each of the other items included in the selection process.

Perhaps the pre-coordinated method could be modified to allow consumers more freedom of choice while, at the same time, avoiding some of the problems associated with complete non-coordination as discussed in Chapter II. For instance, pre-coordinated color schemes could be offered which still

permit some choices within each package. Carpet color might be a good starting point in developing color schemes, inasmuch as the importance of carpet color has been demonstrated by the rankings. For each carpet color, perhaps several coordinated wallpapers might be available for the selection rather than one arbitrary choice as is often the case. This procedure could present some real opportunities to introduce a variety of styles as well as colors.

Another approach might be to develop subschemes or "mini" color packages. It is exceedingly difficult to assemble a color scheme composed of many different items, each of which will appeal to a wide range of people. Therefore, the possibility exists that, with a limited number of color packages, there will be some item in each package that a consumer does not like. Moreover, there is really little logic in coordinating such diverse elements as bathroom wallpaper and kitchen floor into a single color scheme. The problem might be somewhat diminished by breaking color schemes into small segments consisting of no more than a few directly related goods. The sample group indicated a strong desire to select the color of kitchen appliances which could form the basis for a "mini" color scheme for the kitchen. There are many other possible combinations for limited item color schemes, such as bathroom counters and bathroom wallpaper or carpet and wallpaper.

Both approaches, choices within pre-coordinated color

be used simultaneously by the developer to gain maximum flexibility without losing organization and convenience.

Recommendations for Future Research

The subject of townhouse interiors is a fertile area for research. While this study barely scratches the surface of needed information, it is a good beginning. It would be highly desirable to extend the research begun here to other townhouse projects. Some meaningful insights could be gained by comparing results obtained from projects of different price ranges and from the standpoint of other variables.

It would be helpful to have consumers evaluate the suitability and quality of color choices which are currently being offered in townhouse projects. Additionally, research should investigate which colors and styles are most desired by townhouse owners. Future studies should ascertain how interior color selection rates in relation to consumer selection of other interior features. A great deal could be learned about consumer preferences regarding the size, number and arrangement of rooms. It would also be helpful to learn how various interior features figure into the purchase decision.

It would be beneficial to find out whether consumers are satisfied with the quality of interior goods found in townhouses at the present time. Perhaps research should investigate the receptivity of consumers to options whereby quality of interior furnishings could be upgraded at additional cost.

A considerable amount of research is possible on the subject of model units. For instance, one might explore how much the consumer is influenced by the models, and whether he considers them representative of actual purchased units.

The possibilities for research are almost limitless, since practically none has been done. Those mentioned in this paper are but a few of the many alternatives. A number of townhouse developers have expressed interest in examining this thesis upon its completion. It is hoped that this study will lead to future research which can benefit both consumers and developers. Should this occur, this study will have been of great value.

APPENDICES

August 11, 1972

Dear Centre Villa Resident,

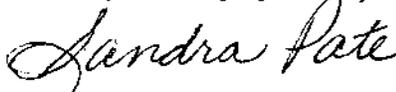
I am a graduate student at North Texas State University, and I am asking you to help me by completing the enclosed questionnaire. It should take only a few minutes of your time.

Data gathered from the questionnaire will be used in a research project required for my degree. The project is in no way related to the sale of any product or service.

This form is being distributed only to residents of Centre Villa, so your prompt reply is very important to the success of my study. To encourage your participation, I am offering a \$25 cash prize. On September 1, one name will be drawn from the questionnaires which have been returned to me prior to that date. The winner will be notified by mail shortly thereafter.

When you have completed the questionnaire, please drop it in the mail, using the enclosed postage paid envelope. Thank you very much for your cooperation and assistance.

Very truly yours,



Sandra Pate
Student Researcher

P. S. If you should need to call me, my number is in the Dallas phone book.

QUESTIONNAIRE

Please have this questionnaire completed by the person in your household who is most responsible for the interior decoration of your townhouse.

Section 1

Answers should apply to person completing the form.

Marital Status: single married Sex: M F
Age: under 30 31-40 41-50 over 50

Section 2

In Dallas, the purchase price of a townhouse usually includes basic interior furnishings and equipment. If you were purchasing a townhouse now, would you want to choose colors for those interior goods which are included in the purchase price?

No Yes

Section 3

Perhaps you are more concerned about choosing colors for some interior goods than others. In this section you will rank 12 types of interior goods to indicate the relative importance of choosing the color of each item.

Please read through the instructions once, then go back and carefully follow them step by step.

1. Open the small envelope and remove the 12 slips of paper. On each slip is the name of an item of interior furnishings or equipment.
2. Rank the items (from 1 to 12) according to how strongly you feel about choosing colors. Place the item for which you most want to select color on top, the item of next importance under the first slip, etc. The least important item, in terms of color selection, will be on the bottom.
3. When you have ranked the 12 items, go through the stack and write the rank number on each slip in the space provided on the upper right-hand corner. Mark number 1 on the item for which you most prefer to select color, number 2 on the item of next importance, etc.
4. Put the slips of paper, in ranked order (number 1 on top), back in the small envelope.

Section 4

If you were choosing colors for interior furnishings and equipment in a townhouse, which of the following methods of color selection would you prefer? (check one)

 A. Pre-Coordinated

A number of interior color schemes are pre-coordinated for you by an interior designer in terms of colors which he feels go together. Color samples for each scheme are shown as a total package. You make a single choice from among the several available color schemes.

 B. Non-Coordinated

No color coordination is done for you. An assortment of color samples is provided for each interior item. You choose the color for each item separately, and do your own coordinating.

Section 5

After completing the information below for the drawing, put the questionnaire and the small envelope (containing the slips of paper) into the postage-paid envelope. Seal the envelope and drop it in the mail.

Thank you very much for your participation.

please print

name _____

address _____

telephone _____

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