THE DETERMINANTS OF RESIDENTIAL ENVIRONMENTAL QUALITIES AND SATISFACTION: TOWARD DEVELOPING RESIDENTIAL QUALITY INDICES

BY

MIKYOUNG HA

Bachelor of Science
Yonsei University
Seoul, Korea
1981

Master of Home Economics
Yonsei University
Seoul, Korea
1983

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Thesis Approved:

Margaret J. Weber
Thesis Adviser

P. L. Claypool

Dale C. Key

Elaine Jorgenson

Norman N. Durham
Dean of the Graduate College

PREFACE

This study was undertaken to develop a comprehensive measure for residential environment quality. Seven residential quality indices in terms of environmental safety, public services, planning/ landscaping, housing policies, socio-cultural, housing economics, and housing quality were identified.

The mean differences in residential qualities between rural and urban residents were discussed using a t-test. A full residential environment evaluation model which considers the effects of socio-demographic characteristics of household and housing practices on residential quality and satisfaction was developed and tested using an Analysis of Linear Structural Relationships. Housing quality was the most influential factor in residential satisfaction, and no mean difference in housing quality between rural and urban residents appeared. However, rural residents presented a higher mean residential satisfaction score than urban residents.

The format of this dissertation deviates from the general thesis style used at Oklahoma State University. The purpose of this deviation style is to provide manuscripts suitable for publication as well as to fulfil the traditional thesis requirements. For the traditional first three chapters, Publication Manual of the American Psychological Association has been used with some blending of thesis style. Two manuscript styles, those of the Environment and Behavior and Housing and Society journals, were used for chapters 4 and 5,

the manuscript chapters. The cooperation of the Graduate College and Dean Norman Durham in the stylistic adaptations is greatly appreciated.

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Most of all, my special thanks goes to my husband, Byung-Eun, for his unceasing support and encouragement with patience during my studies. My parents and sisters are appreciated for encouraging and praying for me. Lastly, to my daughter, Hannah, goes my thanks for her sweet love and patience in sharing her mama with papers, computers, and statistics.

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CHAPTER I

INTRODUCTION

Problem Statement

Typically, housing in the United States has been plagued by a major problem: the quality of housing. However, housing quality has been continually addressed as main part of the housing policies, and consequently the problem has diminished in many of the most obvious forms. Accordingly, the quality of American housing has become one of the highest in the world, and the last four decades have evidenced a marked reduction in most indices of housing distress.

As housing quality measured with physical standards, such as space, facilities, materials, etc. has improved, housing expectations have increased in terms of personal values and satisfaction. As a result, it has been recognized that residential satisfaction is affected not only by the physical housing itself, but by comprehensive criteria which include the aesthetic and socio-psychological aspects, and the surrounding environments.

Although a variety of research related to housing satisfaction has been done, the research has primarily focused on the housing unit itself with minor or limited emphasis on the surrounding environment (Gruber & Shelton, 1987). Conceptions of the term

"environment" range from the "manmade" (or "built") environment to the "natural" environment, with an array of "human-altered" environments--e.g., air, water, noise and visual pollution--in between (Catton & Dunlap, 1978).

Some environmental factors have been added to the housing satisfaction index (Campbell, Converse, & Rogers, 1976; Connerly & Marans, 1985; Gruber & Shelton, 1987). A comprehensive residential satisfaction model was developed which combined housing unit, neighborhood, and community (Campbell et al., 1976). However, a evaluative model of the residential environment, which considers the interrelationships between both housing and environment and housing practices, has yet to be developed. The quality of the residential environment can be estimated on the basis of the socio-demographic variables of the household as well as on certain extraneous variables, for example, community housing practices. Evaluation of the residential environment should address both socio-psychological and physical concerns. Thus, comprehensive information can be added to housing-related fields by studying the relationships between the quality of the residential environment, the conditions of the community, and the individual. To achieve valid and accurate results in relation to the purpose of measuring the quality of residential environment, the housing research field needs to develop a model that embraces all aspects of the total environment.

Purposes and Objectives

The purposes of this study were: (a) to develop an instrument which measures the quality of residential environment; (b) to assess

differences in the residential environment of rural and urban areas based on this developed residential environment instrument; and (c) to develop and test a model to evaluate quality of residential environment and residential satisfaction. To accomplish these purposes, the following objectives were identified:

- To develop a comprehensive measure for residential environment quality.
- To define and specify criteria in assessing the quality of the residential environment which include: (a) an assessment of the physical and socio-psychological aspects of residential environment as an environmental quality index and (b) an assessment of the importance of socio-demographic and housing practices to the quality of residential environment.
- To determine the interactive dimensions of the above criteria and residential satisfaction in the development of an evaluation model of residential environment.
- To compare mean differences between rural and urban quality of residential environment.

Research Questions

The specific research questions for this study are:

- What are the representative descriptors that measure the quality of residential environment related to environmental safety, public services, planning/landscaping, housing policies, socio-cultural environment, housing economics, and housing quality?
- What is the relationship between each of the dependent variables (residential qualities and residential satisfaction) and the

independent variables (socio-demographic variables and housing practices)?

- What is the relationship between residential quality and residential satisfaction?
- What dimensions of residential quality are the important determinants of residential satisfaction?

Assumptions and Limitations

Assumptions. The assumptions for this study are:

- It is assumed that the selected rural communities are generally representative of all non-metropolitan areas in terms of size.
- The selected urban communities are representative of all metropolitan areas.
- The questionnaire is a valid and reliable instrument for assessing the responses.
- The model assumes that all dimensions of residential environment are equally important to all consumers.

Limitation. The limitations for this study are:

- The geographic location of dwellings is confined to the state of Oklahoma.
- Quality score was measured only based on respondents' subjective evaluation of each items, and excluded outsiders' objective evaluation.

Definition of Terms

The definitions for this study are:

- Non-metropolitan area - the area which belongs to non-Standard

Metropolitan Statistical Area (SMSA) according to the 1980 census.

- Housing affordability - a measure defined by the ratio between income spent for shelter (including utility cost, rent or mortgage, and insurance, etc.) and median family income (Feins & Lane, 1983; Stone, 1983).
- Residential environment - the housing unit and its surroundings including neighborhoods, and community (Campbell et al., 1976).
- Housing practices - financing, housing regulations, and housing programs.
- Housing intermediary - housing related agencies: the adopting unit or decision makers in the housing market.
- Quality - a numerical representation of the tangible and intangible attributes of the residence derived by the subtraction of a number representing importance as an ideal home from the number which represents the present home state. Ultimate assessments of residential attributes will diverge from person to person because individuals of different types bring different standards of comparison to bear on their perceptions of reality (Campbell et al., 1976).

CHAPTER II

REVIEW OF THE LITERATURE

Housing Research with Emphasis on Housing Quality

In a landmark study, Davies (1938) listed the following basic human values which housing should achieve: (a) values of physical well-being and security; (b) values of mental well-being and security; (c) individual traits having social values; (d) values to the family as a group; (e) values to the neighborhood; and (f) values to the larger community, state, or nation. These six dimensions of values explain the broad context of housing research. Davies (1938) also gave a definition for quality housing: "Good housing is shelter, with its equipment, furnishings, and environment, which promotes the realization of life values held by its occupants, and which contributes to the stability and progress of that society to which those occupants belong (p.14)."

Despite the acknowledged importance of evaluating living environments, most of the research on housing quality has focused on structural and physical conditions. Since 1940, the Bureau of Census has introduced several scales in its attempts to measure the structural/physical condition of the nation's housing stock, and has added more variables to improve the comprehensiveness of the index of housing quality. Some indices of housing quality have been

developed, with the major emphasis on the structural and physical conditions of housing (Yeager, 1962; Nelson, Christiansen, & Fitzgerald, 1968; Morris, Jacobson, & Woods, 1972). Later, the concept of economic factors was added to the housing quality indices, and more conceptual studies of housing satisfaction and preference were completed.

Yeager (1962) developed an index of structural condition and facilities, which included square footage of the unit relative to the number of occupants. O'Connor (1978) included person-per-room and traffic through the bedroom in an index designed to measure housing quality of a sample of Florida respondents.

Nelson et al. (1968) included the presence/absence of piped hot water and other amenities and equipment, while Harris (1976) used amenities and the interior aspect to relate housing quality to features that determine market value. Memken (1984) indicated a relationship exists between indoor crowding and mobility, where mobility is related to bedroom need. The concept of relating market value($) to housing quality was also used by Kain and Quigley (1970) in developing a housing quality index which measured basic residential quality, dwelling unit quality, quality of proximate properties, nonresidential use, and average structural quality of block. These studies of housing quality are beneficial to current research and suggest factors concerning the physical quality of housing.

On the other hand, studies of housing values, preferences, and satisfactions have sought to define important intangible criteria for evaluating housing. Much of this work has focused on consumer

preferences for tenure and structure types and on resident satisfaction with specific components of their micro- and macro-environment. Beyer, MacKesey, and Montgomery (1955) introduced self-esteem and aesthetics as characteristics of the physical and social environment as they relate to the "personal" value of housing. Dillman, Tremblay, and Dillman (1979) found a strong relationship between housing preferences and the four housing norms presented in the Morris and Winter's (1978) housing adjustment model: ownership, private outside space, conventional structure, and detached dwelling.

Residential Quality and Residential Satisfaction

In any case, housing cannot be separated from its surroundings, and acceptance or satisfaction may be more dependent on where the unit is situated than on its actual or perceived quality. Environmental concerns, especially those concerning the man-built environment, have been increasing. Rapoport (1969) suggested that houses are built to satisfy psychological needs rather than to fulfill essential physical requirements. Hartman's (1963) studies of public and low income housing support the notion that the socio-psychological environment is a more important aspect than the physical quality of housing.

Beyer et al. (1955) identified lot and location as the variables to which the concept of "human values" can be applied. The relationship between privacy and sociability, both of adults and children, and lot and location were described as important. The influences of social and environmental conditions on the

habitability of specific environments and on residential satisfaction with the overall living environment were added to housing quality indices (McCray & Day, 1977).

Peck and Stewart (1985) concluded that housing satisfaction does contribute to overall life satisfaction, and housing satisfaction is related to neighborhood satisfaction and characteristics of the dwelling unit. McCray, Weber, and Claypool (1986) conducted an extensive review of housing, economic, sociological, and psychological literature in an attempt to define dimensions of the housing decision process. The result of this effort was a housing decision framework (HDF) that explained the relationship between knowledge of certain housing-related characteristics and the risks associated with the selection of various energy efficient alternatives.

From the earliest studies, developing a standard for assessing what constitutes good housing has been an important consideration. The pioneering Davies (1938) used the terms "home surroundings" and "neighborhood qualities" to assess good housing standards. Small lot proportion to height of building, no yard for children's play, location problems, the lack of harmony between house plan and the surroundings, inadequate landscaping, unsanitary conditions, inconvenience, and lack of protection from animals were included in the problems of home surroundings. Neighborhood qualities included the air quality, the plan and appearance of neighborhood, neighborhood's location, street planning, and public utilities.

The interrelationship between people and their environment includes human effects on the built environment and, in turn,

environmental effects on people (physical, biological, social, psychological, and cultural) (Morrison & Nattrass, 1975). Researchers have ascertained that stimuli in the physical environment have definite influences on human behavior (Bell, Fisher, & Loomis, 1978). Environmental psychology has been concerned with such physical environmental factors as noise, temperature, air pollution and wind, and their behavioral effects.

In 1975, Ching explained environmental comfort factors. These are the temperature of the surrounding air; the mean radiant temperature of the surrounding surfaces; the relative humidity of the air; air motion; and dust and odors. Ching (1975) reported that certain physical aspects may be isolated and controlling these aspects has a positive effect on personal satisfaction. For example, the thermal comfort factors of the first four may be controlled by the building's mechanical system, the building's site location and orientation, and the building's materials and construction assembly.

As progress was being made in understanding and controlling the physical aspects of housing, the more intangible aspects of the problem have remained a source of fascination for researchers. The socio-psychological aspect of the neighborhood has been one of the most frequently emphasized environmental problems in past reports. Numerous studies have used neighborhood satisfaction as a perceived neighborhood quality, and neighborhood quality has been formalized into a general satisfaction model (Marans & Rogers, 1975; Campbell et al., 1976).

Campbell et al. (1976) suggested that people's housing

environments should be conceptualized as residential environments consisting of the housing unit, the neighborhood, and the community in which they are located. They represented housing environments as "nested environmental realms" with the dwelling unit being contained within the neighborhood and within the community. The three combined realms define an individual's residential environment. The quality of that environment directly impacts the residents' perceived housing environment quality.

Focusing on Campbell et al.'s (1976) work, particularly the second and the third realms of the residential environment, the neighborhood and the community, Gruber and Shelton (1987) studied neighborhood satisfaction with different housing types. Two sets of neighborhood evaluation variables were used. In the first set were the characteristics of neighborhood and community, which included attractiveness, neighborhood, public service, facilities, and services. The second set, neighborhood attributes, included pleasant/friendly, traffic/noise, good parking/maintenance, closed space, poor exterior lighting/ maintenance, and good recreation. The research found that the relationship of neighborhood attributes to neighborhood satisfaction was stronger than the relationship of neighborhood and community characteristics across housing types. The research findings indicated that evaluations of neighborhood characteristics and attributes were closely related to the respondents' overall satisfaction and positive assessments of their neighborhoods.

Wandersman and Moos (1981) used the term "sheltered living environments" and suggested a multidimensional approach for

assessment, focusing on physical and architectural resources, policy and program resources, resident and stall resources, and social climate resources. Connerly and Marans (1985) examined and compared two perceived neighborhood qualities: satisfaction and attachment. Satisfaction and attachment are both affected by the social climate in terms of neighborhood interaction.

Using non-metropolitan areas of northern Michigan, Marans and Wellman (1978) indicated that the place of residence has a direct bearing on the quality of life. They evaluated the residential environment in terms of the individual dwelling and its associated property, the resident's immediate neighborhood, and the lake or river on which waterfront dwellings were located. Lakes and rivers are the attractive features of the region with their natural settings. The single most important factor in explaining overall neighborhood satisfaction was the way people felt about the upkeep and maintenance of the area around them. For property owners, having friendly neighbors also contributed to their satisfaction, while evaluation of their individual dwellings and privacy were important to renters.

Smith (1984) studied the effect of park characteristics on vacancy rates in mobile home park research. Lot size, location, amenity level, age of park, and rental rates were selected as park characteristics. Swimming pool, recreation area, meeting hall, recreation room, storage area separate from home lot for large items, hard surface streets, hard surface parking, skirting required, outdoor lighting, and manager living on the premises were considerations in the amenity level. Smith (1984) determined that

location was a factor in the vacancy rate determination for the mobile home park residents, but it did not significantly influence overall resident satisfaction as measured by a satisfaction index.

Heaton and Lichter (1986) introduced such environmental attributes as site-specific (the presence of rivers, lakes, and seashore; and the log of acres of water surface area) and temperature into the sociological explanation of migration. The social organization plays an important role in the relationship between environment and behavior. Researchers concluded that without recreational development, the impact of water and climate on migration would be much smaller.

Summary

From reviewing the previous research on housing and residential satisfaction, several factors emerge as being particularly important to evaluating residential environment and providing a foundation for exploring the multidimensional factors of this research. Environmental safety, public services, planning/landscaping, housing policies, socio-cultural environment, housing economics, and housing qualities are all important dimensions of an environmental quality evaluation.

CHAPTER III

METHODOLOGY

Introduction

For the purposes of this research, the following conceptual model was (see Figure 1) developed. The following types of information were collected according to the model: (a) socio-demographic characteristics of households; (b) housing practices of each county (financing, housing programs, and zoning and subdivision regulations); (c) residential environment quality (environment safety, public services, planning/landscaping, housing policies, socio-cultural environment, housing economics, and housing quality); and (d) residential satisfaction (housing and neighborhood environment).

Research Design

The research design of this study is a descriptive study of the residential environmental quality and satisfaction. Descriptive research describes situations and events from the researcher's observation (Babbie, 1986). The conceptual model for this study has been developed based on a review of the literature (see Figure 1). According to this model, housing practices and a resident's socio-demographic characteristics effect residential environmental

qualities and residential satisfaction; and at the same time residential environmental qualities are themselves having a compounding effect on residential satisfaction.

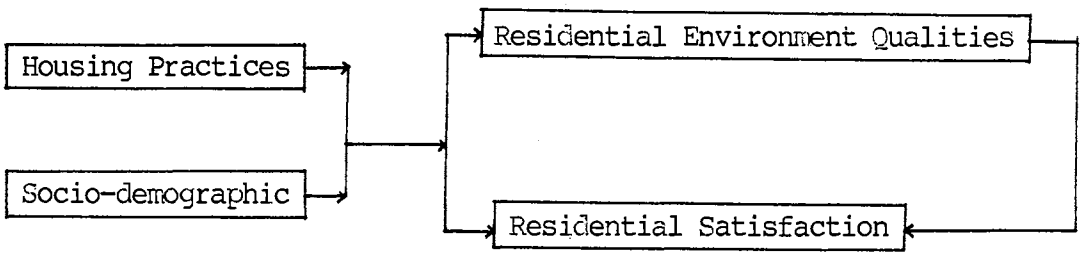

Figure 1. Conceptual Model

Sample

Household

To determine the rural sample, the non-SMSA counties in the state of Oklahoma were placed in geographic quadrants as determined by the Interstate Highway system. I-35 was utilized for the east-west division and I-44 was utilized for the north-south division to divide the state into four quadrants. The 1980 population Census was then utilized to arrange the counties within each quadrant by population size. The median was used to label those above as high population and those below as low population for each quadrant. Utilizing random selection, one county was selected from the high population group and one county form the low population group to select two counties in each quadrant (see Appendix A). A total of eight counties were selected for the study.

Oklahoma City of Oklahoma county and Tulsa of Tulsa county were selected for the urban sample of the metropolitan areas. Population

density of each local zip code zones was calculated; the 1985 population in a zip code zone was divided by the size of a zip code zone in square miles. The median was used to label those above as high density and those below as low density zones. High density and low density zones were divided again according to the median density, and four density categories—the lowest quartile, low quartile, high quartile, and the highest quartile—were resulted. All the highest and the lowest quartiles were selected.

After the counties and metropolitan areas had been identified, the telephone directories were used for the sampling framework. All of the communities of 2500 or less were listed for each rural county. The telephone directories were located for each of these communities. All non-residential names were deleted from the directories. From the remaining listings, households were selected using a systematic selection process. Utilizing all of the telephone directories for the county, the households were selected proportionate to the number of listings per community.

For example, county A (population 6940) had 5 communities of the following population: town A, 2300; town B, 1800; town C, 650; town D, 990; and town E, 1200. Then, the sample size was drawn from the communities as follows: town A, 33.1%; town B, 25.9%; town C, 9.2%; town D, 13.2%; and town E, 18.6%. The percentages identified above were used in determining the number of listings from each telephone directory for the community for approximately 300 listings per county. A proportionate sample (250 from the highest quartile, 50 from the lowest quartile) was selected from each urban area. This provided a total sample size of 2431 for the rural area and 600

households for the urban area.

A total of 3031 surveys (2431 rural and 600 urban) were sent to the identified households. With a response rate of 40.55% (41.74% rural and 35.98% urban), a total of 1041 (842 rural and 199 urban) responses were used for data analysis (see Table I).

Housing Intermediaries

Housing-related agencies in all of the communities of less than 2500, or county seats in eight rural counties and Oklahoma City and Tulsa in two urban counties of Oklahoma were included in the sample. County Cooperative Extension supervisors, Farmer's Home Administration county supervisors, regional planners, a representative realtor and a lender in each community, and the mayor or city manager of that community were sampled for the survey. All those intermediaries for rural areas who were listed in the telephone directory were included in the present study's sample; except 10 realtors and 10 lenders were randomly selected from each of urban areas from telephone directories. A total of 123 questionnaires were sent and sixty-seven responses were usable with a 60% response rate. After confirming that no remarkable housing practices changed since the housing practices survey of 1985 within communities, twenty responses (from the same county seats using exactly the same questionnaire) from the 1985 survey were used for analysis instead of sending new questionnaires (see Table II).

Table I

Household Sampling and Response Rate

County	Sample	Unreached	Unusable	Usable	Response Rate[a] (%)
1. Beaver	308	23	7	141	50.71
2. Major	305	73	3	130	56.76
3. Craig	300	33	8	96	37.06
4. Okmulgee	302	62	3	82	34.59
5. Greer	285	14	9	105	40.07
6. Jackson	320	49	8	102	38.78
7. Choctaw	308	71	9	90	39.47
8. Coal	303	40	5	96	37.20
9. Ok City	300	18	6	101	36.59
10. Tulsa	300	20	3	98	35.37
Rural Total	2,431	365	52	842	41.74
Urban Total	600	38	9	199	35.98
Total	3,031	403	61	1041	40.55

a Response Rate = $\frac{\text{Usable Reponse}}{\text{Sample-Unreached-unusable}} \times 100$

Table II

Sampling and Response Rate of Housing Practices Survey

County	Sample	Unreached	Usable	Response[a] Rate (%)	1985 data	Total Usable
1. Beaver					4	4
2. Major	5		3	60.00	3	6
3. Craig	6		5	83.33	4	9
4. Okmulgee	16	1	10	66.66		10
5. Greer	3		2	66.66	5	7
6. Jackson	25	3	12	54.54		12
7. Choctaw	4		4	100.00	4	8
8. Coal	8		6	75.00		6
9. Oklahoma	27	4	12	52.17		12
10. Tulsa	29	3	13	50.00		13
Total	123	11	67	59.82	20	87

a $\text{Response Rate} = \dfrac{\text{Usable Response}}{\text{Sample} - \text{Unreached}} \times 100$

Instrumentation

Household Instrument

Survey items were developed by the researcher in cooperation with a research project of the Oklahoma Agricultural Experimental Station to elicit the respondents' assessment of the physical and socio-psychological components of their residential environment. Among the 121 quality items on the questionnaire, 83 items (12 for environmental safety, 8 for public services, 15 for planning/ landscaping, 8 for housing policy, 13 for socio-cultural, 8 for housing economics, and 19 for housing quality) were used for this study (see Appendix C). The questionnaire was structured for a mailing survey.

Pilot Test. The instrument was pilot-tested during November 1987. Dillman's (1978) Total Design Method was utilized for the pilot survey. One-hundred and fifty households were randomly selected from the towns of Glencoe, Perkins, Ripley, and Yale, Oklahoma. Thirty-five responses were usable from the pilot study; usability was solely based on all questions in the quality indices being completed.

The Kuder-Richardson test for reliability of residential quality indices was completed. The internal consistency of the quality indices was acceptable, as test results exhibited consistency levels with standardized alpha ranging from .79 to .90. Carmine and Zeller (1982) suggested that reliabilities should not be below .80 for widely used scales. Items which had low factor loadings (less than .5) were deleted from the pilot test

questionnaire after principal component factor analysis. Items which respondents suggested adding or changing were added or reworded.

Survey. The questionnaire for the survey included the pilot items with revisions (see Appendix B). Each item in the residential quality index was answered on two types of response scale; focusing on the importance of this item to an ideal home and the condition of present home. The respondents were asked two questions initially: first, "How important is this item to one's concept of the ideal home?" and, then, "How satisfied is the respondent in his/her present home with respect to this item?" The ideal home query had three response levels ranging from "important (5)," "neutral (3)," and "unimportant (1)." The present home query had six response quality levels: "very satisfied (5)," "satisfied (4)," "neutral (3)," "dissatisfied (2)," "very dissatisfied (1)," and "not present in my home (0)."

The quality score of each item was defined operationally as: Quality = (Condition - Importance) + Condition. For example, when a respondent answered "very satisfied (5)" to the condition of present home "temperature control" and "very important (5)" to ideal home "temperature control," the quality score of "temperature control" is 5, (5-5)+5; the respondent with "very dissatisfied (1)" to condition of present home same feature and "unimportant (1)" to ideal home has a quality score of "temperature control" 1, (1-1)+1. Each item's possible quality score ranged from -5 to 9.

The Kuder-Richardson reliability test to measure inter-item

consistency of the seven dimensions of residential quality indices exhibited consistency with standardized alphas ranging from .80 to .94 (see Table III). The reliabilities of seven residential quality indices were established.

One of the most serious topics in Environmental Science today, a sanitary landfill, was pursued as an open question. A sanitary landfill is inevitable for living but may negatively impact the residential quality. The question was "The city is building a sanitary landfill and going to locate it behind your house, what would your reaction be?" Answers were categorized into 8 groups (see Appendix E).

Housing Intermediary Instrument

A Housing Practices questionnaire, which had been developed by the Southern Regional Housing Research Committee (S-194) in 1985, was used as a data collection instrument. A total of 48 questions were included in the questionnaire which was designed to provide practical local housing market information (see Appendix D). Respondents were asked if various (a) alternative financing, (b) housing programs, (c) housing regulations, and (d) housing types are avaiable or present in their communities. Thus, financing, housing regulations, and housing programs indices were used for this research. An index of housing types was excluded, because innovative types of housing were beyond the scope of this research. Financing included 7 items having 3 response levels of "not available (0)," "limited availability (.5)," and "general availability (1)." The existence of local housing programs and

Table III

Inter-item Reliability Alpha for Residential Quality Indices

	Environment Safety	Public Services	Planning/ Landscaping	Housing Regulations	Socio-cultural	Housing Economics	Housing Quality
Item	12	8	15	8	13	8	19
n	965	978	927	965	940	949	933
Alpha	.90	.81	.84	.87	.82	.87	.93
Standized Alpha	.90	.80	.85	.87	.82	.87	.94

regulations within communities included 6 items and 7 items respectively, having 2 response levels of "no (0)" and "yes (1)" (see Appendix D).

Data Collection

Households and housing intermediaries provided the population for the present research, with the sample being selected from both rural and urban areas. Dillman's (1978) Total Design Method for a mailed survey was utilized. The survey packet, which included a questionnaire, a cover letter, and a return envelope, was mailed in August 1988 to each intermediary in the sample and in September 1988 to each household in the sample. A follow-up post card and a follow-up survey packet were sent at two-week intervals to non-respondents.

Data Analysis

To find the representative descriptors that measure the quality of residential environment related to environmental safety, public services, planning/landscaping, housing policies, socio-cultural environment, housing economics, and housing quality the principal component factor analysis was used. A t-test was utilized for the quality mean comparison between rural and urban residents. An analysis of Linear Structural Relationships (LISREL) developed by Jöreskog and Sörbom (1986) was utilized to test the conceptual model and the model fit.

CHAPTER IV

THE RELATIONSHIP BETWEEN RESIDENTIAL QUALITY AND SATISFACTION: TOWARD DEVELOPING RESIDENTIAL QUALITY INDICES

MANUSCRIPT FOR PUBLICATION

JOURNAL TITLE: ENVIRONMENT AND BEHAVIOR

THE RELATIONSHIP BETWEEN RESIDENTIAL QUALITY AND SATISFACTION: TOWARD DEVELOPING RESIDENTIAL QUALITY INDICES

ABSTRACT

The purpose of this study was to develop a residential quality index and to test its relationship to residential satisfaction. Factors representing seven dimensions of residential quality were identified as indices by utilizing principal component factor analysis. Those factors included environmental safety, planning/landscaping, housing policy, socio-cultural environment, public services, housing economics, and physical quality of housing.

Analysis of the scores of these seven quality dimensions indicate that urban residents had a higher mean quality of public services, housing policy, and socio-cultural environment than rural residents. Conversely, the mean quality of planning/landscaping and environmental satisfaction were higher in rural areas. Additionally, there were no mean differences in housing quality, housing economics, environmental safety, and overall housing satisfaction between rural and urban areas.

Of the seven quality dimensions explored, five residential quality indices--environmental safety, planning/landscaping, housing policy, socio-cultural environment, and physical quality of housing--were indicated as significant factors in residential satisfaction.

INTRODUCTION

Traditionally, research on housing has primarily focused on the housing unit itself with minor or limited emphasis on the surrounding environment (Gruber & Shelton, 1987). However, researchers are now increasingly focusing their attention on the actual surroundings of the housing unit.

The residential environment is defined as the housing unit and its surroundings, including neighborhoods and community (Campbell, Converse, & Rogers, 1976). Considerable effort has been directed to measuring the residential qualtiy using a variety of approaches. However, a proper and comprehensive measurement of residential environment quality is still a concern for researchers. A more comprehensive measurement of residential quality needs to be achieved through the reorganization of quality attributes and the addition of new items based on previous studies.

The purpose of this study is to develop a comprehensive measure for residential quality and to test the relationship between residential quality and residential satisfaction. The specific research questions for this study are:

- What are representative descriptors to measure the quality of residential environment in terms of environmental safety, public services, planning/landscaping, housing regulations, socio-cultural environment, housing economics, and physical housing quality?
- What differences exist between rural and urban residents in the dimensions of residential quality.
- Which of the seven identified dimensions of residential quality

are significantly related to residential satisfaction.

REVIEW OF LITERATURE

Davies (1938) used the terms "home surroundings" and "neighborhood qualities" to assess good housing standards. Lot proportion to height of building, yard for children's play, location problems, the lack of harmony between house plan and the surroundings, inadequate landscaping, unsanitary conditions, inconvenience, and lack of protection from animals were included in the problems of home surrounding. Neighborhood qualities included air quality, plan and appearance of neighborhood, location of neighborhood, street planning, and public utilities.

Campbell et al. (1976) represented housing environments as "nested environmental realms" with the dwelling unit being contained within the neighborhood and within the community. The combination of these three realms--the dwelling unit, the neighborhood, and the community--define an individual's residential environment.

Focusing on the above conceptualization of Campbell et al.'s (1976) work, Gruber and Shelton (1987) were particularly interested in the second and the third realms of the residential environment, the neighborhood and the community. Consequently, they studied neighborhood satisfaction with different housing types. Two sets of neighborhood evaluation variables were used. The first set focused on the characteristics of neighborhood and community, which included attractiveness, neighborhood, public service, facilities and services. The second set, neighborhood attributes, included pleasant/friendly, traffic/noise, good

parking/maintenance, closed space, poor exterior lighting/ maintenance and good recreation. The relationship between neighborhood attributes and neighborhood satisfaction was stronger than the relationship between neighborhood and community characteristics across housing types. Their research results indicated that evaluations of neighborhood characteristics and attributes were closely related to respondents' overall satisfaction and positive assessments of their neighborhoods.

Researchers of housing or residential environment have employed different qualitative measurements for various studies. One of the obvious and primary considerations was to assess the physical condition of a structure (Fish, 1979). The American Public Health Association has a detailed scale of condition which assigns penalty points for the presence of defects or deterioration in the structure, but the scale has not been updated since 1946 to incorporate measures such as insulation and other new technologies (American Public Health Association, 1945; Fish, 1979). Public services in the area are measured by the presence or absence of facilities (i.e. public water, public sewer, and street) as described in the Bureau of Census in 1970 (Fish, 1979).

Kain and Quigley (1970) employed a two-rating survey to measure the quality of housing. Interviewers rated particular aspects of a house on a scale ranging between "excellent condition (1)" and "requires replacement (5)." City building inspectors provided quality ratings for specific aspects of the exterior physical environment. The measures of residential quality associated with individual dwelling units were obtained by using factor analysis to

aggregate some 39 qualitative indices of narrowly defined aspects of dwelling units, structures, parcels, and micro-neighborhoods.

Morris and Winter (1978) indicated that two criteria to judge housing condition are family norms and cultural norms. When housing does not meet these norms then deficits occur. Morris and Jakubczak (1988) operationally defined a deficit as subtraction of a number representing a norm from a number which represents the current actual state that the norm is used to evaluate (deficit = condition - norm). Quality can be defined based on the concept of the normative deficit. Ultimate assessments of residential attributes will diverge from person to person because individuals of different types bring different standards of comparison to bear on their perceptions of reality (Campbell et al., 1976). Ultimately, personal standards of comparison lead individuals to form their quality evaluations.

Researchers frequently use a measure of residential quality as an expression of satisfaction with the housing unit or the environment. Additionally, numerous studies have used neighborhood satisfaction as an indicator of neighborhood quality, and neighborhood quality has been formalized into general satisfaction models (Marans & Rogers, 1975; Campbell et al., 1976).

Connerly and Marans (1985) measured and compared two perceived neighborhood qualities: satisfaction and attachment, both of which are affected by social interaction in the neighborhood. Currie and Thacker (1986) studied the quality of the urban environment as perceived by residents of slow and fast growth cities. Satisfaction with housing, neighborhood, friendship, and family were included in

their community satisfaction model. In their analysis, city attributes were the most powerful predictors to overall satisfaction.

METHODOLOGY

The research design of this study is a descriptive study of the residential environment quality and satisfaction (Babbie, 1986). In the present study, Dillman's (1978) Total Design Method for mailing a survey was utilized. The survey packet, which included a questionnaire, a cover letter, and a return envelope, was mailed to the sample households during September 1988. A follow-up post card and a follow-up survey packet were sent at two-week intervals to non-respondents.

SAMPLE

The state of Oklahoma was divided into four quadrants by geographic location and the quadrant to which each non-SMSA county belongs was noted. The 1980 Census of population was then utilized to order the counties within each quadrant by population size. Utilizing random selection, two counties were then randomly selected from each quadrant, (one county from the high population group and one county form the low population group) for a total of eight counties. Rural respondents were limited to households located in communities of less than 2,500 inhabitants. A proportionate sample was selected from each community within each county selected based on the ratio of community population to county population. Approximately 300 households were selected from each county.

Oklahoma City of Oklahoma county and Tulsa of Tulsa county were selected as a sample of the metropolitan area. Each urban area was divided into four population density categories--the lowest quartile, low quartile, high quartile, and the highest quartile--according to local zip code zones. A proportionate sample (250 from the highest quartile, 50 from the lowest quartile) was selected from each urban area.

A total of 3,031 (2,431 rural and 600 urban) questionnaires was sent to selected households. With a response rate of 40.55% (rural 41.74% and urban 35.98%), a total of 1,041 (rural 842 and urban 199) responses were used for data analysis.

INSTRUMENTATION

Survey items were developed by the researcher in cooperation with a research project of the Oklahoma Agricultural Experimental Station to elicit the respondents' assessment of the physical and socio-psychological components of their residential environment. The questionnaire was structured for a mailing survey.

Seven dimensions of residential quality including environmental safety, public services, planning/landscaping, housing policy, socio-cultural environment, housing economics, and housing quality were measured to complete a residential quality index. Each item on the residential quality index was answered on two types of response scale which focused on the condition of present home and the importance of this item to an ideal home. First, "How important is this item to one's concept of the ideal home?" and, then, "How satisfied in his/her present home with respect to this item?" were

asked. The ideal home scale had three response levels ranging from "important (5)," "neutral (3)," and "unimportant (1)." The present home scale had six response quality levels: "very satisfied (5)," "satisfied (4)," "neutral (3)," "dissatisfied (2)," "very dissatisfied (1)," and "not present in my home (0)."

The quality score of each item was defined operationally as: Quality = (Condition - Importance) + Condition. This definition was selected using Campbell et al.'s (1976) idea of assessment of residential attributes and Morris and Jakubczak's (1988) method for defining "deficit" as foundations. They allowed for a variety of responses, determined by individuals' personal standards, to create an operational definition. This variety was especially applicable to a working definition of quality for this present study.

The Kuder-Richardson reliability test to measure inter-item consistency of the seven dimensions of residential quality indices exhibited consistency with standardized alphas ranging from .80 to .94. These levels of reliability for the seven residential quality indices were deemed acceptable based on the Carmines and Zeller (1982) suggestion of a reliability alpha not-below .80 for widely used scales.

FINDINGS AND DISCUSSION

SEVEN RESIDENTIAL QUALITY INDICES

In order to validate the conceptualization of seven dimensions of residential quality, a principal component factor analysis was completed. The first identified factor represented general

characteristics of each quality dimension (Gorsuch, 1983). The original variables were then reviewed to be used as operational representatives of the constructs underlying the complete set of the variables. Variables with the first factor loading less than .5 were deleted from the set.

Table IV presents the environmental safety quality index. "Safe from tornados" having .37 factor loading was deleted from the environmental safety index. Tornados may be a factor associated with Oklahoma climate; and, respondents may think of this as uncontrollable factor. Table V presents the public services quality index. From the 8 quality items, "adequate water supply" and "adequate sewer system" were deleted from the public services index. These systems are generally present in small rural communities today or in outlying rural areas. Septic systems are very acceptable. Table VI presents the planning/landscaping quality index. "Located other than a corner lot" and "retaining wall around lawn" were deleted from the planning/landscaping index. These factors may have little or no concern for rural residences. Table VII presents the housing policy index; of this grouping, each of the eight items remained since all had factor loadings greater than .5. Table VIII presents the socio-cultural environment index. Thirteen items were originally included, but "a single family structure" was then deleted from the socio-cultural index after factor analysis. Single family housing is the most commonly held image of housing. Table IX presents the housing economics index and Table X presents housing quality index. All of the original variables of these two indices had factor loadings over .5.

Table IV

Factor Analysis for Environmetal Safety Index (n=1041)

	Environmental Safety
unpleasant conditions	.70
hazardous chemical plants	.77
a sanitary landfill	.78
dangerous features	.78
heavy traffic street	.73
noisy place	.79
flooding	.78
tornados	.37 *
land sliding	.72
soil quality	.61
drinking water pollution	.70
air pollution	.68
Variance	6.12

* variable deleted from index after this analysis

TABLE V

Factor Analysis for Public Services Index (n=1041)

	Public Services
adequate water supply	.43 *
adequate sewer system	.49 *
paved streets	.70
paved side walks	.71
adequate curbs and gutters	.80
adequate drainage system	.65
public park facilities	.72
recreational facilities	.71
Variance	3.55

* variable deleted from index after this analysis

TABLE VI

Factor Analysis for Planning/Landscaping Index (n=1041)

	Planning/Landscaping
high and dry land	.60
well-graded land	.68
located other than a corner lot	.47 *
uncrowded neighborhood	.60
natural view	.64
buildings well kept	.74
outdoor areas well kept	.72
distance from adjacent building	.70
not hear neigborhood noise	.66
windows not directly face	.63
trees and shrubs	.65
retaining wall around lawn	.35 *
landscaped yard	.53
fit the environment	.55
harmonized arch style with landsp	.54
Variance	5.73

* variable deleted from index after this analysis

TABLE VII

Factor Analysis for Housing Policy Index (n=1041)

	Housing Policy
built by some building code	.60
some type of occupancy code	.61
away from businesses	.68
away from manufacturing plants	.82
away from apartments	.83
away from mobile/manufactured homes	.80
with similar housing types	.74
away from undesirable land uses	.74
Variance	4.34

TABLE VIII

Factor Analysis for Socio-cultural

Environment Index (n=1041)

	Socio-Cultural
close to work	.62
near police/fire protection	.69
close to shopping areas	.73
close to schools	.76
close to hospitals	.73
close to family	.63
in good neighborhood	.67
in old established neighborhood	.58
in new development	.54
show status in community	.66
as good as homes of friends	.54
a single family structure	.49 *
as good as homes of people I work with	.55
Variance	5.34

* variable deleted from index after this analysis

TABLE IX

Factor Analysis for Housing Economics Index (n=1041)

	Housing Economics
own	.71
affordable	.75
low cost maintenance features	.78
low utility cost	.70
sell at profit	.78
good investment	.84
provide tax advantages	.75
self sufficient	.77
Variance	4.69

TABLE X

Factor Analysis for Housing Quality Index (n=1041)

	Housing Quality
individual space for each family member	.67
adequate storage	.71
noninterference passing	.64
space for outdoor activities	.53
easy to maintain	.73
well insulated	.72
energy efficient	.73
adequate temperature control	.76
well ventilated	.75
complete plumbing	.76
storm window and door	.63
built-in cabinet	.75
fire retardant materials	.60
structurally sound	.78
soundproof wall/quietness	.68
convenient kitchen design	.75
convenient bathroom design	.76
ceiling height	.70
sunlight for each room	.59
Variance	9.47

Finally, a total of 77 items were utilized in the measure of residential quality (environmental safety had 11; public services, 6; planning/landscaping, 13; housing policy, 8; socio-cultural environment, 12; housing economics, 8; and housing quality, 19) and were included for data analysis. Thus, these remaining items for the seven dimensions were validated as acceptable descriptors of each dimension and completed sets.

A COMPOSITE RESIDENTIAL QUALITY INDEX

Quality scores of seven dimensions of residential environment were operationally defined as a mean of the selected items as follows:

Environmental Safety = $\sum_{i=1}^{11} S_i / 11$, when S_i = $_i$th environmental safety variable

Public Services = $\sum_{i=1}^{6} PS_i / 6$, when PS_i = $_i$th public service quality variable

Planning/landscaping = $\sum_{i=1}^{13} PL_i / 13$, when PL_i = $_i$th planning/landscaping quality variable

Housing Policy = $\sum_{i=1}^{8} P_i / 8$, when P_i = $_i$th policy quality variable

Socio-cultural Environment = $\sum_{i=1}^{12} SC_i / 12$, when SC_i = $_i$th socio-cultural quality variable

Housing Economics = $\sum_{i=1}^{8} ECO_i / 8$, when ECO_i = $_i$th housing economics quality variable

Housing Quality = $\sum_{i=1}^{19} HQ_i / 19$, when HQ_i = $_i$th physical housing quality variable

After each of the subscales was identified, factor analysis was utilized to develop a composite residential quality index. The seven dimensions of residential quality based on the defined score of each dimension were factor analyzed through principal components analysis (Table XI). Only one factor having an eigen value greater than 1.0 was found. This component was defined as "residential quality." Each of seven quality dimensions scores had over .5 factor loadings on residential quality measure.

RESIDENTIAL QUALITY DIFFERENCES BETWEEN RURAL AND URBAN

Table XII presents the means comparison between rural and urban areas for each of the seven quality dimensions by using the t-test for two independent samples. Urban residents had a greater mean value for quality measures for public services, socio-cultural environment, and housing policy than rural residents ($p=.0001$). High population may require more services, facilities, and regulations. However, rural residents tended to have a higher planning/landscaping quality than urban residents ($p=.0503$). Rural residents may have less problems in terms of crowding and privacy, and may have higher quality of outdoor aesthetics. There were no significant mean quality differences in environmental safety, housing economics, and housing quality between rural and urban areas at .10 significance level.

TABLE XI

Factor Analysis for Residential Quality Index (n=1041)

Quality Dimensions	Residential Quality
environmental safety	.52
public services	.53
planning/landscaping	.79
housing regulations	.72
socio-cultural environment	.73
housing economics	.72
housing quality	.73
Variance	3.28

TABLE XII

T-test Between Rural and Urban Mean: Residential Quality and Satisfaction (n=1041)

	Rural[a]	Urban[b]	T	P-value
Quality Indices				
environmental safety	3.114	2.988	.728[c]	.4670
public services	1.013	2.809	-11.012[c]	.0001
planning/landscaping	3.047	2.780	1.959	.0503
housing policy	2.674	3.244	-3.886[c]	.0001
socio-cultural	3.044	3.786	-5.804[c]	.0001
housing economics	2.506	2.547	-.242	.8086
housing quality	2.320	2.355	.230	.8175
Satisfaction				
housing	3.849	3.898	-.625	.5320
environment	4.071	3.763	3.687[c]	.0003
residential[d]	3.967	3.833	1.906[c]	.0576

a n=842 b n=199
c non-equal variance at .05 significance level
d (housing satisfaction + environmental satisfaction) / 2

RESIDENTIAL QUALITIES AFFECTING RESIDENTIAL SATISFACTION

Residential satisfaction is defined as a mean of the response to two questions dealing with overall housing satisfaction and overall neighborhood environment satisfaction. Each satisfaction question had five response levels ranging from "very satisfied (5)" to "very dissatisfied (1)."

Table XII presents the mean differences of overall housing satisfaction, overall environment satisfaction, and a composite residential satisfaction by utilizing the t-test. There was no significant mean difference in housing satisfaction at .10 significance level, but rural residents had a higher mean satisfaction with the environment than urban residents ($p=.0003$). Rural residents also tended to have a higher mean satisfaction in a composite residential satisfaction ($p=.0576$).

Table XIII presents the maximum R^2 improvement stepwise procedure for residential satisfaction. Using the R^2 improvement scale, the MSE, the C(P), and the entrance significance level, five residential quality dimensions--physical quality of housing, planning/landscaping aspect, socio-cultural environment, environmental safety, and housing policy--were introduced into the model of residential satisfaction. Among the seven original quality dimensions, quality of housing entered the model first with partial R^2 of .293 which improved by only .039 after the remaining six quality indices entered. Table XIV presents the stepwise procedure without housing quality, which entered first in the previous

TABLE XIII

Maximum R^2 Improvement Stepwise Procedure

for Residential Satisfaction[a]

Step	Var entered	Model R^2	MSE	C(P)[b]	F	P-value
1	housing quality	.293	.464	53.750	425.01	.0001
2	planning/landscaping	.322	.446	12.095	43.27	.0001
3	socio-cultural	.324	.444	9.816	4.25	.0394
4	public services	.326	.443	9.088	2.72	.0996
5	environmental safety	.327	.443	8.669	2.41	.1207
5	public services replaced by housing regulations	.328	.443	8.038	3.75	.0531
6	public services	.330	.442	7.539	2.50	.1143
7	housing economics	.331	.442	8.000	1.54	.2150

a (housing satisfaction + environmental satisfaction) / 2

b $C(P) = (SSE_p / MSE_f) - (n - 2p)$

TABLE XIV

Maximum R^2 Improvement Stepwise Procedure for Residential Satisfaction[a] without Housing Quality

Step	Var entered	Model R^2	MSE	C(P)[b]	F	P-value
1	planning/landscaping	.206	.521	54.611	266.48	.0001
2	housing economics	.240	.499	10.976	45.28	.0001
3	environmental safety	.242	.498	9.541	3.42	.0648
4	socio-cultural	.244	.497	8.785	2.75	.0979
5	housing regulations	.247	.496	7.133	3.65	.0564
6	public services	.249	.495	7.000	2.12	.1445

a (housing satisfaction + environmental satisfaction) / 2

b $C(P) = (SSE_p / MSE_f) - (n - 2p)$

stepwise procedure. Thr planning/landscaping factor entered the model first with partial R^2 of .206 which improved by .043 after the remaining 5 quality indices entered.

Table XV presents the multiple regression analysis of selected quality indices on residential satisfaction. With five dimensions of residential quality, 33 percent of the variability in residential satisfaction scores was explained. There is a statistically significant relationship between residential satisfaction and the linear combination of the five dimensions of residential quality ($p=.0001$). The two dimensions of residential quality of public services and housing economics were deleted through stepwise procedure because of multi-collinearity.

Results from the two stepwise procedures and the multiple regression analysis, show that quality of housing is more influential factor to residential satisfaction than others. This result differs from the results of Gruber and Shelton's (1986) and Peck and Stewart's (1985) research. In their research, evaluation of neighborhood characteristics and attributes were more influential than the individual home for respondents' overall satisfaction with their homes.

CONCLUSIONS

The purpose of this study was to develop a residential quality index and to test its relationship with residential satisfaction. Environmental safety, planning/landscaping, housing policy, socio-cultural environment, and physical quality of housing were identified as significant factors on residential satisfaction, with

TABLE XV

Multiple Regression Analysis of Selected Residential Quality Indices for Residential Satisfaction[a] (n=1041)

Quality Indices	Beta	SE[b]	T	P-value
environmental safety	.019	.011	1.788	.0741
planning/landscaping	.088	.016	5.317	.0001
housing regulations	-.021	.011	-1.936	.0531
socio-cultural	.034	.013	2.635	.0085
housing quality	.169	.013	12.691	.0001
R^2	.328			
F	99.833	(p<.0001)		

a (housing satisfaction + environmental satisfaction) / 2
b Standard Error

the quality of housing being more influential among these factors. Based on the findings of this research, policies and programs in improving the quality of homes are likely to be beneficial in improving residential satisfaction. Also, planners or policy makers need to consider these factors when planning a residential development or making decisions about new residentially related policies: good environmental quality, decent planning and landscaping, residential structures with proper zoning and regulations, and good socio-cultural environment.

In this study, quality scores were measured based on the comparison between present home condition and personal standards of each residential quality attribute. However, the condition of attributes was only measured based on the respondent's evaluation. Inclusion of an outside specialist's measurement would increase the generalization and application of this residential quality index and evaluation model. Futhermore, future studies of residential satisfaction might be approached with observed quality measures.

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CHAPTER V

THE DETERMINANTS OF RESIDENTIAL ENVIRONMENTAL QUALITIES AND SATISFACTION: AN ANALYSIS OF LINEAR STRUCTURAL RELATIONSHIPS

MANUSCRIPT FOR PUBLICATION

JOURNAL TITLE: HOUSING AND SOCIETY

THE DETERMINANTS OF RESIDENTIAL ENVIRONMENTAL QUALITIES AND SATISFACTION: AN ANALYSIS OF LINEAR STRUCTURAL RELATIONSHIPS

ABSTRACT

As an exploratory study, an environmental evaluation model was proposed and tested. To test the model, an Analysis of Linear Structural Relationships (LISREL) was utilized. County housing practices were included as well as socio-demographic variables as exogenous variables. Despite some measurement error, overall model fit was concluded. There was no direct effect of exogenous variables on residential satisfaction, but they indirectly affected residential satisfaction through environmental, community/social, and housing quality. Furthermore, although environmental quality did not have a direct influence on residential satisfaction, through community/social and housing quality, it affected residential satisfaction. Community/social and housing quality were significant factors on residential satisfaction, with housing quality as the more significant factor.

Introduction

People's housing environment can be conceptualized as the residential environment consisting of the housing unit, the neighborhood, and the community in which they are located (Campbell, Converse, & Rogers, 1976). However, housing satisfaction research has primarily focused on the housing unit itself with minor or limited emphasis on the surrounding environment (Gruber & Shelton, 1987). Davies (1938) used the terms "home surroundings" and "neighborhood qualities" to assess good housing standards. Lot proportion to height of building, yard for children's play, location problems, the lack of harmony between house plan and the surroundings, inadequate landscaping, unsanitary conditions, inconvenience and lack of protection from animals were included in the problems of home surrounding. Neighborhood qualities included air quality, plan and appearance of neighborhood, location of neighborhood, street planning, and public utilities.

Gruber and Shelton (1987) studied neighborhood satisfaction with different housing types. Two sets of neighborhood evaluation variables were used. The first set was the characteristics of neighborhood and community, which included attractiveness, neighborhood, public service, facilities and services. The second set, neighborhood attributes, included pleasant/friendly, traffic/ noise, good parking/maintenance, closed space, poor exterior lighting/ maintenance and good recreation. The relationship between neighborhood attributes and neighborhood satisfaction was stronger than the relationship between neighborhood and community

characteristics. The research results indicated that evaluations of neighborhood characteristics and attributes were closely related to respondents' overall satisfaction and positive assessments of their neighborhoods.

Connerly and Marans (1985) measured and compared two perceived neighborhood qualities: satisfaction and attachment. Satisfaction and attachment are both affected by social interaction in the neighborhood. Currie and Thacker (1986) studied the quality of the urban environment as perceived by residents of slow and fast growth cities. Satisfaction with housing, neighborhood, friendship, and family were included in their community satisfaction model. They found that city attributes were the most powerful predictors to overall satisfaction.

Researchers in housing or residential environment have employed different measurements of qualities for various studies. One of the obvious and primary considerations is the physical condition of the structure and the presence or absence of facilities. Ultimate assessments of residential attributes will diverge from person to person because individuals of different types bring different standards of comparison to bear on their perceptions of reality (Campbell et al., 1976). Morris and Winter (1978) indicated that two criteria to judge housing condition are family norms and cultural norms. When housing does not meet these norms then deficits occur. Quality can be defined based on the concept of the normative deficit; and this definition provides a culturally meaningful way to analyze the effects of the current housing conditions (Morris, Crull, and Winter, 1976). Morris and Jakubczak

(1988) operationally defined a deficit as a subtraction of a number representing a norm from a number which represents the current actual state that the norm is used to evaluate (deficit = condition - norm).

Campbell et al. (1976) developed a comprehensive model for residential satisfaction. As a conceptual model of residential satisfaction, satisfaction with each domain as a whole (i.e., with the community, the neighborhood, or the dwelling unit) is conceived to depend on assessment of various attributes of that domain. Assessment comes from comparison between the situation as experienced in its diverse detail and the individual's standards (Campbell et al., 1976).

However, a comprehensive evaluative model of the residential environment, which considers the interrelationships between both housing and environment and housing practices, has yet to be developed. The quality of the residential environment can be estimated on the basis of the socio-demographic variables of the household as well as on certain extraneous variables, that is the community's housing practices. Evaluation of the residential environment should address both socio-psychological and physical concerns. Thus, comprehensive information can be added to housing-related fields by studing the relationships between the quality of the residential environment, the condition of the community, and the individual. The purpose of this study is to develop and test a model to evaluate quality of residential environment and residential satisfaction.

Residential Quality Evaluation Model

Two research questions are addressed in the present study:

- What is the relationship between each of the endogenous variables (residential qualities and residential satisfaction) and the exogenous variables (socio-demographic variables and housing practices)?
- What is the relationships between residential qualities and residential satisfaction?
- What residential qualities are the important determinants of residential satisfaction?

As an explanatory study to develop a comprehensive residential quality evaluation model, socio-demographics and housing practices variables were introduced as co-determinants of residential quality and residential satisfaction. The conceptual model for this study was developed based on a review of literature (see Figure 2). According to this model, housing practices and a resident's socio-demographic characteristics effect residential qualities and residential satisfaction; and at the same time, residential qualities are themselves having a compounding effect on residential satisfaction.

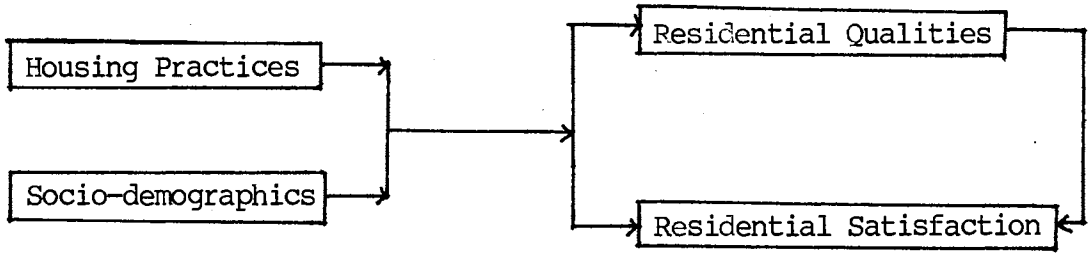


Figure 2. Conceptual Model

Definition of Terms

The definitions used in this study are:

- Rural county - county designated as non-Standard Metropolitan Statistical Areas (SMSA) according to the 1980 census.
- Residential environment - the housing unit and its surroundings including neighborhoods, and community (Campbell et al., 1976).
- Quality - a number which represents the tangible and intangible attributes of the residence derived from the subtraction of a number representing a importance as an ideal home from the number which represents the present home state: quality = (condition - importance) + condition.
- Housing practices - financing, housing regulations, and housing programs.
- Housing intermediary - housing related agencies: the adopting unit or decision makers in the housing market.

Variables that cause changes in other variables and whose variability is assumed to be determined by other factors outside the model are called exogenous variables; on the other hand, variables whose variation is explained by exogenous variables or other variables in the system are called endogenous (Dillion & Goldstein, 1984).

Methodology

Research Design

The research design of this study is a descriptive study of the residential environment and satisfaction. Households and housing

intermediaries provided the population for the present research, with the sample being selected from both rural and urban areas. Dillman's (1978) Total Design Method for a mailing survey was utilized. The survey packet, which included a questionnaire, a cover letter, and a return envelope, was mailed in August 1988 to each intermediary in the sample and in September 1988 to each household in the sample. A follow-up post card and a follow-up survey packet were sent at two-week intervals to non-respondents.

Sample

Households were selected via the telephone directories using a systematic random sampling method. Eight rural counties and two urban counties of Oklahoma were included in the sample. Approximately 300 households from each county were selected. A total of 3,031 (rural 2,431 and urban 600) questionnaires were sent to selected households. With the response rate of 40.55% (rural 41.74% and urban 35.985%), a total of 1,041 (rural 842 and urban 199) responses were used for data analysis (see page 15-17 for detailed infromation).

Housing Intermediaries of the communities of eight rural counties and two urban counties of Oklahoma were included in the sample. County Cooperative Extension supervisors, Farmer's Home Administration county supervisors, regional planners, realtors, lendes, and the mayor or city manager of each community were included in the survey. All of the intermediaries in rural areas who were listed in telephone directory were included in the sample; except for the urban sample which included 10 realtors and 10 lenders

who were randomly selected from telephone directories. A total of 123 intermediaries were included in the sample, and eighty-seven responses were used (see page 17 for detailed information).

Instrumentation

Household. Survey items were developed by the researcher in cooperation with a research project of the Oklahoma Agricultural Experimental Station to elicit the respondents' assessment of the physical and socio-psychological components of their residential environment. To complete a quality measurement, each item of residential quality index was answered using two types of response scale: the condition of present home and the importance of this item to an ideal home. The ideal home scale had three response levels ranging from "important (5)," "neutral (3)," and "unimportant (1)." The present home scale had six response quality levels: "very satisfied (5)," "satisfied (4)," "neutral (3)," "dissatisfied (2)," "very dissatisfied (1)," and "not present in my home (0)."

Housing Intermediary. Data of housing intermediaries was collected using a Housing Practice questionnaire which had been developed by the Southern Regional Housing Research Committee (S-194) in 1985. The questionnaire provided practical local housing market information.

Financing, housing regulations, and housing programs indices were used. Financing included 7 items having 3 response levels of "not available (0)," "limited availability (.5)," and "general availability (1)." Existence of local housing programs and

regulations within communities included 6 items and 7 items respectively, having 2 response levels of "no (0)" and "yes (1)."

Characteristics of the Sample

Females constituted 46.3%, and males 53.7% of the sample. The respondents' mean age was 50.9 and mean education was 13.2 years. The mean household size was 2.5 persons. The mean age of the house was 28 years (rural 29 and urban 25 years); thus, the mean year when the house was built was 1960 (rural 1959 and urban 1963). The mean house value was $55,070 (rural $45,440 and urban $96,745), with median of $43,000. The mean monthly housing cost was $615.7 (rural $565 and urban $777) and the mean income category was between $25,000 and 29,000. Eighty-three percent of respondents were owners. Seventy-five percent of respondents appeared as spending more than 30% of their income for housing, which was interpreted as living in unaffordable housing. Fifty-eight percent of the respondents had an economy housing-value oriented, and 42% had a personal/ self-expression housing-value orientation.

Housing intermediaries' mean years in their present position were 5.5 years. Mean years involved with housing in their communities was 11.5 years.

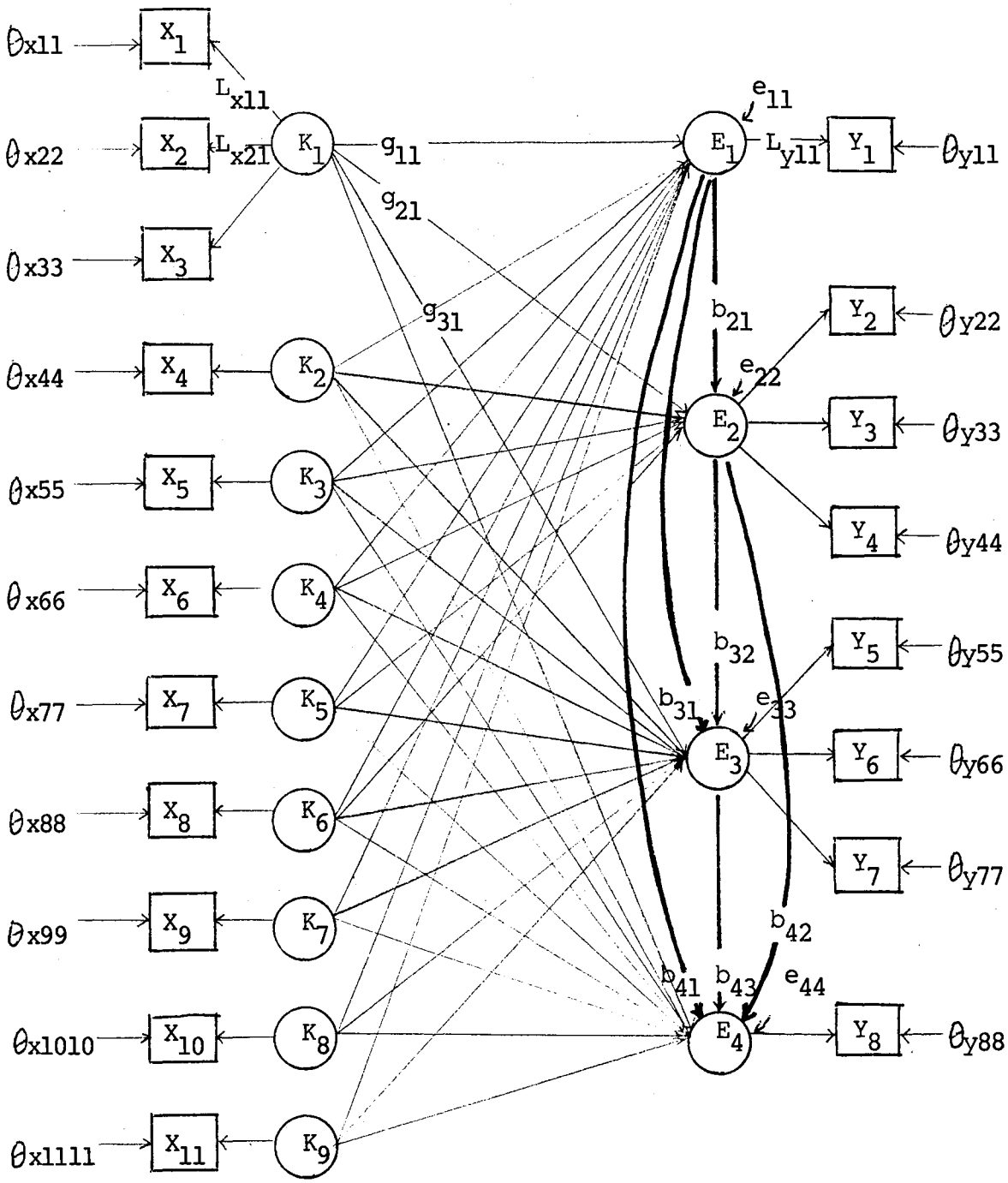
Residential Quality Evaluation Model

The general model tested in this study was defined by the following three equations (see Figure 3):

Structural Equation Model: $E = BE + GK + e$

Measurement Model for Y: $Y = L_y E + \theta_y$

Figure 3. Factors Determining Residential Qualities and Satisfaction



Measurement Model for X: $X = L_x K + \theta_x$

The latent dependent (E_i) and latent independent (K_i) variables were not directly observed but appeared as underlying causes of the observed variables (Y and X). The measurement model specifies how the latent variables were measured in terms of the observed variables. The structural equation model is iterative and specifies the relationships among the latent variables (Jöreskog & Sörbom, 1986). For model testing, computer analysis of Linear Structural Relationships by the Method of Maximum Likelihood (LISREL) which was developed by Jöreskog and Sörbom (1986) was utilized.

Exogenous Variables

Through maximum R^2 improvement stepwise procedure, eight socio-demographic variables were introduced into the model (see Table XVI). Tenure (rent or own), house value estimation, respondent's age, sex, race, household income, housing affordability, and age of house were selected based on R^2 improvement, MSE, C(P), and entrance significance level.

Housing practices, which included financing, housing programs, and housing regulations, were introduced as exogenous variables; and operationally, the mean scores of selected items of the financing, housing programs, and housing regulations index were used as an observed value. Through principal component factor analysis, only one factor with an eigen value above 1.00 was identified and named "housing practice" (see Table XVII). Thus, "housing practice" was introduced as a latent exogenous variable into the model.

The selected exogenous variables are as follows:

Table XVI

Maximum R^2 Improvement Stepwise Procedure for Residential Satisfaction: Socio-demographic Variables (n=1041)

Step	Var	Model R^2	MSE	C(P)	F
1	Tenure 0=rent 1=own	.095	.557	41.808	74.45 ***
2	House Value	.119	.563	23.837	19.40 ***
3	Age	.131	.556	16.442	9.23 **
4	Sex 0=female 1=male	.139	.552	11.356	7.02 **
5	Race 0=white 1=other	.144	.549	9.038	4.30 *
6	Income	.148	.547	7.827	3.21 #
7	Affordability[a] 0=Not Affd 1=Affd	.152	.546	6.578	3.26 #
8	House Age	.156	.544	5.471	3.12 #
9	Years in Current Address	.158	.544	6.099	1.38
10	Household Size	.158	.544	8.051	.05
11	Marital Status	.158	.545	10.017	.03
12	Education	.158	.546	12.000	.02
13	House Values 0=Economy 1=Personal	.158	.547	14.000	.00

a affordability is defined when household spends less than 30% of income for housing cost

# $p<.10$ * $p<.05$ ** $p<.01$ *** $p<.001$

Table XVII

Factor Analysis for Housing Practices: by Principal Component Method (n=87)

	Factor 1
Financing	.895
Housing Programs	.757
Housing Regulations	.845
Variance Explained	2.007

Housing Practice = K1

Financing = X1

Housing Programs = X2

Housing Regulations = X3

Tenure = K2 or X4

House Value = K3 or X5

Respondent's Age = K4 or X6

Respondent's Sex = K5 or X7

Respondent's Race = K6 or X8

Household Income = K7 or X9

Affordability = K8 or X10

House's Age = K9 or X11

Endogenous Variables

Environmental safety quality, public services quality, planning/landscaping quality, housing policy quality, socio-cultural quality, housing economics quality, and physical housing quality were the seven dimensions of residential quality which were introduced into the model as observed variables. The seven dimensions of residential quality received a mean score of selected items, and these scores was used as the observed value.

The seven dimensions of residential quality were factor analyzed by the varimax prerotation method (see Table XVIII), and three factor patterns were found: housing quality (planning/landscaping, housing economics, and physical housing quality), community/social quality (public services, housing policy, and socio-cultural environment), and environmental quality

Table XVIII

Factor Analysis for Residential Quality Index:

by Varimax Prerotation Method (n=1041)

	Factor 1 Housing	Factor 2 Community/Social	Factor 3 Environment
Planning/Landscaping	.635	.302	.411
Housing Economics	.834	.208	.011
Physical House Quality	.844	.080	.187
Public Services	.013	.845	.095
Housing Policy	.318	.597	.375
Socio-cultural	.468	.689	-.008
Environmental Safety	.127	.107	.939
Variance	2.147	1.700	1.237

(environmental safety). These three factor patterns were introduced as latent endogenous variables into the model.

The selected endogenous variables are as follows:

Environmental Quality = E1

Environmental Safety = Y1

Community/Social Quality = E2

Public Services = Y2

Housing Policy = Y3

Socio-cultural Environment = Y4

Housing Quality = E3

Planning/landscaping = Y5

Housing Economics = Y6

Physical Quality of Housing = Y7

Residential Satisfaction = E4 or Y8

Model Fit

The proposed model which presents the path diagram is depicted in Figure 3. Results of the initial test of measurement models are reported in Table XIX. This table shows the path coefficients from each latent variable to the observed measures presented.

Demonstration of an evaluation of the measurement model was suggested in advance of testing the existence of significant relationships among the theoretical constructs in the structural model (Fornell & Larcker, 1981;. Dillion & Goldstein, 1984). The relatively high value of all coefficients (lamda) indicates that these measures were good indicators of the intended latent concepts. Each of these coefficients were significant beyond the .001 level

(see Table XIX).

The squared multiple correlation of financing, housing programs, and housing regulations were, respectively, .99, .21, and .46; this means that the underlying construct of housing practice explains 99% of variability in financing, 21% in housing programs, and 46% in housing regulations. Community/social quality explains 30% of variability in public services, 45% of housing policy, and 53% of socio-cultural environment. Housing quality explains 54% of variability of planning/landscaping, 52% of housing economics, 62% of physical quality of housing.

The "average variance extracted" which Fornell and Lacker (1981) introduced was used for evaluation of construct validity. The average variance extracted for the construct "E", denoted by $P_{vc(E)}$, was calculated as:

$$P_{vc(E)} = \sum_{i=1}^{p} Lamda_i^2 \; / \; \{\sum_{i=1}^{p} Lamda_i^2 + \sum_{i=1}^{p} Var(\varepsilon_i)\}$$

The average variance of each measurement model of housing practice, community/social quality, and housing quality were, respectively, .66, .56, and .74, respectively. Construct validity has been established according to Fornell and Lacker's suggestion of the average variance over .5 .

Table XX presents the analysis of the full model. Twenty-one of the forty-two proposed paths were not significant. All exogenous variables did not directly influence residential satisfaction. Race and affordability were not significant predictors of the respondent's residential qualities in the present model, and this may be interpreted to be an effect of multi-collinearity. The

Table XIX

Standardized Parameters for Indicators of Latent Variables: Measurement Model (n=744)

	Lamda [a]	$\emptyset$	R^2
Housing Practices			
Financing	1.000 [b]	.010	.990
Housing Programs	.492	.787	.213
Housing Regulations	.722	.541	.459
Environmental Quality			
Environmental Safety	1.000 [b]	.000	1.000
Community/Social Quality			
Public Services	.551 [b]	.699	.301
Housing Policy	.671	.553	.447
Socio-cultural	.729	.473	.527
Housing Quality			
Planning/landscaping	.733 [b]	.461	.539
Housing Economics	.720	.480	.520
Physical Quality of Housing	.786	.382	.618
Residential Satisfaction	1.000 [b]	.000	1.000

[a] In the process of estimating the model, the sampling variance of one indicator must be constrained and the regression coefficient set at a value of 1.0. When that latent variable has only one indicator that path coefficient remains 1.0. No t-test was possible for these constrained variables. All other coefficients were significant at the .001 level.

[b] Constrained or Fixed parameter, not estimated

Table XX

Standardized Parameters of Full Model: Structural Model (n=744)

	Endogenous Variables			
	Environment	Community/Soc	Housing	R. Sat.
	g	g	g	g
Exogenous Var.				
Housing Practices	-.075 *	.125 ***	-.189 ***	.037
Tenure 0=rent 1=own	.095 **	.114 ***	.183 ***	-.022
House Value	.117 **	.042 *	.061 *	.044
Age	-.022	-.023	.154 ***	-.007
Sex 0=female 1=male	.105 **	.054 *	.047 *	-.021
Race 0=white 1=other	.010	-.011	-.035	-.027
Income	.113 **	.022	.109 ***	-.044
Affordability 0=Not Affd 1=Affd	-.033	.017	-.040	-.014
House's Age	-.034	-.006	-.075 ***	.026
Endogenous Var	b	b	b	b
Environment		.175 ***	.051 *	.008
Community/Social			.881 ***	-.400 *
Housing				1.089 ***
R^2	.062	.289	.764	.407

Total Coefficient of Determination for Structural Equations	.582
Goodness of Fit Index	.939
Adjusted Goodness of Fit Index	.893
Root Mean Square Residual	.044
Chi Square with 93 df	474.87 ***

* p<.05 ** p<.01 *** p<.001

respondent's age and house age were not related to respondent's environmental and community/social quality. However, housing practices, respondent's tenure, house value, and sex were significantly related to environmental, community/social, and housing quality level. The respondents' reported environmental quality did not significantly predict the respondent's residential satisfaction.

All paths that were not significant at the .05 level were deleted in a theory trimming approach (Dillion and Goldstein, 1983) in the exploratory stage. All the significant paths in the previous model remained significant when rerunning the LISREL program without all of the non-significant paths. Table XXI presents the reduced model. This model was tested against the first model by comparing the difference in Chi-square and degree of freedom as follows:

	Chi-square	df	
Revised Model	494.90	114	
Original Model	474.87	93	
	20.03	21	P > .50

The null hypothesis that the revised model fits the data failed to be rejected. This result indicates that the variance explained by the revised model did not differ significantly from that explained by the original model. Since the revised model was more parsimonious, it was retained as the better model (Samdahl & Robertson, 1989).

The squared multiple correlation for environmental quality and community/social quality structural equations were not satisfactory (.06 and .28). However, the coefficient of determination for all

Table XXI

Standardized Parameters of Reduced Model: Structural Model (n=744)

	Endogenous Variables			
	Environment	Community/Social	Housing	R. Sat.
	g	g	g	g
Exogenous Var.				
Housing Practices	-.078 *	.236 ***	-.261 ***	-
Tenure 0=rent 1=own	.097 **	.205 ***	.253 ***	-
House Value	.114 ***	.094 *	.091 **	-
Age	-	-	.202 ***	-
Sex 0=female 1=male	.103 **	.098 *	.065 *	-
Race 0=white 1=other	-	-	-	-
Income	.110 **	-	.134 ***	-
Affordability 0=Not Affd 1=Affd	-	-	-	-
House's Age	-	-	-.098 ***	-
Endogenous Var	b	b	b	b
Environment Quality		.325 ***	.073 *	-
Community/Soc Quality			.652 ***	-.161 *
Houisng Quality				.735 ***
R^2	.060	.283	.750	.407

Total Coefficient of Determination for Structural Equations	.552
Goodness of Fit Index	.936
Adjusted Goodness of Fit Index	.893
Root Mean Square Residual	.044
Chi Square with 114 df	494.90 ***

* p<.05 ** p<.01 *** p<.001

the structural equations jointly was .55, which suggests a reasonable fit according to Dillion and Goldstein's (1984) suggestion of over .5. Because the Chi-square test is very sensitive to sample size (Dillion and Goldstein, 1984), Goodness of Fit Index, Adjusted Goodness of Fit Index, and Root Mean Square Residual from LISREL analysis were used to conclude overall model fit. These values suggest a reasonable fit.

Discussion

The standardized solution for the revised model is shown in Table XXI. Environmental quality was significantly related to community/social quality (b=.33, p<.001) and housing quality (b=.07, p<.05). Community/social quality has a very strong relationship with housing quality (b=.65, p<.001), and is also related to residential satisfaction (b=-.16, p<.05). Housing quality has a significant direct effect on the residential satisfaction (b=.74, p<.001).

Housing practices significantly effect environmental (g=-.08, p<.05), community/social (g=.24, p<.001), and housing quality (g=-.26, p<.001). Owners had higher environmental quality (g=.10, p<.01), higher community/social quality (g=.21, p<.001), and better housing quality (g=.25, p<.001) than renters. Higher house value was associated with higher environmental quality (g=.11, p<.001), higher community/social quality (g=.09, p<.05), and higher housing quality (g=.09, p<.01). The older residents appeared to have better housing quality than the younger ones (g=.20, p<.001). Males have higher environmental quality (g=.10, p<.01), higher community/social

quality ($g=.10$, $p<.05$), and higher housing quality ($g=.07$, $p<.05$) than females. Income is positively related to higher environmental quality ($g=.11$, $p<.01$) and higher housing quality ($g=.13$, $p<.001$). An older house has significantly lower housing quality ($g=-.10$, $p<.001$).

Conclusion

As an exploratory study, an environmental evaluation model was proposed and tested. Despite some measurement error, an overall model fit was acceptable. All of the exogenous variables (socio-demographics and housing practices) did not have a significant direct effect on residential satisfaction, but indirectly affected residential satisfaction through environmental, community/social, and housing quality. This result supports previous research results. Research of Lord and Rent (1987) on neighborhood satisfaction showed neighborhood satisfaction was not significantly related to any of the demographic characteristics of the residents. Campbell et al. (1976) indicated that most of the linkages for the personal and objective characteristics are to the assessments of environmental characteristics, rather than direct links to satisfaction measures. Marans and Wellman (1978) indicated evaluation of specific housing characteristics were more important than the characteristics themselves in explaining overall housing satisfaction.

Environmental quality did not have a direct influence on residential satisfaction; but through community/social and housing quality, it affected residential satisfaction. Community/social and housing quality were direct significant factors on residential

satisfaction, with housing as more influential factor. This result differs from previous research results (Peck & Stewart, 1985; and Gruber & Shelton, 1987). In their research, evaluation of neighborhood characteristics and attributes were more influential to overall satisfaction than their homes.

In this study, quality scores were measured based on the comparison of present home condition and personal standards of each residential quality attribute. However, condition of attributes was only measured based on respondents evaluation. Inclusion of outside specialist's measurement would increase the generalization and application of this residential quality index and evaluation model. Future studies on residential satisfaction might be approached with an observed quality measure as well as the subjective measure.

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APPENDIXES

APPENDIX A

SELECTION OF RURAL COMMUNITIES

Southeast Quadrant

	County	Population 80
1.	Pittsburg	40524
2.	McCurtain	36151
3.	Pontotoc	32598
4.	Bryan	30535
5.	Garvin	27856
6.	Seminole	27473
7.	Choctaw	17203*
8.	McIntosh	15562
9.	Hughes	14338
10.	Atoka	12748
11.	Murray	12147
12.	Pushmataha	11773
13.	Haskell	11010
14.	Marshall	10550
15.	Johnson	10356
16.	Latimer	9840
17.	Coal	6041*

Southwest Quadrant

1.	Carter	43610
2.	Stephens	43419
3.	Grady	39490
4.	Caddo	30905
5.	Jackson	30356*
6.	Beckham	19243
7.	Washita	13798
8.	Kiowa	12711
9.	Tillman	12398
10.	Jefferson	8183
11.	Love	7469
12.	Cotton	7338
13.	Greer	7028*
14.	Harmon	4519

* selected county

Northwest Quadrant

	County	Population 80
1.	Custer	25995
2.	Woodward	21172
3.	Texas	17727
4.	Kingfisher	14187
5.	Blaine	13443
6.	Woods	10923
7.	Major	8772*
8.	Alfalfa	7077
9.	Beaver	6806*
10.	Grant	6518
11.	Dewey	5922
12.	Ellis	5596
13.	Roger Mills	4799
14.	Harper	4715
15.	Cimarron	3648

Northeast Quadrant

1.	Muskogee	66939
2.	Payne	62435
3.	Kay	49852
4.	Washington	48113
5.	Okmulgee	39169*
6.	Ottawa	32870
7.	Cherokee	30684
8.	Logan	26881
9.	Linclon City	26601
10.	Delaware	23946
11.	Adair	18515
12.	Pawnee	15310
13.	Craig	15014*
14.	Noble	11573
15.	Nowata	11486
16.	Okfuskee	11125

* selected county

Northwest Quadrant

County	Community	Population 80
Beaver	Knowles	44
	Gate	146
	Forgan	611
	Beaver	1939
Major	Meno	171
	Ames	314
	Ringwood	389
	Cleo Springs	514

Northeast Quadrant

Craig	Bluejacket	247
	Big Cabin	252
	Ketchum	326
	Welch	697
Okmulgee	Bryant	74
	Grayson	150
	Winchester	150
	Hoffman	407
	Dewar	1048
	Morris	1288
	Beggs	1428

Southwest Quadrant

Greer	Willow	162
	Granite	1617
Jackson	Elmer	131
	Martha	219
	Headrick	223
	East Duke	484
	Eldorado	688
	Olustee	721
	Blair	1092

Southeast Quadrant

Coal	Bromide	28
	Centrahoma	166
	Phillips	178
	Lehigh	284
	Tupelo	542
	Coalgate	2001
Choctaw	Soper	465
	Boswell	702
	Fort Towson	789

APPENDIX B

HOUSEHOLD RESEARCH QUESTIONNAIRE

AND CORRESPONDENCE

September 26, 1988

Adequate housing is a major concern of Americans today. Many housing problems exist because residents find it difficult to identify criteria in defining adequate housing. Housing researchers at Oklahoma State University and the University of Arkansas at Pine Bluff are jointly studying this problem. The purpose of this study is to find out what factors influence households in making housing decisions. Your opinions are important because they will help state officials and community leaders make important decisions about adequate housing.

Your household is one that was selected from your community to give their opinion on this subject. Your name was selected at random. It is important that each questionnaire be completed and returned in order to have the results truly represent the people of Oklahoma. We would like you or someone in your household over the age of 18 to complete the enclosed questionnaire.

Your answers will be completely confidential. The questionnaire has an identification number for mailing purposes only. This is so that we may check your name off the mailing list when your questionnaire is returned. Please do not write your name on the questionnaire.

When you have completed the questionnaire, please mail it in the enclosed stamped envelope by Oct. 10, 1988. I will be happy to answer any questions you might have regarding the study. Please write or call at (405) 744-5048. Thank you for your assistance.

Sincerely,

Mi Kyoung Ha, Graduate Research Associate

Margaret Weber, Professor and Project Director

MJW/mh

Enclosure

HOUSING DECISIONS

This questionnaire is designed to identify factors that influence rural families in making housing decisions and will only take approximately 10-15 minutes of your time. We want to know how important various housing related factors are to you and your family. We also want to know how the presence or absence of these factors in a housing unit would affect your decision to purchase a house.

The questionnaire asks specific questions about your present home and about a home that you would consider "ideal" for your family. Be careful to respond according to the dwelling (present home or ideal home) identified in the question.

Thank you for your cooperation in this project.

HOUSING SATISFACTION

Please circle the number below the statement that best describes your response.

1. How satisfied are you with your present dwelling?

Very Satisfied	Satisfied	Neither Satisfied nor Dissatisfied	Dissatisfied	Very Dissatisfied
5	4	3	2	1

2. How satisfied are you with your neighborhood environment?

Very Satisfied	Satisfied	Neither Satisfied nor Dissatisfied	Dissatisfied	Very Dissatisfied
5	4	3	2	1

3. How satisfied are you with the following features of your home?

Circle your response as follows:

5. VS = Very satisfied
4. S = Satisfied
3. NSD = Neither satisfied nor dissatisfied
2. D = Dissatisfied
1. VD = Very dissatisfied

	VS	S	NSD	D	VD
1. House Size	5	4	3	2	1
2. House Location	5	4	3	2	1
3. House Condition	5	4	3	2	1
4. Arrangement of rooms	5	4	3	2	1
5. Number of bedrooms	5	4	3	2	1
6. Type of house	5	4	3	2	1

4. Would you like to move into another dwelling within the next couple of years?

1. Yes
2. No (If NO, skip to question #7.)
3. Maybe

5. Why would you like to move? (Circle as many as apply)

1. Present house is wrong size
2. Plan to build or buy
3. Improve location
4. Dissatisfied with conditions of present dwelling
5. Change in family structure
6. Plan to change jobs
7. Other (specify) _____
8. NA

6. How much do you feel you could afford to pay per month for a house?

1. Under $100
2. $100 - $199
3. $200 - $299
4. $300 - $399
5. $400 - $499
6. $500 - $699
7. Over $700

7. Do you have definite plans to move into a new or different house within the next couple of years?

   1. Yes
   2. No

Look at each pair of value questions below and circle the number for the value that is most important in that pair to you. It may be difficult to decide, but you should make a choice for each pair.

8. 1. Social standing and formal social life are important to me.
   2. Personal enjoyment, self expression and beauty are important to me.

9. 1. Physical and mental health and the well-being of my family are important to me.
   2. Durability and economy are important to me.

10. 1. Personal enjoyment, self expression and beauty are important to me.
    2. Physical and mental health and the well-being of my family are important to me.

11. 1. Durability and economy are important to me.
    2. Social standing and formal social life are important to me.

12. 1. Personal enjoyment, self expression and beauty are important to me.
    2. Durability and economy are important to me.

13. 1. Physical and mental health and the well-being of my family are important to me.
    2. Social standing and formal social ife are important to me.

14. Describe your response to the following situation. The city is building a sanitary landfill and going to locate it behind your house. What would your reaction be?

15. The following list includes characteristics important to people in their housing. Please circle the number that indicates the importance each characteristic has in what you would consider to be an *ideal* home, then circle the number that indicates the importance each characteristic has in your *present* home. Add any additional characteristics you think are important in the blanks following each list.

Important	*Neutral*	*Unimportant*		*Very Satisfied*	*Satisfied*	*Neutral*	*Dissatisfied*	*Very Dissatisfied*	*Not Present In My Home*
Ideal Home			**Environment/Safety**	**Present Home**					
3	2	1	away from unpleasant conditions	5	4	3	2	1	9
3	2	1	away from hazardous chemical plants	5	4	3	2	1	9
3	2	1	away from a sanitary landfill	5	4	3	2	1	9
3	2	1	away from dangerous features (ex. uncovered well)	5	4	3	2	1	9

Ideal Home (Important / Neutral / Unimportant)				Present Home (Very Satisfied / Satisfied / Neutral / Dissatisfied / Very Dissatisfied / Not Present In My Home)					
3	2	1	away from heavy traffic street	5	4	3	2	1	9
3	2	1	away from noisy place(s)	5	4	3	2	1	9
3	2	1	safe from flooding	5	4	3	2	1	9
3	2	1	safe from tornados	5	4	3	2	1	9
3	2	1	safe from land-sliding	5	4	3	2	1	9
3	2	1	soil quality for building	5	4	3	2	1	9
3	2	1	unpolluted drinking water	5	4	3	2	1	9
3	2	1	unpolluted air	5	4	3	2	1	9
			Environment/Public Services						
3	2	1	adequate water supply for your home	5	4	3	2	1	9
3	2	1	adequate sewer system for your home	5	4	3	2	1	9
3	2	1	paved streets	5	4	3	2	1	9
3	2	1	paved side walks	5	4	3	2	1	9
3	2	1	adequate curbs and gutters	5	4	3	2	1	9
3	2	1	adequate drainage system	5	4	3	2	1	9
3	2	1	public park facilities (ex. lakes, forests)	5	4	3	2	1	9
3	2	1	adequate recreational facilities (ex. tennis, golf, hiking)	5	4	3	2	1	9

Ideal Home (Important / Neutral / Unimportant)				Present Home (Very Satisfied / Satisfied / Neutral / Dissatisfied / Very Dissatisfied / Not Present In My Home)					
			Landscaping						
3	2	1	high and dry land	5	4	3	2	1	9
3	2	1	well graded land	5	4	3	2	1	9
3	2	1	located at other than a corner lot	5	4	3	2	1	9
3	2	1	in an uncrowded neighborhood	5	4	3	2	1	9
3	2	1	natural view	5	4	3	2	1	9
3	2	1	buildings are well kept	5	4	3	2	1	9
3	2	1	outdoor areas are well kept	5	4	3	2	1	9
3	2	1	distance from adjacent dwellings	5	4	3	2	1	9
			Privacy						
3	2	1	unable to hear neighbor's when indoors	5	4	3	2	1	9
3	2	1	windows do not directly face neighbor's windows	5	4	3	2	1	9
3	2	1	trees and shrubs	5	4	3	2	1	9
3	2	1	retaining wall around lawn	5	4	3	2	1	9
			Policy						
3	2	1	built by some building code	5	4	3	2	1	9
3	2	1	adhere to some type of occupancy code	5	4	3	2	1	9
3	2	1	located away from businesses	5	4	3	2	1	9

Ideal Home: Important	Neutral	Unimportant		Present Home: Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Not Present In My Home
3	2	1	located away from manufacturing plants	5	4	3	2	1	9
3	2	1	located away from apartments	5	4	3	2	1	9
3	2	1	located away from mobile/ manufactured houses	5	4	3	2	1	9
3	2	1	located with similar housing types	5	4	3	2	1	9
3	2	1	located away from undesirable land uses	5	4	3	2	1	9
			Socio-Cultural						
3	2	1	close to work	5	4	3	2	1	9
3	2	1	near police/fire protection	5	4	3	2	1	9
3	2	1	close to shopping areas	5	4	3	2	1	9
3	2	1	close to schools	5	4	3	2	1	9
3	2	1	close to hospitals	5	4	3	2	1	9
3	2	1	close to family	5	4	3	2	1	9
3	2	1	in good neighborhood	5	4	3	2	1	9
3	2	1	In old established neighborhood	5	4	3	2	1	9
3	2	1	In new development	5	4	3	2	1	9
3	2	1	show status in community	5	4	3	2	1	9

Ideal Home: Important	Neutral	Unimportant		Present Home: Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Not Present In My Home
3	2	1	as good as homes of friends/ neighbors	5	4	3	2	1	9
3	2	1	a single family structure	5	4	3	2	1	9
3	2	1	as good as homes of people I work with	5	4	3	2	1	9
			Economic						
3	2	1	own	5	4	3	2	1	9
3	2	1	affordable	5	4	3	2	1	9
3	2	1	low-cost maintenance features	5	4	3	2	1	9
3	2	1	low utility costs	5	4	3	2	1	9
3	2	1	sell at profit	5	4	3	2	1	9
3	2	1	good investment	5	4	3	2	1	9
3	2	1	provide tax advantages	5	4	3	2	1	9
3	2	1	self-sufficient	5	4	3	2	1	9
			Life-Style						
3	2	1	adequate space	5	4	3	2	1	9
3	2	1	exercise room	5	4	3	2	1	9
3	2	1	swimming pool	5	4	3	2	1	9
3	2	1	yard	5	4	3	2	1	9

Ideal Home				Present Home					
Important	Neutral	Unimportant		Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Not Present In My Home
3	2	1	family or hobby room	5	4	3	2	1	9
3	2	1	space for indoor activities	5	4	3	2	1	9
3	2	1	space for family meals	5	4	3	2	1	9
3	2	1	space for formal dining	5	4	3	2	1	9
3	2	1	individual space for each family member	5	4	3	2	1	9
3	2	1	kitchen appliances beyond the basic	5	4	3	2	1	9
3	2	1	adequate storage	5	4	3	2	1	9
3	2	1	carpeted floors	5	4	3	2	1	9
3	2	1	space for noninterference of other family members	5	4	3	2	1	9
3	2	1	space for outdoor activities	5	4	3	2	1	9
3	2	1	comfortable	5	4	3	2	1	9
3	2	1	easy to maintain	5	4	3	2	1	9
3	2	1	provide for the needs of children	5	4	3	2	1	9
3	2	1	social interaction	5	4	3	2	1	9
			Appearance/Aesthetic						
3	2	1	attractive interior	5	4	3	2	1	9
3	2	1	traditional in style	5	4	3	2	1	9
3	2	1	unusual in style	5	4	3	2	1	9

Ideal Home				Present Home					
Important	Neutral	Unimportant		Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Not Present In My Home
3	2	1	eye catching	5	4	3	2	1	9
3	2	1	a popular design	5	4	3	2	1	9
3	2	1	brick or stone	5	4	3	2	1	9
3	2	1	mixture of materials	5	4	3	2	1	9
3	2	1	bright and cheery	5	4	3	2	1	9
3	2	1	attractive exterior	5	4	3	2	1	9
3	2	1	landscaped yard	5	4	3	2	1	9
3	2	1	reflect individual taste	5	4	3	2	1	9
3	2	1	fit the environment	5	4	3	2	1	9
3	2	1	harmonize in architectural style with landscaping	5	4	3	2	1	9
3	2	1	custom designed	5	4	3	2	1	9
			Technical						
3	2	1	latest technology	5	4	3	2	1	9
3	2	1	new building materials	5	4	3	2	1	9
3	2	1	built to last	5	4	3	2	1	9
3	2	1	good quality	5	4	3	2	1	9
3	2	1	built of low-maintenance materials	5	4	3	2	1	9
3	2	1	well insulated	5	4	3	2	1	9

Ideal Home: Important	Neutral	Unimportant		Present Home: Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Not Present In My Home
3	2	1	energy efficient	5	4	3	2	1	9
3	2	1	adequate temperature control	5	4	3	2	1	9
3	2	1	well ventilated	5	4	3	2	1	9
			Structural						
3	2	1	complete plumbing	5	4	3	2	1	9
3	2	1	storm windows and doors	5	4	3	2	1	9
3	2	1	built-in cabinets	5	4	3	2	1	9
3	2	1	carport/garage	5	4	3	2	1	9
3	2	1	central heat	5	4	3	2	1	9
3	2	1	central air	5	4	3	2	1	9
3	2	1	for single family occupancy	5	4	3	2	1	9
3	2	1	manufactured or mobile	5	4	3	2	1	9
3	2	1	for multi-family occupancy	5	4	3	2	1	9
3	2	1	built on site	5	4	3	2	1	9
3	2	1	solar energy features	5	4	3	2	1	9
3	2	1	earth sheltering features	5	4	3	2	1	9
3	2	1	fire retardant materials	5	4	3	2	1	9
3	2	1	structurally sound	5	4	3	2	1	9
3	2	1	soundproof wall, quietness	5	4	3	2	1	9
3	2	1	convenient kitchen design	5	4	3	2	1	9

Ideal Home: Important	Neutral	Unimportant		Present Home: Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Not Present In My Home
3	2	1	convenient bathroom design	5	4	3	2	1	9
3	2	1	ceiling height	5	4	3	2	1	9
3	2	1	sunlight for each room	5	4	3	2	1	9

16. What type of housing unit do you live in?

    1. Single family house
    2. Duplex
    3. Apartment
    4. Mobile home
    5. Other, please indicate _____

17. How many bedrooms are in your house?

    1 2 3 4 5 or more

18. How many bathrooms are in your house?

    1 1-1/2 2 2-1/2 3 or more

19. What type of natural view does your house have? (Circle as many as apply.)

    1. Lake
    2. River
    3. Mountains
    4. Fields
    5. Woods
    6. None of the above
    7. Other

20. How long have you lived at this address? years

21. When was your house built?

22. Please give an estimate of your housing costs.

$ _____ Mortgage payment or rent (monthly estimate)
Does this include taxes and insurance?
1. Yes
2. No
If no, what is yearly cost of taxes and insurance?

$ _____

$ _____ Utilities, including water, gas, electricity, sewer, etc. (monthly estimate)

23. Give an estimate of the present value of your house. $ _____

24. Is your house located within the city limits?
1. Yes
2. No

25. DEMOGRAPHIC DATA

Please fill in the information for each person in your household.

Sex	Age	Race	Marital Status	Education	Primary Occupation
1 Male 2 Female	Enter your actual age	1. AfroAmerican 2. White 3. Hispanic 4 Amer.Indian	1. Single 2. Married 3. Widowed divorced or separate	Enter the number of highest grade completed	Indicate the type of job you have (indicate student, retired or other if not gainfully employed)
Example 1 (male)	27 (age)	3 (Hispanic)	2 (married)	16 (college)	manager (Wal-Mart)
Respondent					
Spouse					

List sex and age of other household members:

A questionnaire was recently sent to you regarding Housing Decisions. Your name was selected at random from the households in your community. If you have returned the questionnaire, your time and effort are greatly appreciated. If you did not complete the questionnaire, please mail it today. It is very important that we receive your opinion so that your community may be accurately represented. If you did not receive the questionnaire or it was misplaced, please call (405) 744-5048 and another one will be mailed to you today.

Sincerely,

October 24, 1988

Several weeks ago, we wrote to you seeking your input regarding factors that influence housing decisions. As of today, we have not yet received your completed questionnaire.

This research is being conducted because of the belief that household opinions are important in defining elements of adequate housing. Additionally, research indicates that there are specific differences in housing needs and desires of rural or small town households when compared to the housing of more urban and suburban groups. Identifying these differences will enable builders, planners and other persons involved in the provision of housing to design and construct housing that more adequately fits the housing needs of your family and others like it.

We are writing to you again because of the significance each questionnaire has to usefulness of this study. Your name was drawn through a scientific sampling process in which every household in all Oklahoma communities with a population of less than 2500 inhabitants had an equal chance of being selected. This means that only about one out of every ten eligible household is being asked to complete the study.

In order for the results of the study to be truly representative of rural and small town residents in the state, it is essential that each person in the sample return their questionnaire. As mentioned in the earlier letter the questionnaire for your household should be completed by an adult (18 years of age or older) member of the household.

In the event that your questionnaire has been misplaced, a replacement is enclosed. Your cooperation is greatly appreciated.

Sincerely,

Mi Kyoung Ha
Research Associate

Margaret J. Weber
Project Leader

MJW/mh

Enclosure

October 24, 1988

Several weeks ago, we wrote to you seeking your input regarding factors that influence housing decisions. As of today, we have not yet received your completed questionnaire.

This research is being conducted because of the belief that household opinions are important in defining elements of adequate housing. Additionally, research indicates that there are specific differences in housing needs and desires of metropolitan households when compared to the housing of more rural groups. Identifying these differences will enable builders, planners and other persons involved in the provision of housing to design and construct housing that more adequately fits the housing needs of your family and others like it.

We are writing to you again because of the significance each questionnaire has to usefulness of this study. In order for the results of the study to be truly representative of residents of your community, it is essential that each person in the sample return their questionnaire. As mentioned in the earlier letter the questionnaire for your household should be completed by an adult (18 years of age or older) member of the household.

In the event that your questionnaire has been misplaced, a replacement is enclosed. Your cooperation is greatly appreciated.

Sincerely,

Mi Kyoung Ha, Graduate
Research Associate

Margaret J. Weber,
Project Leader

MJW/mh

Enclosure

APPENDIX C

ITEMS SELECTED FOR ENVIRONMENTAL QUALITY INDICES

ENVIRONMENTAL SAFETY

unpleasant conditions
hazardous chemical plants
a sanitary landfill
dangerous features
heavy traffic street
noisy place
flooding
tornados *
land sliding
soil quality
drinking water pollution
air pollution

PUBLIC SERVICES

adequate water supply *
adequate sewer system *
paved streets
paved side walks
adequate curbs and gutters
adequate drainage system
public park facilities
recreational facilities

* deleted from index after factor analysis

PLANNING/LANDSCAPING	HOUSING POLICY
high and dry land	built by some building code
well-graded land	some type of occupancy code
located other than a corner lot *	away from business
uncrowded neighborhood	away from manufacturing plants
natural view	away from apartments
buildings well kept	away from mobile/manufac. home
outdoor areas well kept	with similar housing types
distance from adjacent building	away from undesirable land uses
not hear neighborhood noise	
windows not directly face	
trees and shrubs	
retaining wall around lawn *	
landscaped yard	
fit the environment	
harmonized arch style with landscaping	

* variable deleted from index after factor analysis

SOCIO-CULTURAL	HOUSING ECONOMICS
close to work	own
near police/fire protection	affordable
close to shopping areas	low cost maintenance
close to schools	sell at profit
close to hospitals	good investment
close to family	provide tax advantages
in good neighborhood	self-sufficient
in old established neighborhood	low utility cost
in new development	
show status in community	
as good as homes of friends	
a single family structure *	
as good as homes people I work with	

* variable deleted from index after factor analysis

HOUSING QUALITY

individual space for each family member

adequate storage

non-interference passing

space for outdoor activities

easy to maintain

well insulated

energy efficient

adequate temperature control

well ventilated

complete plumbing

storm window and door

built-in cabinet

fire retardant materials

structurally sound

soundproof wall/quietness

convenient kitchen design

convenient bathroom design

ceiling height

sunlight for each room

APPENDIX D

HOUSING PRACTICES RESEARCH QUESTIONNAIRE

AND CORRESPONDENCE

August 26, 1988

A major concern facing our state today is the housing needs of its residents. Members of the Southern Regional Technical Committee are currently addressing this problem through a research project, "Barriers and Incentives to Affordable Housing". Specifically this committee wants to collect information about selected housing related practices in use in rural communities in our state. Specifically, we are interested in finding out to what extent certain types of housing related services, policies, and programs exist in these communities and what kind of housing are likely to be found.

We are requesting your assistance with our data collection effort because of your involvement with housing in your community. Since there are only a few people being contacted, it is very important that you complete the enclosed questionnaire so the results will truly represent this community.

The questionnaire asks you to identify housing related practices involving design, construction and finance that have potential for increasing the availability of housing. We are interested in obtaining this information for selected communities in the state. When completing the questionnaire consider Tupelo to be defined as everything within its limits and all surrounding areas normally considered as part of Tupelo.

We appreciate your help in completing the questionnaire. If there is someone else in your office who is more directly involved in housing we appreciate your assistance in getting the questionnaire materials to that person. Therefore, if you are not the person named on the questionnaire or not in the position listed, please correct the information with your name and position.

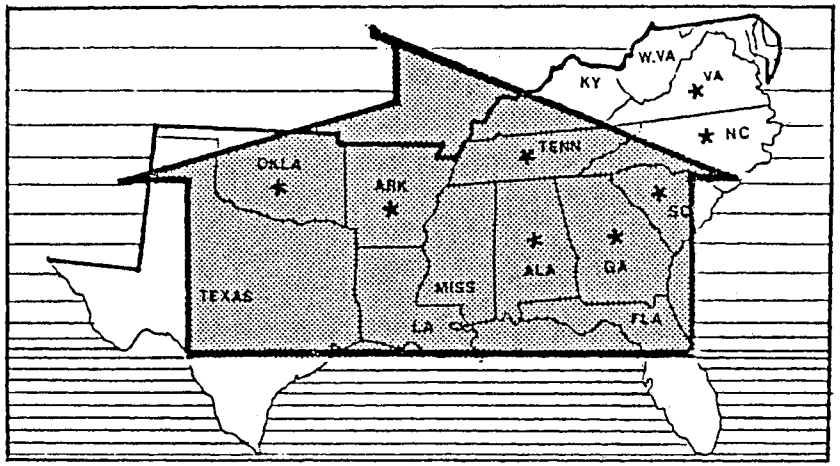
Please be assured that the name and position information is requested for possible future contact only. Your name will not be used in any reporting of the data and your participation will be kept strictly confidential. We would greatly appreciate your response by September 5, 1988.

I will be happy to answer any questions you might have about the study. Please write or call (405) 744-5048.

Sincerely,

Mi Kyoung Ha, Graduate Research Associate

Margaret J. Weber, Professor and Project Director



HOUSING PRACTICES

The information requested is for

FINANCING

Q-1 Please consider the following practices involving financing of housing. Then indicate the extent to which each is currently available in this community by checking either "general availability," "limited availability," or "not available." We welcome any comments or explanations you might want to include to clarify your responses.

To what extent are each of the following practices available in this community? (please check answer)	General Availability	Limited Availability	Not Available
1. Adjustable/variable rate mortgages	____	____	____
2. Other alternative mortgages (e.g. Reverse Annuity, graduated payment)	____	____	____
3. Mortgage financing using local or state bonds	____	____	____
4. Builder-assisted loans	____	____	____
5. Self-help housing programs	____	____	____
6. Condominiums	____	____	____
7. Cooperatives	____	____	____

8. Other _____

_____

Please write any additional comments you might have regarding Financial Practices in this community.

_____

_____

_____

LOCAL HOUSING PROGRAMS

Q-2 Please consider the following practices involving laws, regulations and community participation pertaining to housing. Then indicate whether each exists in this community by checking either "yes" or "no." Any comments are welcome.

	Do any of these programs exist in this community? Yes	No
1. Community Development Block Grant of housing	____	____
2. Housing for special groups (e.g., elderly project, group homes)	____	____
3. Housing assistance programs (e.g., weatherization, maintenance assistance)	____	____
4. Energy efficiency programs for housing	____	____
5. Public water system	____	____
6. Public sewer system	____	____
7. Other _____		

Please write any additional comments you might have regarding Housing Related Programs in this community?

LOCAL REGULATIONS

	Do these exist in this community? (Please check answer) Yes	No
1. Minimal building codes	____	____
2. Building codes which allow construction of housing other than traditionally built conventional homes	____	____
3. Minimal Zoning regulations	____	____
4. Zoning regulations which allow the placement of housing other than traditionally built conventional homes.	____	____
5. Zoning regulations favorable to mobile/manufactured housing	____	____
6. Zoning regulations which permit nonstandard spacing between homes (e.g., zero lot line)	____	____
7. Other innovative zoning regulations (e.g., PUD, contract)	____	____
8. Other _____		

Please write any additional comments you might have regarding Local Regulations in this community.

HOUSING TYPES

Q-3 Please consider the following housing types. Then indicate whether each type exists in this community by checking either "yes" or "no". Any comments are welcome.

	Do these housing types exist in this community? (Please check answer)		If the housing type exists, indicate approximate # of units.		
	Yes	No	1-5	6-10	Over 10
1. Earth sheltered/ underground house	___	___	___	___	___
2. Passive solar house	___	___	___	___	___
3. Active Solar house (e.g., hot water and space heating)	___	___	___	___	___
4. Multi-unit solar complex	___	___	___	___	___
5. Recently constructed or renovated apartment complex	___	___	___	___	___
6. Townhouse complex	___	___	___	___	___
7. Other multi-unit housing complex	___	___	___	___	___
8. Planned mobile community or subdivision	___	___	___	___	___
9. Manufactured housing (e.g., prefabricated, modular, or kit-house)	___	___	___	___	___
10. Adaptive reuse (e.g., church, school or commercial property converted to residential use)	___	___	___	___	___

11. Other _____

_____

Please write any additional comments you might have regarding Housing Types in this community.

_____

_____

_____

JOB TITLE: _____

HOW MANY YEARS HAVE YOU BEEN INVOLVED WITH THE HOUSING MARKET IN THIS COMMUNITY?_____

HOW MANY YEARS IN PRESENT POSITION?_____

PRIMARY SERVICE AREA?_____

THANK YOU FOR YOUR ASSISTANCE!

A questionnaire was recently sent to you regarding Housing Practices. Since there are only a few people being contacted, it is very important that you complete the questionnaire so the results will truly represent this community. If you did not complete the questionnaire, please mail it today. If you did not receive the questionnaire or it was misplaced, please call (405) 744-5048 and another one will be mailed to you today.

Sincerely,

September 15, 1988

Several weeks ago, a questionnaire was sent to you regarding Housing Practices. As of today, we have not yet received your completed questionnaire. I am writing to you again because of the significance each questionnaire has to the usefulness of this study.

In the event that your questionnaire has been misplaced, a replacement is enclosed. Your cooperation is greatly appreciated.

Sincerely,

Mi Kyoung Ha, Graduate Research Associate

Margaret J. Weber, Professor and Project Director

MJW/mh

Enclosure

APPENDIX E

SUPPORTIVE TABLES

TABLE XXII

Reaction to a Sanitary Landfill Question[a]

	Frequency	%
no objection/accept	9	1.0
no objection if done with some planning, landscaping, or good maintenance	57	5.8
not applicable to me	42	4.3
wouldn't like/ bad/ upset/ horrified	459	46.6
protest/fight	124	12.6
do everything to prevent it specifically	147	14.9
sell/move	83	8.4
fight/protest and/or no result then move	63	6.4
Total	984	100.0

a The city is building a sanitary landfill and going to locate it behind your house. What would your reaction be?

TABLE XXIII

Characteristics of Household Sample (I) (n=1041)

	Mean	Median	n
Estimation of House Value	55070.3	43000.0	895
Monthly Housing Cost	615.7	493.8	510
House's Age	28.1	20.0	905
Number of Household	2.5	2.0	1041
Respondent's Age	50.9	50.0	905
Respondent's Education	13.2	12.0	985

TABLE XXIV

T-test between Rural and Urban Mean: Characteristics of Household Sample (n=1041)

	Rural[a]	Urban[b]	T	P-value
Estimation of House Value	45439.7	96745.3	-7.301[c]	.0001
Monthly Housing Cost	564.8	777.3	-4.070[c]	.0001
House's Age	29.0	24.5	2.260[c]	.0241
Number of Household	2.6	2.5	.698	.4853
Respondent's Age	51.2	49.5	1.333	.1827
Respondent's Education	12.8	14.7	-8.794	.0001

a n=842 b n=199
c non-equal variance at .05 significant level

TABLE XXV

Characteristics of Household Sample (II) (n=1041)

		Frequency	%
Sex	Female	461	46.3
	Male	535	53.7
Race	Black	15	1.5
	White	922	92.8
	Hispanic	16	1.6
	Indian	39	3.9
	Other	2	.2
Marital Status			
	Single	61	6.1
	Married	768	77.2
	Widow/Divorce	166	16.7
Education			
	-Highschool	522	53.0
	College-	463	47.0
Number of Household			
	1	216	20.7
	2	399	38.3
	3	148	14.2
	4	202	19.4
	5 +	76	7.3
Household Income			
	-5000	41	4.3
	5000-9999	90	9.5
	10000-14999	97	10.2
	15000-19999	106	11.2
	20000-24999	106	11.2
	25000-29999	96	10.1
	30000-39999	162	17.1
	40000-49999	85	8.9
	50000+	167	17.6
Tenure	Renter	178	17.1
	Owner	863	82.9
Affordability			
	Not affordable	781	75.0
	Affordable	260	25.0

TABLE XXVI

Respondent Classification of Housing Intermediaries (n=87)

Classification	Frequency	%
Extension	11	12.6
Farmers Home	8	9.2
Lender	25	28.7
Mayor/City Manager	12	13.8
Planner	11	12.6
Realtor	20	23.0

TABLE XXVII

Mean and Standard Deviation of Housing Practices (n=87)

	Financing	Housing Programs	Housing Regulations
Mean	.423	.822	.634
STD	.250	.219	.340
Range	0-1	0-1	0-1
n	87	86	85

APPENDIX F

SUPPORTIVE FIGURES

Figure 4. Housing Satisfaction Rural Residents (%)

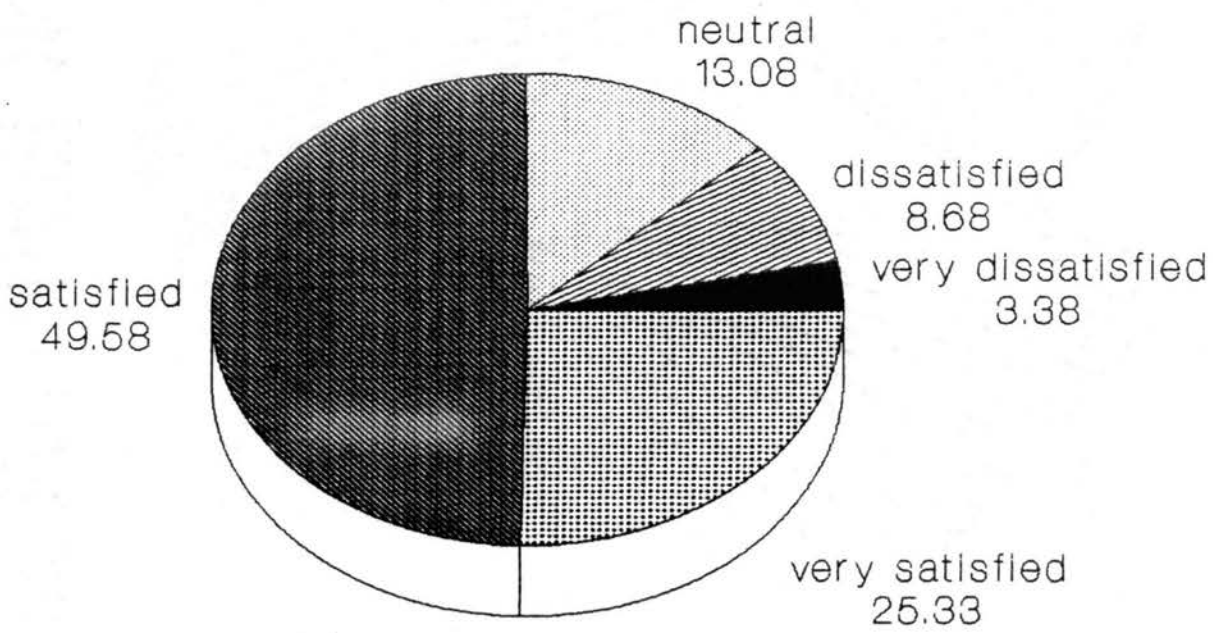


Figure 5. Housing Satisfaction Urban Residents (%)

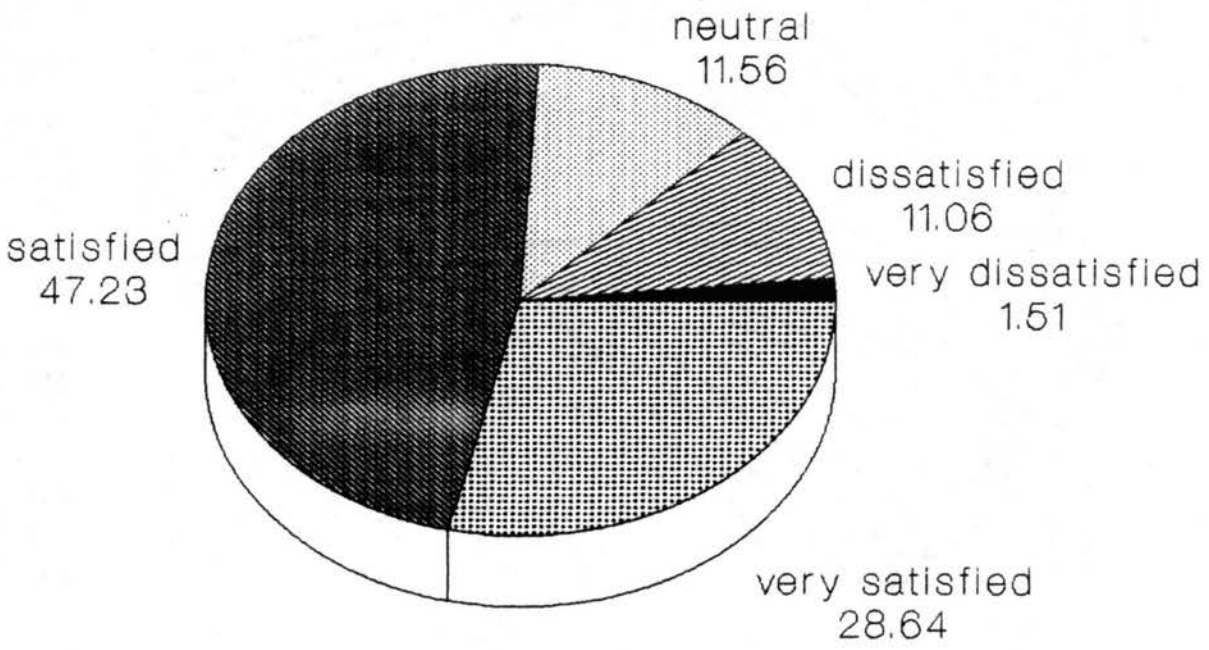


Figure 6. Environmental Satisfaction Rural Residents (%)

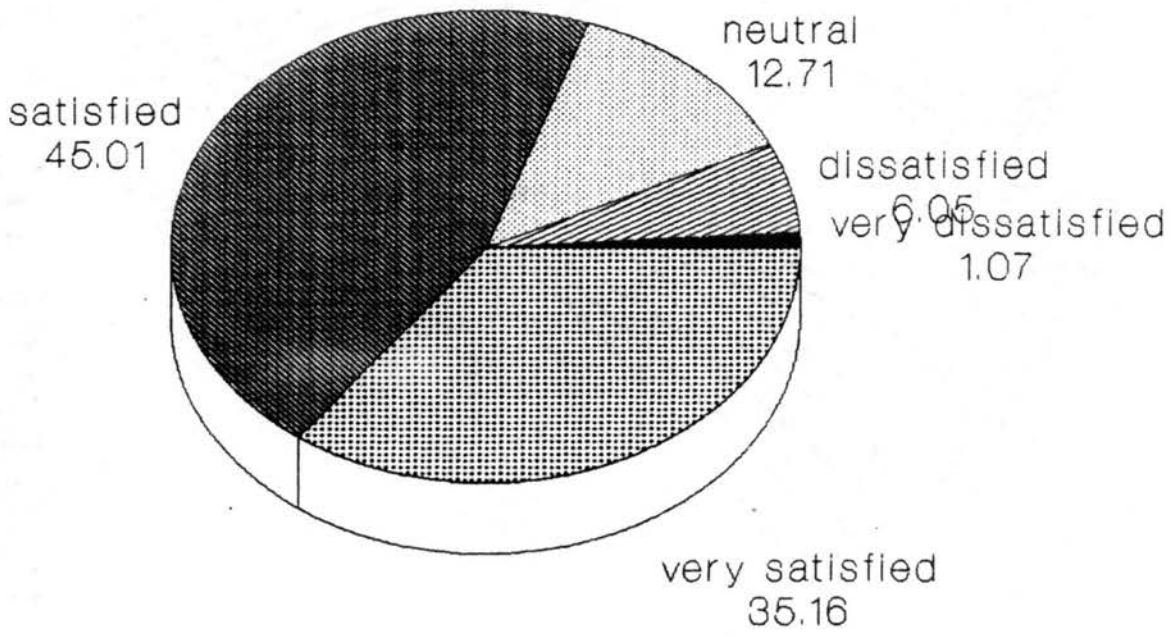


Figure 7. Environmental Satisfaction Urban Residents (%)

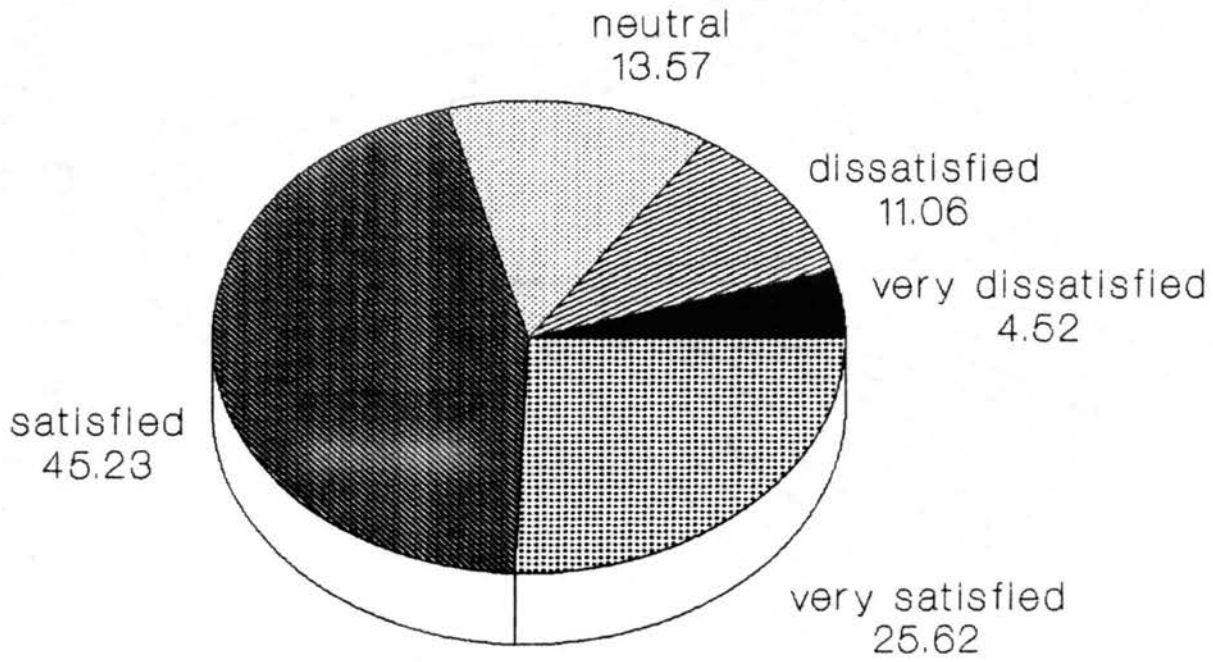
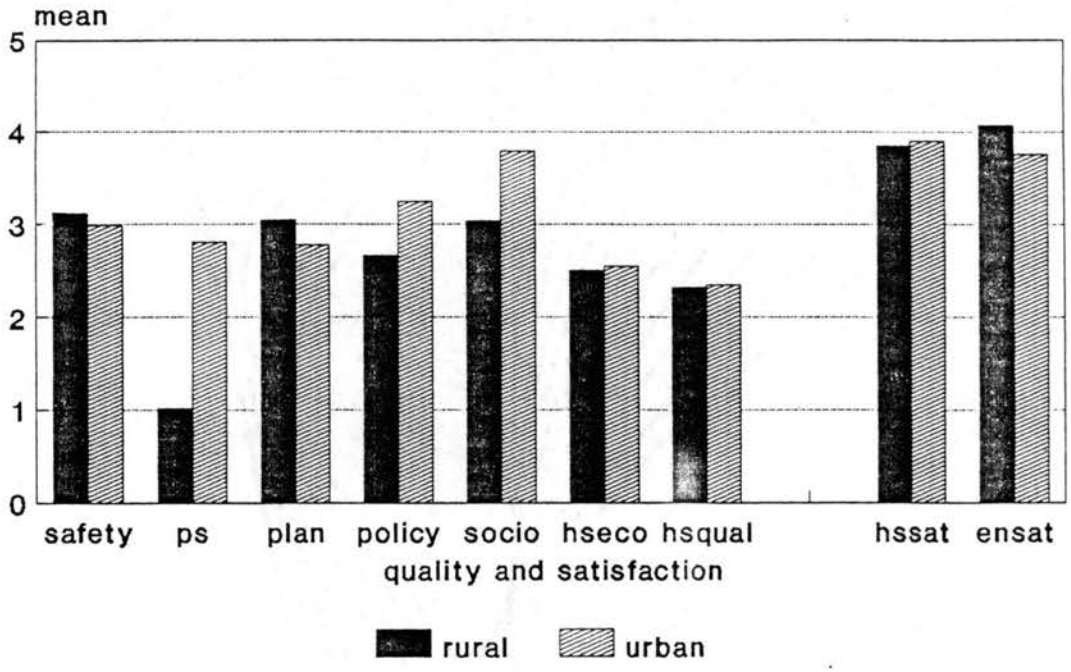


Figure 8. Quality and Satisfaction Rural and Urban Mean Difference



safety = environmental safety

ps = public services

plan = planning/landscaping

policy = housing regulations

socio = socio-cultural environment

hseco = housing economics

hssat = housing satisfaction

ensat = environmental satisfaction

VITA

Mikyoung Ha

Candidate for the Degree of

Doctor of Philosophy

Thesis: THE DETERMINANTS OF RESIDENTIAL ENVIRONMENTAL QUALITIES AND SATISFACTION: TOWARD DEVELOPING RESIDENTIAL QUALITY INDICES

Major Field: Home Economics

Area of Specialization: Housing and Interior Design with Environmental Science

Biographical:

Personal Data: Born in Seoul, Korea, December 1, 1959, the daughter of Myung-Sook Kim and Jong-Kwan Ha. Married to Byung-Eun Lee; Child Hannah Lee.

Education: Graduated from Ewha Girls High School, Seoul, Korea, in February 1977; received Bachelor of Science Degree in Housing and Interior Design from Yonsei University, in February 1981; received Master of Home Economics in Housing and Interior Design from Yonsei University, in February 1983; completed requirements for the Doctor of Philosophy degree at Oklahoma State University, in July 1989.

Professional Experience: Teaching assistant, Department of Housing and Interior Design, Yonsei University, March, 1981 to February, 1983; research assistant, Department of Housing and Interior Design, Yonsei University, March, 1983 to June, 1984; research associate, Department of Housing, Interior Design and Consumer Studies, Oklahoma State University, July, 1984 to July, 1989.