시골노인들의 비전통적인 주택형태에 대한 수락도

Acceptance of Nontraditional Housing Type(s) in Rural Eleerly

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본 연구의 목적은 비전통적인 주택형태들의 수락도에 영향을 미치는 시골지역 노인들의 인구학적 특성들과 주거특성들을 규명하는데 있다. 본 연구에서는 미국의 남부 7개주를 대상으로 한 Southern Reginal Research Project, S-194, "Barriers and Incentives to Attordable Housing"에서 수집된 자료의 일부를 분석하였다. 본 연구대상자는 미국 남부 7개주의 시골지역에 거주하는 나이 55세 이상의 1878명이었다.

Analysis of variance의 통계분석방법을 통해 나타난 몇가지 중요한 결과가 본문에서 논의되어졌으며, 또한 조사대상자의 인구학적 특성과 주거특성도 요약되어 졌다. 마지막으로는 본 연구 결과를 바탕으로 소비자교육, 앞으로의 연구 방향 산업체를 위한 제언들이 제시되고 있다.

Ⅰ. Introduction

The sharp increase in the number and proportion of elderly indicates growth in the current and future demand for housing designed to meet the needs of the elderly. However, the availability of appropriate housing for elderly households has been remained as one of the major problems in housing.

Elderly individuals in rural areas and towns face more housing problems than do their urban counterparts. Little attention, however, has been directed toward them. Although housing is an integral part of everyone's life, it has more importance for the elderly because housing is a major life space physically, socially, and psychologically(Bylund, 1985 ; Montgomery, 1972).

Many elderly reside in the rural South. In fact, 21 out of the 50 states have at least 40% of their older population in rural areas(Atchley, 1975). Moreover, the older population is concentrated in the north central and southern regions of the U. S.

The housing situation should be adfusted over time as household composition and housing needs change. As people age, a house that was once adeguate, comfortable, and affordable for the family may no longer be

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suitable. Therefore, certain types of nontraditional housing may be recognized as an adequate and affordable alternative to meet their needs. However, in general, the most preferred housing type by American families is the traditional, single-family detached dwelling(Dillamn, Tremblay, & Dillman, 1979). Furthermore, elderly heads of households are more likely to own a single-family detached dwelling unit than any other type. They are also more lilely to live in a single-family detached dwelling unit than any other segment of the population. But Dillman, Tremblay, and Dillman(1979) stressed that preference for single-family home ownership declined dramatically as age increased. In their study, fewer than half of the respondents who are over the age of 65 selected single-family homeownership as their first or second preference. Many of this age group desired to rent a home in a multi-unit structure or buy a mobile home.

That is, although it is true that the mafority of older people live in traditional single-family detached dwellings, various types of housing or alternatives, in addition to this traditional housing type, are essential in order to meet not only their sconomic needs but also the unique physical, psychological, and social needs, if possible, Nontraditional housing types such as mobile homes, apartments, townhouses, solar houses, and earth-sheltered houses may be considered options for satisfying these needs of the elderly.

Although nontraditional housing types which are applied innovative ideas has received incressing attention from the housing industry, acceptance of these housing types depends upon the consumers themselves, how they think and feel about certain new ideas. Also, the demopraphic and housing characteristics of the consumers may affect their acceptance of available housing alternatives. In fact, the actual numbers of alternative housing types have increased. But, there is a lack of knowledge of elderly individuals' acceptance of and/or preference for nontraditional housing types. Therefore, identifying the factors which affect older individuals' acceptance of nontraditional housing type(s) deserve attention.

Ⅱ. Purpose of the Study

The purpose of this study was to determine the factros which affect the acceptance of nontraditional housing type(s) by elderly individuals. Specifically, three age subgroups-55 to 64, 65 to 74, and age 75 and older-were compared.

Ⅲ. Theoretical Framework

A theory of "diffusion of innovations" developed by Rogers(1962, 1983) and Rogers and Shoemaker(1971) was used as a theoretical background of this study to help explain characteristics of elderly individuals who accept or reject new ideas in housing. Overall, this theory explains the process by which individuals become aware of and decide to accept or reject new ideas or products.

Rogers(1983) stressed that an innovation is "an idea, prectice, or object that is perceived as new by an individual or other unit of adoption"(p.11). In other words, an idea, practice, or object should be considered an innovation on the basis of an individual's perception of its newness rather than by any objective measure of the lapse of time since its first use or discovery. If the idea seems new to the individual, it is an innovation. If this criterion is applied to this stydy, then nontraditional housing types such as mobile homes, apartments/townhouses, solar houses, and earth-sheltered houses may be classified as innovations for elderly residents in small towns in the rural South.

According to Rogers and Shoemaker(1971), when individuals are introduced to innovations, they do n
immediately adopt then, Rather they usually proceed through a series of stages before adopting any innova
tions, This process is described as "the adoption process" and donsists of fove major stages which are as
follows : (a) awareness stage-the individual is exposed to the existence of the innovation but lacks complete
information about it ; (b) interest stage-the individual actively seeks information about the innovation ; (c)
evaluation stage-the individual makes mental application of the innovation to his/her present and anticipated
future situation and decides whether or not to try it ; (d) trial stage-the individual actually tests the innova-
tion an a small scale in order to determine its utility in his/her own situation ; and (e) adoption stage-the
individual uses the innovation continuously on a full scale. This concept of gradual movement through the
continuum can be applied to individual or household decisions regarding the continude use or adoption of
an innovative idea.

On the basis of the adoption process, Weber. McCray, and Claypool(1985) developed two knowledge
contimuum indices to measure the acceptance of various innovative housing types by using the data set
from the S-141 Southern Regional Housing Research project entitled "Housing for Low-and Moderate-In-
come Families." The first was a Housing Type level of Knowledge Index, and was useful to measure a
consumer's propensity to adopt a specific housing type. The second was a Total Knowledge Index which
was used to measure characteristics associated with consumer propensity to adopt innovative housing in
general. Both indices have been tested and validated by Weber et al. These two indices were selected and
modified in order to fit the present study. The two modified indices were referred to as Mean Acceptance
Scores for each housing type and for the combination of housing types to measure the acceptance of elderly
individuals whth each of four nontraditional housing types and a combination of these housing types.

Much research literature on the diffusion of innovations has identified variables related to innovativeness
in order to distinguish characteristics of early adopters from those of late or nevel adopters. Although there
were some inconsistencies in the findings, characteristics of adopter categories can be divided into three
major parts : (a) socioeconomic status, (b) personality variables, and (c) communication behavior. More in-
novative individuals are not different from less innovative individuals in age(although findings were not
always consistent). On the other hand, they are more likely to have higher levels of education, income, and
social status, greater levels of empathy, rationality, and intelligence, more exposure to mass media and
interpersonal channels of communication, and more contact withe change agents than individuals who arc
less innovative(Rogers, 1983).

This diffusion of innovations theory has been used considerably in research relating to the adoption and
use of innovative ideas or products in housing such as solar and other energy-efficient alternatives(i.e.,energy
conservation features and solar equipment) to the housing system(Leonard-Barton, 1981a, 1981b). However,
there has been limited research that has attempted to measure the acceptance of different housing type(s),
especially for specific age groups.

IV. Hypotheses

The following two null hypotheses were developed :
Ho : There is no significant relationship between the mean acceptance score of each nontraditional housing

type(mobile home, apartment/townhouse, solar house, and earth-sheltered house) and each of the selected demographic and housing characteristics of the elderly respondents(age, marital status, sex, race, education. employment, income, size of previous community, age of dwelling, length of residence, current housing type, tenure status, and dwelling expenses).

Ho : There is no significant relationship between the mean acceptance score of a combination of nontradi-tional housing types and each of the selected demographic and housing characteristics of the ellerly respon-dents.

Ⅴ. Method

1. Procedures

This study used data collected as part of the S-194 Southern Regional Research Project, S-194, "Barriers and Incentives to Affordable housing." Mail surveys were conducted with a member of each household residing in 28 small non-MSA towns with population less than 10,000 in seven southern states(Alabama, Arkansas, Georgia, North Carolina, Oklahoma, Tennessee, and Virginia), Four communities in each state were selected on the basis of two variables : population size based on 1980 Census of Population statistics-(small and large populations were defined by a median split of population in each state) and degree of housing diversity as representative of community housing development(low and high), Of 4,682 usable re-sponses from household respondents from 28 communities, 1,878 respondents who are over the age 55 were selected as the final sample in this study. Statistical analyses were performed using SAS (Statistical Analy-sis System) to obtain desoriptive and inferential analyses of the data. Statistical techniques included frequen-cy distributions, descriptive statistics, analysis of variance(ANOVA), and the Tukey's studentized range test(HSD).

2. Measures

Among responses obtained from these 10 sections of the survey questionnaire, which was developed by the S-194 Regional Research Technical Committee, only all or part of responses in three swctions were selected and/or reconstructed for use in this study :

1) **Knowledge of nontraditional/innovative Housing.** Three sets of questions out of four in this section were used in this study. Based on the stage in the adoption process, the three sets of questions measured the respondent's awareness("seen/read/heard"), interest ("looked for information"), evaluation ("considered liv-ing"), or adoption("lived in") of selected housing types : mobile homes, apartments/townhouses, solar houses, and earth-sheltered houses, For each housing type a score of four was possible : arareness stage (score 1), interest stage (score 2), evaluation stage (score 3), and adoption stage (score 4), If the respondents did not respond (missing value), or checked "never heard/don't know" then a score of 0 was recorded. These scores are useful to measure respondents' propensity to adopt a specific housing type. For the combination of all housing types, scores ranged from 0 to 16 (4 points × 4 housing typer=16) and were categorized into low, medium, and high acceptance levels because of the wide range of possible scores, The breakpoints were 0-4(low acceptance level), 5-8(medium acceptance level), and 9-16(high acceptance level). Theses scores are

Table 1. Mean Acceptance Scores of Nontraditional Housing Types by Age

Housing Type	Age			p-value
	55-64 (n=850)	65-74 (n=705)	75+ (n=323)	
Mobile Home	2.00[a]	1.82[bc]	1.71[bc]	.0008*
Apt/Townhouse	2.43[a]	2.19[bc]	2.17[bc]	.0012*
Solar House	1.76[a]	1.49[bc]	1.33[bc]	.0001*
Earth-Sheltered House	1.40[a]	1.22[bc]	1.11[bc]	.0002*
Combination of 4 Types	7.59[a]	7.72[bc]	6.32[bc]	.0001*

NOTE : * Significance level p<.05

Higher mean acceptance scores are associated with greater acceptance.

Mean acceptance scores with same superscripts are not significantly different from each other (Tukey's HSD).

Table 2. Mean Acceptance Scores of Nontraditional Housing Types by Education Level

Housing Type	Edication Level				p-value
	No or Some School (n=633)	Completed High School (n=415)	Some College (n=281)	College Graduate (n=546)	
Mobile Home	1.96	1.94	1.80	1.80	.0826
Apt/Townhouse	2.00[ab]	2.14[ab]	2.47[cd]	2.68[cd]	.0001*
Solar House	1.26[a]	1.52[b]	1.77[cd]	1.91[cd]	.0001*
Barth-Sheltered House	1.11[ab]	1.20[abc]	1.41[bcd]	1.48[cd]	.0001*
Combination of 4 Types	6.33[ab]	6.80[abc]	7.46[bcd]	7.87[cd]	.0001*

NOTE : *Significance level p<.05

Higher mean acceptance scores are associated with greater acceptance.

Mean acceptance scores with same superscripts arc not significantly different from each other(Tukey's HSD).

Table 3. Mean Acceptance Scores of Nontraditional Housing Types by Employment Status

Housing Type	Enployment Status						p-value
	Full-time (n=498)	Part-time (n=90)	Retired (n=1070)	Home-maker (n=110)	Un-employed (n=38)	Other (n=65)	
Mobile Home	1.92	1.99	1.83	1.85	1.92	2.20	.2641
Apt/Townhouse	2.35[abcdef]	2.68[abcdef]	2.28[abcdef]	1.95[cdef]	2.21[abcdef]	2.34[abcdef]	.0222*
Solar House	1.80[ab]	1.96[ab]	1.51[cdef]	1.38[cdef]	1.13[cdef]	1.14[cdef]	.0001*
Barth-Sheltered House	1.44[abcdef]	1.38[abcdef]	1.24[bcdef]	0.97[bcdef]	1.37[abcdef]	1.08[abcdef]	.0007*
Combination of 4 Types	7.51[abcd]	8.00[abcdef]	6.87[cdef]	6.15[cdef]	6.63[abcdef]	6.75[abcdef]	.0001*

NOTE : *Significance level p<.05

Higher mean acceptance scores are associated with greater acceptance.

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useful in assessing the likelihood of respondents to adopt nontraditional housing types in general.

2) **Housing characteristics.** Among 11 questions in this section, the following six questions were selected in this study : size of previous community, age of dwelling, length of residence, types of ourrent housing, tenure status, and dwelling expenses.

3) **Demographic characteristice.** Nine questions realted to respondent's marital status, age, sex, race, educational level, employment status, household income, information about other household members, and location of personal residence were included in this section, Seven questions except last 2 questions were used in this study.

Ⅵ. Results

1. Demoqraphic and Housing Charaoteristics of Respondents

In the sample of this study, the age of the respondents ranged from 55 to 87, with a mean of 66.4 years. The majority of the respondents were retired, married, white, males. The largest percentage had less than a 12th grade education and a median annual household income in the range of $10,000 to $24,000. with regard to housing characteristics, the largest percentage of the respondents had lived in rural areas previously and were single family detached homeowners without a mortgage. The number of renters increased with advancing age. A mean age of the dwelling was 32 years, and an average length of residence in the present dwelling was approximately 20 years. Many elderly respondents had no monthly house payments or rent. All demographic and housing characteristics were also compared by the three specific age subgroups (55 to 64, to 74, and 75+) and some age variations existed for several characteristecs.

2. Acceptance of Nontraditional Housing Type(s)

The results analyzed by frequency and percentage showed that the acceptance levels of respondents for all nontraditional housing types were low(ranges from a low mean score of 1.28 to al high mean score of 2.30). The score which had the highest percentage for each housing types was one. Very few respondents scored four(adoption stage) for all housing types except apartments or townhouses. In the case of apartments or townhouses, about 1/3 of the respondents were located in adoption stage. In other words, about 1/3 of the respondents had lived in apartments or townhouses. In a comparison of the three age subgroups, the mean acceptance score for each of the housing types decreased with advancing age. Generally, the respondents were located between the awareness and interest stage.

3. Factors affecting Acceptance of Nontraditional Housing Type(s)

A series of one-way analysis of variance was used as a statistical technque to examine two hypotheses. If the analysis of variance revealed significant differences, the Turkdy's HSD test for comparisons of means was conducted to derect which organs ware different. Results of hypothesis

testing showed significant relationship between nontraditional housing type(s) and eight demographic and housing characteristics (age, education, employment, income, size of previous community, current housing types, tenure status, and dwelling expenses) (see Table 1-8).

In the case of mobile homes, younger(55-64), married, lower income, homebuyers, current mobile home dwellers, and previous residents of larger communities indicated a higher acceptance of mobile homes. Also, respondents who lived in newer houses, had lived in their current house for a short period of time, and had monthly house payments or rent at the medum level ($50-$299) were more accepting of mobile homes.

With regard to apartments or townhouses, respondents who were more likely to accept apartments or townhouses were young (55-64), more educated, employed, previous residents of larger communities, current apartment or townhouse dwellers, and renters. Also, respondents who earned higher incomes, had lived in their dwelling for a short period of time, and had higher monthly house payments or rent were more accepting of apartments or townhouses.

Respondents who were more likely to be accepting of solar houses were young (55-64), more educated, employed, previous residents of largar communities, current dwellers of a conventional house, and homebuyers. Respondents who had higher incomes and higher monthly house payments or rent were also more likely to accept solar houses.

In terms of the acceptance of earth-sheltered houses, respondents who were young(55-64), more educated, employed, previous residents of larger communities, current mobile home dwellers, and homebuyers were more likely to accept earthsheltered houses, Also, respondents who had higher incomes and higher monthly house payments or rent were more accepting of earthsheltered houses.

Respondents who were young(55-64), more educated, employed, previous residents of larger communities, current mobile home dewllers, and homebuyers were more likely to accept nontraditional housing types in general. Respondents who had higher incomes and higher monthly house payments or rent, had lived in a new house, and had lived in their dwelling for a short period of time were also found to be more accepting of nontraditional housing types in general.

Ⅶ. Discussion and C

This study provides important background information and insight into the questions of what factors might affect elderly individuals' acceptance of nontraditional housing type(s). The findings of this study, however, may not be generalizable to the entire elderly populations throughout the U.S. because the data were collected only from rural elderly who resided in seven participating southern states.

Regardless of increasing availability of nontraditional housing types as an alternative in the housing market, there has beem few stidoes for identifying the acceptance level for these housing types by the elderly in rural areas. The findings of this study indicate that the acceptance levels of elderly individuals for nontraditional housing type are in the early stages of the adoption process. It seems that many elderly are less receptive and more skeptical toward a varriety of innovative ideas in housino. These findings can be used by researchers, extension agents, and

those in the building industry to provide background knowledge about current status of rural elderly persons' acceptance level for nontraditional housing alternatives. In order to increase the elderly consumers' and, ultimately, their acceptance of nontraditional/innovative housing and innovative technologies in housing, extended research and improved educational efforts, specifically aimed at older persons, are essential.

Unseld and Crews(1981) noted that acceptance of an innovative idea was attributed to demographic and social charcteristics of families or individuals. The findings in this study indicated that acceptance of nontraditional housing type(s) was significantly affected by the following elderly respondents' characteristics : age, educational level, employment status, annual income level, size of previous communities, current housing types, tenure status, and dwelling expenses. Therefore, elderly individuals who were relatively young(55 to 64 age group), more educated, employed, pervious residents of larger communities, current mobile home dwellers, homebuyers or renters, and had higher incomes(except for acceptance of mobile homes) and higher monthly house payments or rent are the most accepting of nontraditional housing type(s).

This study only focused on innovative concepts in selected housing types, but the findings from this study may be applied to elderly persons' perceptions or attituded toward other innovative products at home such as computers, video recorders, or microwave ovens and other types of innovative housing including smart house technology. Especially, smart house technology introduces several innovative concepts in housing, and recently has received increasing attention from the public and the housing industry. On the basis of the findings from this study, however, the acceptance of this housing type by the elderly population would be expected to be very low.

Home builders for retirement housing can also utilize the findings from this syudy. The investigator observed great differences in personal innovativeness toward housing and acceptance of nontroditional housing types between young-old(55 to 64 age group) and the other two age groups (65 to 74 and 75+groups). If home builders desire to use some innovative ideas or products for developing retirement housing, they should realize this age difference and then define the specific age target groupe.

This study found clear evidence that age is an important factor which affects elderly individuals' ecceptance of nontraditional housing types, although there has been no conclusive evidence in the literature in the role of age in the adoption of innovations. Therefore, additional studies are needed to confirm whether or not this finding is generalizable.

Table 4. Mean Acceptance Scores of Nontraditional Housing Types by Annual Income Level

	Annual Income Level				
Housing Type	Less than $10,000 (n=489)	$10,000 -$24,999 (n=726)	$25,000 -49,999 (n=450)	$50,000 or Greater (n=153)	p-value
Mobile Home	1.97[ab]	1.99[ab]	1.73[cd]	1.60[cd]	.0002*
Apt/Townhouse	2.16[abd]	2.23[abd]	2.50[cd]	2.48[abd]	.0007*
Solar House	1.19[a]	1.61[b]	1.84[cd]	1.99[cd]	.0001*
Barth-Sheltered House	1.05[a]	1.27[bd]	1.51[cd]	1.50[bcd]	.0001*
Combination of 4 Types	6.37[a]	7.09[bcd]	7.58[bcd]	7.58[bcd]	.0001*

NOTE : *Significance level p<.05

Higher mean acceptance scores are associated with greater acceptance.

Mean acceptance scores with same superscripts are not significantly different from each other(Tukey's HSD).

Table 5. Mean Acceptance Scores of Nontraditional Housing Types by Size of Previous Community of Residence

	Size of Previous Community				
Housing Type	Less than 10,000 (n=705)	10,000 -49,999 (n=476)	50,000- 499,999 (n=376)	500,000 or Greater (n=257)	p-value
Mobile Home	1.72[ab]	1.83[abc]	2.02[bcd]	2.23[cd]	.0001*
Apt/Townhouse	1.84[a]	2.24[b]	2.70[c]	3.11[d]	.0001*
Solar House	1.32[a]	1.54[b]	1.92[cd]	1.93[cd]	.0001*
Barth-Sheltered House	1.11[ab]	1.22[ab]	1.50[cd]	1.60[cd]	.0001*
Combination of 4 Types	5.99[a]	6.83[b]	8.14[c]	8.86[d]	.0001*

NOTE : *Significance level p<.05

Higher mean acceptance scores are associated with greater acceptance.

Mean acceptance scores with same superscripts are not significantly different from each other(Tukey's HSD).

Table 6. Mean Acceptance Scores of Nontraditional Housing Types by Current

	Current Housing Types				
Housing Type	House (n=1651)	Mobile Home (n=82)	Apt/ Townhouse (n=102)	Other (n=29)	p-value
Mobile Home	1.79[acd]	3.95[b]	1.81[acd]	2.03[acd]	.0001*
Apt/Townhouse	2.21[abd]	2.44[abd]	3.60[c]	2.83[abd]	.0001*
Solar House	1.62[abd]	1.61[abd]	1.14[cd]	1.31[abd]	.0006*
Barth-Sheltered House	1.32[abd]	1.38[abd]	0.73[cd]	1.17[abcd]	.0001*
Combination of 4 Types	6.93[acd]	9.38[b]	7.28[acd]	7.35[acd]	.0001*

NOTE : *Significance level p<.05

Higher mean acceptance scores are associated with greater acceptance.

Mean acceptance scores with same superscripts are not significantly different from each other(Tukey's HSD).

Table 7. Mean Acceptance Scores of Nontraditional Housing Types by Tenure Status

Housing Type	Tenure Status				
Mobile Home	1.80[acd]	2.11[bcd]	2.04[abcd]	1.77[abcd]	.0002*
Apt/Townhouse	2.13[abd]	2.57[abd]	3.13[c]	1.77[abd]	.0001*
Solar House	1.59[ad]	1.78[bd]	1.30[cd]	1.41[abcd]	.0001*
Earth-Sheltered House	1.32[abd]	1.37[abd]	0.93[ad]	1.59[abcd]	.0001*
Combination of 4 Types	6.83[acd]	7.82[bcd]	7.40[abcd]	6.55[abcd]	0001*

NOTE: *Significance level $p < .05$

Higher mean acceptance scores are associated with greater acceptance.

Mean acceptance scores with same superscripts are not significantly different from each other(Tukey's HSD).

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