

## **THE ROLE OF HOUSING CHARACTERISTICS IN THE HOME-REMODELING PROCESS**

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### **Abstract**

*This paper investigates housing characteristics that impact on factors in the home remodeling process including the type of remodeling project, how the remodeling was planned and carried out, and the resources invested. Households who had applied for building permits to enlarge or alter their homes were sampled in a mail survey (70% response). The hypothesis predicted no significant associations between selected housing characteristics and the remodeling process. Chi-square tests or one-way analyses of variance with Duncan's multiple range test were used to test for significant associations. Housing-related characteristics having significant associations with the home remodeling process include value of the house, length of residence, age of the structure, and equity. Factors in the home remodeling process with significant associations were planning the remodeling project, the goal of the remodeling project, the purpose of the remodeling project, and how the remodeled space was used.*

### **Introduction**

A home is more than shelter from the elements. A person's home is a means of self-expression and can reflect both status in society and the values he or she holds. A home represents a major investment of resources, including money, time, and skills. The decision to remodel the home, therefore, is a housing behavior with important personal, social, and economic consequences.

"Home remodeling" refers to building renovations within the residential market, and is done for improvement and beautification to increase the quality of the home. Remodeling can be to add indoor or outdoor living space, finish off or complete space within the structure, change or adapt existing space, or add storage/utility space. Remodeling changes the arrangement, use, function, quality, or aesthetics of the home, and thus changes how the home's occupants live, interact, and otherwise behave within this space.

A major factor in the remodeling decision is the house itself. Objective characteristics of a dwelling influence a resident's housing satisfaction (Galster & Hesser, 1981). This satisfaction, or dissatisfaction, is a determinant of the decision to remodel the home.

This paper, part of a larger study, investigates characteristics of the dwelling that impact on the home remodeling process. This remodeling process includes the type of remodeling, how the remodeling was planned and carried out, and the resources invested. A unique aspect of the total study is the treatment of home remodeling as a housing behavior separate from maintenance, repairs, or energy improvements.

### **Review of Literature**

In their theory of family housing adjustment, Morris and Winter (1975) view families as evaluating housing in terms of both cultural and family norms. If the current housing does not meet these norms, a normative deficit exists, resulting in dissatisfaction. Families dissatisfied with their housing exhibit a propensity to engage in adjustment behavior. One of the adjustment behaviors identified by Morris and Winter is residential alteration. Seek (1983)

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describes home remodeling as a housing adjustment behavior undertaken to meet demands for more and/or better housing.

### **Housing Characteristics**

A review of literature on housing behavior suggests that age of a structure, value of house, length of residence, and bedroom space are relevant variables in the study of housing adjustment behavior. Quality of the structure was also shown to be a factor in home improvements (Seek, 1983; Yearns, 1972). However, this is a highly subjective variable and is difficult to measure reliably (Morris, Winter, Crull & Dagitz, 1977). Age and value of the structure are substituted for a quality variable in this study.

**Age of Structure.** The age of structure is related to both improvements and repairs (Gosling, Keogh & Stabler, 1993; Parrott & Lodl, 1991). In fact, as the housing stock in the United States has gotten older, expenditures on remodeling have increased (Schwartz & Exter, 1991).

Garner (1983) found a curvilinear relationship between age of the house structure, and repairs and improvements. This relationship was both for cost and the number of projects. This is consistent with the finding that the average expenditure for improvements is higher for new homes (Angell, 1984; Schwartz & Exter, 1991), and that people with older homes are more likely to contract for repairs, which increases the relative costs (Mendelsohn, 1977).

**Value of House.** Market value of a home is good estimate of the value of housing consumed. It is also a concept that consumers use when making a decision with respect to further investments in the home (Gosling, et al., 1993; Meeks & Firebaugh, 1974). Most homeowners are familiar with the concept and can make a reliable estimate of the market values of their homes (Morris, et al., 1977).

The value of a home is positively related to the amount that will be spent for repairs (Garner, 1983; Mendelsohn, 1977; Schwartz & Exter, 1991). Also, the value of the home is positively related to the likelihood of contracting for improvements (Mendelsohn, 1977).

**Length of Residence.** Length of residence could be considered a characteristic of the household residents instead of the dwelling. However, length of residence is specific to the dwelling. If the household moves to a different dwelling, household characteristics may be unchanged, but length of residence has a new value.

The tendency to improve the structure is somewhat negatively related to length of residence (Bross, 1975). Seek (1983) found that 70% of improvements were done in the first nine years of residency. In another study, half of the remodeling was done by households with less than six years residency (Stockman, 1983). Gosling, et al. (1993) also found that the average length of residency before remodeling, was 6.5 years, and suggested that this was in part related to an inflationary increase in home equity and the opportunity to extend mortgage commitments to finance improvements.

**Bedroom Space.** People tend to measure the adequacy of the space in the home by their perception of having an appropriate number of rooms for the activities and functions of the household (Foote, Abu-Lughod, Foley & Winnick, 1960; Hanna & Lindamood, 1979; Parrott & Lodl, 1991). One measure of the adequacy of the space in the home is whether there is a sufficient number of bedrooms to meet perceived needs (Foote, et al., 1960; Montgomery, Sutker & Nygren, 1959; Morris, 1972, 1977). The number of bedrooms needed by a household is based on cultural norms related to incest taboos and beliefs about the space needs of developing children (Morris, 1977). While these cultural needs may define a different bedroom need for different households, there is also a social perception that a home needs three bedrooms (Foote, et al. 1960; Morris, et al. 1977).

More recent research has also suggested that space satisfaction is more related to having an adequate number of bathrooms rather than bedrooms (Galster & Hesser, 1981; Inman, 1988; Inman & Sinn, 1987; Shelton, Gruber & Godwin, 1983). Further, Lodl and Combs (1989) found that remodelers already had a positive bedroom deficit, or excess bedroom space (as culturally defined), yet did not connect the excess bedroom space to other functions.

### ***The Remodeling Process***

The remodeling process can include: the characteristics of the remodeling project, such as the planned use of the remodeled space or estimated cost; the accomplishment of the remodeling project, such as the use of do-it-yourself labor or information sources consulted; or resources invested in the remodeling project, such as help from family/friends or actual cost. Although intuition may suggest that these potential variables are important in the housing adjustment process, there is limited past research to document that they are, in fact, relevant.

**Do-it-yourself Labor.** Do-it-yourself (DIY) describes when members of the household provide all or part of the labor for a home improvement project. DIY labor can be considered a characteristic of the remodeling process as well as a resource invested in the remodeling. DIY labor can be an economic decision (Schwartz & Exter, 1991). However, interest in DIY projects is greater than economic savings. Part of the satisfaction of home ownership comes from the ability to control and change the environment (Shelton, et al., 1983). Csikszentmihalyi and Rochberg-Halton (1981) found that people tended to include improvements they had made to the home as part of their description of that home. Work done on the house by the homeowner increases the attachment to the home and becomes a constraining factor to mobility (Seek, 1983).

Harris (1976) found a relationship between past residential adaptation behavior and a desire for future adaptations, suggesting a category of repeat "adaptors" -- people who remodel more frequently than changing housing needs would suggest. This is reinforced by the observation that DIY remodeling activities tend to replace other leisure time activities (Garner, 1983; Meeks & Firebaugh, 1974).

**Remodeling to Achieve Housing Aspirations.** Past studies suggest that most remodeling projects will be to achieve housing aspirations, not expectations (Morris & Winter, 1975; Parrott & Lodl, 1991). Seek (1983) found additions and alterations to the home were undertaken to meet family demands (norms) for more and better housing as opposed to improve worn, deteriorating, or defective features.

Do-it-yourself (DIY) labor in the home remodeling process influences housing attitudes and satisfaction. This role of DIY labor, plus the understanding of remodeling as a housing adjustment process to achieve aspirations, lends support to the investigation of remodeling process variables.

### **Procedure**

A sample of households from a midwestern Standard Metropolitan Statistical Area (SMSA) was used in the study. The sample defined was all owner-occupied, single-family households in the SMSA who applied for building permits for projects of \$500 or more, during two six-week periods in the spring and fall of 1984.

The survey was designed and collected according to the "Total Design Method" (Dillman, 1978). There were 194 out of 263 households responding (74%). After eliminating incomplete questionnaires and households who had not actually remodeled, there were 183 usable questionnaires (70% of original sample).

### ***Description of the Sample***

Participant households were well-educated with 98% of the households having at least one high school graduate and 47% having at least one college graduate. About 60% of the households were families in the expanding stages with two to four members. Over half of the households had two employed adults, typically in "white collar" occupations.

The participants of this study were generally satisfied with their housing. Almost two-thirds of the houses of participants were less than 25 years old, valued in the \$40,000 to \$70,000 range, with three or more bedrooms. Over half of the households had at least 50% equity in the home, yet the majority had lived in their houses less than 10 years.

Most remodeling projects were to add storage or utility space (51%) or living space (38%). Average cost was \$6,000 to \$8,000. Most projects (84%) included DIY labor and half the households were assisted by friends or relatives. Contractors and home supply store

Table 1. Definition of variables.

**Housing Characteristics (Independent Variables)**

- H1. *Age of Structure* - year structure was built, in 5-year increments.
- H2. *Value of House* - ranging from "Under \$30,000," to "over \$100,000," in \$10,000 increments.
- H3. *Equity* - calculated from market value and outstanding mortgage balance, reported as a percentage, in increments of 25%.
- H4. *Length of Residence* - in years.
- H5. *Bedroom Deficit* - calculated from household composition and number of bedrooms, based on cultural norms for bedrooms (Morris, 1972; 1977). Deficits, either positive or negative, were reported both before and after remodeling.
- H6. *Use of Home for Income Production* - a yes/no variable.

**Remodeling Process (Dependent Variables)**

- R1. *Percent of "Do-it-Yourself" Labor* - by household members, reported as a percentage, in increments of 25%.
- R2. *Type of "Do-it-Yourself" Labor* - fourteen "do-it-yourself" activities in the remodeling project and the extent ("none," "some," or "all") they were done by members of the household. For this paper, the total number of different activities was reported, and used as a measure of the extent of "do-it-yourself" labor.
- R3. *Non-household Labor* - "do-it-yourself" labor contributed by friends or family not part of the household; a yes/no variable.
- R4. *Purpose of Remodeling Project* - five, non-exclusive categories: add space, finish off existing space, change/adapt existing space, add outdoor living space, or add storage/utility space. Each category was analyzed separately.
- R5. *Use of Remodeled Space* - eleven, non-exclusive categories that described the type of activity in the remodeling space: sleeping, eating, food preparation, bathing/personal care, laundry, hobbies or recreation, general living, home-based business or office, storage, garage, or other. Each category was analyzed separately.
- R6. *Goal of Remodeling Project* - this variable was an attempt to measure if remodeling was to achieve housing expectations or housing aspirations. A scale of "0" to "10" was used, with "0" representing "worst" and "10" representing "best." Respondents rated house before and after remodeling, and estimated where they expected to be in five years, with each rating analyzed separately.
- R7. *Cost of Remodeling* - from "under \$1000" to "\$20,000 and over" in graduated increments.
- R8. *Ratio of Estimated Cost to Final Cost* - ratio of cost, as estimated on building permit, with the reported actual cost of the project calculated and reported as a percentage.
- R9. *Planning the Project* - extent ("none," "some," or "much") of use of fifteen possible information sources for assistance in planning the project: newspapers, radio, television, popular magazines, books, commercial leaflets, governmental publications, bankers/loan officers, architects/designers, contractors/builders, hardware/home supply store personnel, Cooperative Extension Service, adult education classes, friends/neighbors, or relatives. For this paper, the total number of planning sources was reported, and was used as a measure of outside planning assistance. Each planning source was then analyzed separately.
- R10. *First-time Remodeler* - a yes/no variable.

personnel were the most common source for planning assistance, with four different planning sources being the average number consulted. Approximately one-half the respondents had remodeled a home before.

### Variables and Hypotheses

Two groups of variables are included in this paper. The first group, "Housing Characteristics," are six independent variables relating to the dwelling. The second group, "Remodeling Process," are 10 dependent variables relating to the remodeling projects (Table 1). Some remodeling process variables were further broken down into categories for separate analysis (R4, R5, R6, R9). All values for variables were self-reported by the respondents.

The hypothesis was:

There are no significant differences or associations among the "housing characteristics" variable group and the dependent "remodeling process" variable group.

Chi-square test or one way analysis of variance with Duncan's multiple range were used to test for significant differences or associations depending on the type of independent variable. Each independent variable was tested against all 10 dependent variables.

### Findings and Discussion

Summarized in Figure 1 are the factors which produced significant results. The hypothesis is rejected as five of the six "Housing Characteristics" variables show significant associations or differences with one or more of the "Remodeling Process" variables.

Less than 10% of the sample had a negative bedroom deficit before remodeling, and only 2% had a negative bedroom deficit after remodeling. Therefore, this variable (H5) was not included for further analysis.

### Age of Structure

Older homes stand out as different in remodeling. Table 2 presents those remodeling process variables with significant results for age of structure (H1). Older homes were more likely remodeled to change or update existing space (R4). Bathrooms and kitchens, in particular, were remodeled more frequently in older homes (R5). These areas of an older home are most likely to be lacking in up-to-date conveniences.

Table 2. Association between age of structure (H1) and remodeling process variables: chi-square.

Age of Structure	Purpose of remodeling (R4): change/update existing space <sup>1</sup>	Use of remodeled space (R5): food preparation <sup>2</sup> personal care <sup>3</sup>	Planning the project (R9): use of relatives <sup>4</sup>	
Percent of respondents in each independent variable (H1) category selecting the reported dependent variable category				
1980 - Present	--	11	--	33
1970 - 1979	14	9	12	35
1960 - 1969	47	30	21	33
1950 - 1959	18	14	18	46
1940 - 1949	54	15	23	62
Before 1939	57	37	50	55

<sup>1</sup> $\chi^2 = 30.99$ ; df= 6;  $p < .05$

<sup>2</sup> $\chi^2 = 12.74$ ; df= 6;  $p < .05$

<sup>3</sup> $\chi^2 = 21.06$ ; df= 6;  $p < .05$

<sup>4</sup> $\chi^2 = 18.95$ ; df=10;  $p < .05$

N=183

Figure 1. Effect of housing characteristics on the home remodeling process: Matrix of variables.

Dependent Variables	Independent Variables					
	H1 Age of Structure	H2 Value of House	H3 Equity	H4 Length of Residence	H6 Use of Home for Income Production	
R1 Percent of DIY Labor		**				
R2 Type of DIY Labor Number of DIY Jobs		**				
R3 Non-household Labor		*				
R4 Purpose of Remodeling Project	*		*	*		
R5 Use of Remodeling Space	*	*			*	
R6 Goal of Remodel Rating of house: Before Remodel After Remodel In 5 Years		**	**	**		
R7 Cost of Remodel		*		**		
R9 Planning the Project Planning Sources Number of Sources	*				*	
R10 First Time Remodeled		*	*	**		

\* Significant association using Chi square at  $p < .05$ .

\*\* Significant difference using ANOVA at  $p < .05$ .

The association of age of the structure (H1) with use of relatives as a planning source (R9) is difficult to explain. One possible explanation is that many of the older homes were family homes. Another possible explanation is that owners of older homes originally purchased them because they were of lower cost. Thus, owners of older homes might have fewer resources for remodeling and would need to depend on relatives more.

#### **Value of House**

There was a consistent pattern found with respect to the value of the house and the remodeling process. Differences were found for higher value housing (H2) and less DIY remodeling (R1, R2), and a home that was rated more than acceptable before remodeling (R6) and more expensive remodeling projects (R7, Table 3). Associations were also found for higher value housing (H2) with less involvement of friends and relatives (R9, R3) and more involvement of contractors and design professionals in planning the project (R9, Table 4). These findings hold true, even though the median value of housing in the sample was higher than the median value of housing in the SMSA. Consistent with the research previously reported, households with higher value housing were seeking to improve housing that was already acceptable and were more likely to depend on professional services.

Approximately 40% of the total sample remodeled garages. In a related analysis of this study (Parrott, 1988), household characteristics produced significant differences in garage remodeling, suggesting that households in smaller, lower value houses were more likely to remodel garages, perhaps because these houses originally lacked garages. This was confirmed by the association of the value of house variable (H2) and garage remodeling (R5, Table 4).

In another related analysis of this study, higher value homes were associated with high housing satisfaction and an increase in satisfaction after remodeling (Parrott, 1986). Remodeling general living space was also associated with a high increase in dwelling satisfaction after remodeling. In this paper, those remodeling general living space (R5) were more likely to live in higher value homes (H2). Thus, a consistent pattern emerges of satisfied households with an increase in dwelling satisfaction after remodeling and an association between remodeling general living space (which was assumed to be moving the home toward aspirations); an above acceptable rating of the home before remodeling; more expensive remodeling projects; and higher value homes. Further, this reinforces that remodeling is to achieve housing aspirations, not to correct deficiencies or meet basic expectations.

#### **Equity**

Low equity in the home suggests short residence in the home. Households with low equity (H3) were more likely to be remodeling to change existing space (R4,  $\chi^2 = 14.87$ ;  $df = 4$ ;  $p < .05$ ). Of those households changing or updating space, 59% had less than 50% equity in their home although they represented 45% of the sample. However, only 4% of those households changing or updating space had 100% equity, yet they represented 12% of the sample.

This suggests that remodeling by homeowners with low equity was for the purpose of changing or updating the home to meet their preferences as opposed to expanding or substantially changing the function of the existing space to meet changed needs. A similar relation to the length of residence variable (H4) is described below.

Significant differences were found between equity and the rating of the home for the goal of the remodeling project variable (R6, Table 5). High equity suggests more resources invested in the home. People with high equity seem to have a home that more than meets their expectations. The higher the home was rated before remodeling, the less increase was expected in the future. This is consistent with previous research suggesting that as a result of improvements, satisfaction would increase more slowly for homes that were above the expectation level (threshold of satisfaction) than those homes that were below expectations (Granite, 1978). This interpretation must be based on the consideration of the finite scale that was used to measure the rating of the home, and therefore, there was a limit in expected increase in rating.

Table 3. Differences in value of house (H2) and home remodeling process variables - ANOVA.

Value of House (H2)	Amount of do-it-yourself (R1) <sup>1</sup>	Mean number of do-it-yourself jobs (R2) <sup>2</sup>	Goal of remodeling project (R6) <sup>3</sup>	Cost of remodeling (R7) <sup>4</sup>
less than \$40,000	2.6	5.9	4.3 <sub>a,b</sub>	6.2
\$40,000 - \$59,999	2.7 <sub>a</sub>	5.9 <sub>a</sub>	4.3 <sub>c,d</sub>	5.6 <sub>a,b</sub>
\$60,000 - \$79,999	2.9 <sub>b</sub>	5.3 <sub>b</sub>	5.8 <sub>a,c</sub>	7.1 <sub>a</sub>
over \$80,000	2.0 <sub>a,b</sub>	3.2 <sub>a,b</sub>	5.9 <sub>b,d</sub>	7.4 <sub>b</sub>

Note: Same subscripts denote significant differences with Duncan's Multiple Range Test at  $p < .05$ .

1 F = 4.26; df = 3,158;

2 = less than 25% of the work; 3 = 25% to 49% of the work.

3 F = 5.06; df = 3,159.

4 F = 4.85; df = 3,151,

rating of house before remodeling; on a scale of 0 to 10; see Table 1 description of scale.

5 F = 6.18; df = 3,155;

6 = \$4,000 to \$5,999; 7 = \$6,000 to \$7,999; 8 = \$8,000 to \$9,999; 9 = \$10,000 to \$14,999.

N=183

Table 4. Association of value of house (H2) and the home remodeling process - chi square.

Value of house	Planning the project (R9) Information sources				Use of non-household labor(R3) <sup>5</sup>	Use of remodeled space (R5)	
	architect <sup>1</sup>	contractors <sup>2</sup>	friends <sup>3</sup>	relatives <sup>4</sup>		garage <sup>6</sup>	general living <sup>7</sup>
under \$40,000	11	33	56	56	60	60	30
\$40,000 - \$49,999	16	68	73	59	70	62	41
\$50,000 - \$59,999	15	67	48	58	67	55	30
\$60,000 - \$69,999	27	92	42	31	46	42	65
\$70,000 - \$79,999	8	77 <sup>8</sup>	39	31	23	29	64
over \$80,000	44	84 <sup>8</sup>	20	17	26	21	54

Percent of respondents in each independent variable (H2) category selecting the reported dependent variable category.

1 X<sup>2</sup> = 19.69; df = 10; p < .05  
 2 X<sup>2</sup> = 30.83; df = 0; p < .05  
 3 X<sup>2</sup> = 34.31; df = 10; p < .05  
 4 X<sup>2</sup> = 25.15; df = 10; p < .05  
 5 X<sup>2</sup> = 24.31; df = 5; p < .05  
 6 X<sup>2</sup> = 18.18; df = 5; p < .05  
 7 X<sup>2</sup> = 11.40; df = 5; p < .05  
 8 approximately two-thirds reported using contractors much

N=183

Table 5. Differences in equity (H3) and goal of remodeling project (R6) - ANOVA.

Percent Equity	Rating before remodel <sup>1</sup>	Increase in 5 years <sup>2</sup>
less than 25	5.0 <sub>a</sub>	3.8 <sub>a</sub>
25 - 49	4.8 <sub>b</sub>	4.2 <sub>b,c,d</sub>
50 - 74	5.3 <sub>c</sub>	3.2 <sub>c</sub>
75 - 99	6.4 <sub>a,b,c</sub>	2.7 <sub>a,b</sub>
100	5.5	3.0 <sub>d</sub>

Note: Same subscripts identify significant differences with Duncan's Multiple Range Test at  $p < .05$ .

<sup>1</sup>  $F = 3.76$ ;  $df = 4, 150$ .

<sup>2</sup>  $F = 3.38$ ;  $df = 4, 149$ .

Increase reported is over base rating of house before remodeling; see Table 1 for description of scale.

Equity (H3) also was positively associated with previous remodeling experience (R10). The percent of households who were first-time remodelers decreased as equity increased, from 70% first-time remodelers for households with 25% or less equity to 22% first-time remodelers for households with 100% equity ( $X^2 = 16.48$ ;  $df = 8$ ;  $p < .05$ ). This reinforces the association between equity and length of residence.

**Length of Residence**

As expected, the results associated with the length of residence (H4) were similar to equity (H3). Short residence (and low equity) was associated with remodeling to change or update existing space in the home (R4, Table 6), a lower rating of the home before remodeling, and a greater expected improvement of the home in the future (Table 7).

Table 6. Association of length of residence (H4) and purpose of remodeling (R4) - chi square.

Length of Residence	Add living space <sup>1</sup>	Change existing space <sup>2</sup>
Percent of respondents in each independent variable (H4) category selecting the reported dependent variable category.		
1 - 5 years	30	43
6 - 10 years	56	26
11 - 20 years	41	26
over 20 years	21	7

<sup>1</sup>  $X^2 = 9.37$ ;  $df = 3$ ;  $p < .05$

<sup>2</sup>  $X^2 = 9.51$ ;  $df = 3$ ;  $p < .05$

The length of residence variable (H4), however, also presented some significant results that were different from equity (H3). It appears that low equity and short residence, and high equity and long residence, produce similar results. However, in the mid ranges of equity and length of residence, there were variations.

Remodeling to add living space (R4) was most common in the mid ranges of length of residence, particularly the six to 10 years range (Table 6). This is consistent with the findings of Gosling, et al. (1993), Seek (1983), and Stockman (1983). Remodeling during this period is likely to reflect changes in family needs and norms, which might require more extensive

Table 7. Differences in length of residence (H4) and the remodeling process variables - ANOVA.

Length of Residence	Goal of remodeling project (R6) <sup>1</sup>			Increase in 5 years <sup>4</sup>	Cost of remodel (R7) <sup>5</sup>	Number of planning sources (R9) <sup>6</sup>
	Rating before remodel <sup>2</sup>	Increase with remodel <sup>3</sup>	Increase in 5 years <sup>4</sup>			
1 - 5 years	4.9 <sub>a,b</sub>	3.0 <sub>a,b</sub>	4.1 <sub>a,b</sub>	5.8 <sub>a,b</sub>	3.6 <sub>a</sub>	
6-10 years	5.1 <sub>c</sub>	2.6	3.6	7.3 <sub>d</sub>	4.8 <sub>a,b</sub>	
11-20 years	6.0 <sub>a,d</sub>	2.0 <sub>a</sub>	2.7 <sub>a</sub>	6.9 <sub>b</sub>	4.3	
over 20 years	6.3 <sub>b,c,d</sub>	1.8 <sub>b</sub>	2.4 <sub>b</sub>	6.1	3.1 <sub>b</sub>	

Note: Same subscripts denote significant differences with Duncan's Multiple Range Test a p < .05.

1 See Table 1 for description of scale.

2 F = 4.43; df = 3, 151.

3 Increase reported is over base rating of house before remodeling, F = 3.76; df = 3, 150.

4 Increase reported is over base rating of hosue before remodeling, F = 3.76; df = 3, 150.

5 F = 4.07; df = 3, 1555.

6 F = 2.86; df = 3, 155.

7 = \$6000 to \$7999; 6 = \$4000 to \$5999; 5 = \$2000 to \$3999; 4 = \$1000 to \$1999; 3 = \$500 to \$999; 2 = \$100 to \$499; 1 = \$0 to \$499.

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remodeling, such as space additions. This contrasts with remodeling done during the early years of residency when remodeling is more likely to bring the home in line with the personal preferences of the household.

There were significant differences between cost of remodeling (R7) and length of residence (H4), with the most expensive remodeling projects coming in the mid years of residency (Table 7). The same effect was found for the number of planning sources consulted (R9), which was greatest in the mid range of length of residency (Table 7). These two findings suggest that these mid-range residence households, especially the 6 to 10 years residency range, were undertaking more extensive remodeling projects. This reinforces that these households remodeled to meet changed family needs and norms, which likely involved more extensive remodeling. Also, the finding that these groups were doing more remodeling involving additions, instead of working with existing living space, was consistent with the fact that their projects were more expensive and required more extensive planning.

#### ***Use of the Home for Income Production***

Of those remodeling their homes for business or office use (R5), 69% used their homes for income production. Despite the significance of the association (R9;  $X^2 = 24.67$  df = 2;  $p < .05$ ), it should be noted that 31% of the sample reported remodeling for home based business or office, even though they did not report using their home for income production. It is possible that this group consists of either students or professionals who desire office space at home.

An interesting association was found in that those who used the home for income production were more likely (53%) to use friends for planning assistance ( $X^2 = 24.67$ ; df = 2;  $p < .05$ ). No previous research exists to suggest explanations. It is possible that people who use their homes for income production have built a network of friends close by who are available to assist or to trade skills and expertise. However, there was no similar association with the use of relatives for information assistance, or any other variables related to DIY to suggest a pattern that indicated a preference for do-it-yourself on the part of those working out of the home.

#### **Conclusions and Implications**

This paper shows that housing characteristics are associated with the home remodeling process. Housing characteristics had the greatest effect on the variables of: a) planning the remodeling project; b) the goal of the remodeling project; c) the purpose of the remodeling project; and d) how the remodeled space was used. The housing characteristics having the greatest effect on the remodeling process were: a) the value of the house; b) length of residence; c) age of the structure; and d) equity.

Higher value homes were associated with less DIY remodeling, more professional assistance, and expensive projects. Short residence and low equity was associated with remodeling of existing space and projects to bring homes to an acceptable level (housing expectations as opposed to housing aspirations). A mid-range of length of residency (six to 10 years) was associated with more expensive and extensive remodeling projects.

This study suggests that resources invested in the house -- as evidenced by value of the home, equity, and length of residence -- significantly affect the remodeling process. Greater resource investment resulted in more extensive remodeling projects, with continued investment of resources, including higher cost, more planning effort, and more professional assistance. Although DIY labor was considered a resource in this study, the negative association with value of the house suggests that economics may play a stronger role than expected from the literature review. Also, as reported in Parrott (1988) and Parrott and Lodi (1991), characteristics of the residents influence the use of DIY labor.

#### ***Implications***

Implications of this study for housing professionals include a better understanding of the role of resources in determining housing behavior, in particular, housing adjustment behavior. Further study of the influence of the remodeling process variables is needed, including replication of this study with different samples. Factors such as the size, value and age of

the housing stock, climate, and time elapsed since the remodeling could affect results. Several sources of planning assistance were significantly associated with different variables in this study; namely, contractors, design professionals, friends, and relatives. What type of assistance was received, the value of this assistance, and the effect on successful completion of the remodeling project needs to be further explored. Of particular interest is the association of higher resource investment in the home with assistance from contractors and design professionals.

### **Application of Findings**

The author is especially interested in how the findings of this study can be applied to the planning and delivery of programs in adult education. Participant households expressed a need for assistance in remodeling, as evidenced by the number of planning source consulted.

First, it is important to consider who is remodeling. In this study, the households were highly educated, employed, growing families of above average socioeconomic status. While these households might be likely to accept adult education programs, their time is limited. Timing and location of educational workshops should be planned in consideration of this limitation. Methods of delivery, such as media or point-of-purchase displays, might facilitate reaching this audience.

Second, it is important to consider what type of remodeling is being done and why. The majority of projects were to add space to the home, with general living areas, garages, bathrooms, and kitchens being the most common areas of the home affected. Content of educational programs should reflect these factors. Households that were remodeling already had a high resource investment in their homes. Home remodeling programs should include information on how to maximize the investment potential of a remodeling project as well as the personal gain and enjoyment from remodeling and ways to minimize the "hassle" of the remodeling process.

Finally, it is important to consider where the study participants went for planning assistance. Contractors, hardware, home supply and lumberyard store personnel, and design professionals were very popular. Educational programs need to involve these professionals in the planning, design and delivery of the programs. These housing professionals have expertise, knowledge of needs, and contact with potential audiences. Friends and relatives were also important sources of planning assistance. Educational programs need to incorporate these relationships by targeting not only the homeowner, but also the support group that will assist in the remodeling.

The research for this paper was conducted with support from the University of Nebraska-Lincoln. A version of this paper was presented at 1987 meeting of the American Home Economics Association in Indianapolis, Indiana.

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