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Claudette Hanks Reichel
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Reichel, Claudette Hanks, Ed.D.

The Louisiana State University and Agricultural and Mechanical Col., 1987
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UMI
EVALUATION OF THE
LOUISIANA COOPERATIVE EXTENSION SERVICE
HOUSING EDUCATION PROGRAM,
AND ANALYSIS OF
AUDIENCE AND GENERAL PUBLIC
HOUSING PRACTICES

A Dissertation
Submitted to the Graduate Faculty of the
Louisiana State University and
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in partial fulfillment of the
requirements for the degree of
Doctor of Education

in
The Department of Extension and International Education

by
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ABSTRACT

The objectives of this study were to: determine the housing practices of the Louisiana Cooperative Extension Service housing audience and of the general public (for use in program planning); determine if significant differences existed between the housing practices of the general public and the Extension housing topic audiences (for accountability and impact assessment); and, determine if household characteristics are significant predictors of housing practices.

The research procedure utilized a "comparison group" design. Data were collected in 1984 from matched random samples of the Extension housing audience and the general public of Louisiana. Over 800 telephone interviews were completed by Extension Home Economists in 21 randomly selected parishes. Analysis of covariance was used at the .05 level to test for significant differences between the general public and the Extension topic audience subgroups. Stepwise multiple regression was used at the .05 level to develop models of the household characteristics which predicted housing practices.

On a statewide basis, housing education efforts prior to 1984 had a significant positive impact upon adoption of practices and knowledge of participants in all housing topics included in this study except space-efficient design and contracting precautions. The most substantial effect was in the adoption of energy-efficient design features, though participants' homes were still not close to recommended standards. The remaining housing topics included in this study are home selection, home finance, energy cost, cost-cutting construction methods, remodeling value analysis, kitchen design, home maintenance and home repairs.

All the regression models of housing practices on household characteristics were statistically significant. In each case, household characteristics accounted for under one-fourth of the variance of housing practices. The strongest prediction models ($R^2 > .20$) were those determined for the dependent variables: contracting, home selection, energy-efficient design, and energy cost.
CHAPTER I

INTRODUCTION

The Cooperative Extension Service (hereafter referred to as the Extension Service) was created by the Smith-Lever Act passed by the 63rd Congress in 1914. The Act provided for mutual cooperation of the United States Department of Agriculture and land-grant universities in supporting extension work. The purpose of the Extension service is to foster the diffusion and application of objective, timely and useful information relating to agriculture, home economics and community development. Extension serves as the educational link between the people of each state who are not enrolled in college and the state land-grant university. The educational programs are informal and based upon the problems and needs of people. The prevailing goal of Extension home economics programs is to improve the "quality of life" by enabling people to make better decisions.

Housing education is one segment of Extension's home economics program. It addresses the consumer's acquisition and preservation of functional, affordable and satisfying homes. This includes home selection, planning and design, financing, remodeling, maintenance, repairs and energy conservation.

STATEMENT OF THE PROBLEM

In the past, Extension program evaluations were usually informal, somewhat lacking in scientific vigor and served mainly program development needs. Today, the era of accountability has produced an increasing need for state Extension program evaluation studies which are credible to State and Federal legislators, executives, university leaders and Extension administrators. This need is exemplified by the recently adopted Extension Accountability and Evaluation (A/E) System (1983).

The "Report of the National Task Force on Extension Accountability and Evaluation Systems" (cited in Rivera, Bennett & Walker, 1983) recommended that state Extension Services undertake indepth studies of the inputs, operations and impacts of selected programs, primarily in order to meet state or multi-state needs for accountability and evaluation. The Housing
program area has been designated a "major program" by the Louisiana Cooperative Extension Service (LCES). Each major program in the state conducted a statewide "impact study" for the purposes of both accountability and internal evaluation for program direction.

PURPOSE AND OBJECTIVES

The primary purpose of this study was to investigate the LCES's impact in the major new and ongoing topics of its housing education programs. A secondary purpose was to provide data which could be used in formative program evaluations and program planning.

The greatest portion of this study was designed to measure practice adoption as a high level indicator of economic and social consequences (impact). For each housing topic, the practices of the general public were compared with the practices of the relevant Extension topic audience (a subgroup of the total Extension housing audience, consisting of those who had received Extension "help or information" on the particular topic).

The objectives of this study were to:

1. Determine the housing practices of the LCES housing audience and of the general public (for use in program planning).
2. Determine if significant differences existed (for accountability and impact assessment) between the scores of the general public and the Extension topic audience subgroups in the following housing topics:
   a. home selection (Scores are derived from questions * 6 and 7 of the Extension audience interview schedule. See Appendix C.);
   b. home finance (Scores are derived from question * 9.);
   c. space-efficient design (Scores are derived from questions * 12-14.);
   d. energy-efficient design (Scores are derived from questions * 16-19.);
   e. energy cost (Dollar values are derived from question * 20.);
   f. building and remodeling (Cost-cutting construction, contracting precautions, kitchen design and remodeling value analysis scores are derived from questions * 22, 24, 25, 26 and 27.);
   g. home maintenance (Scores are derived from question * 29.); and
   h. home repair (Numbers are derived from question * 30.)
3. Determine if household and housing characteristics (income level, age, household size, education, location, age of home, size of home, length of residence and design status) are significant predictors of housing practices, represented by the following dependent variables:

a. home selection score
b. home finance score
c. space-efficient design score
d. energy-efficient design score
e. energy cost
f. cost-cutting construction score
g. contracting precautions score
h. kitchen design score
i. remodeling value analysis score
g. home maintenance score
h. number of home repairs made

SIGNIFICANCE OF THE STUDY

Accountability

This study was designed to provide credible evidence of program results for administrators, policy makers, legislators and taxpayers and to provide a benchmark for future longitudinal studies that could address the question of whether or not the results are fully attributable to Extension efforts.

Evaluation

The results should be very useful to Extension personnel as a major internal, statewide evaluation. The Louisiana Extension home economists, state specialists and District Agents can use the results to assess the practices and needs of their clientele and potential audiences (the general public), analyze the effectiveness of past teaching methods, reexamine teaching objectives and redirect their program thrusts.

LIMITATIONS

This study possessed the following limitations:

1. The collection of data was implemented within the preexisting operating budget and body of personnel. Therefore, a potential for bias
exists in the use of LCES Home Economists to conduct the interviews in addition to their other job responsibilities.

2. Organizational and time constraints did not allow for: (a) personal inservice training of the agents in telephone interviewing techniques and treatment of the interview schedule, (b) systematic evening and weekend interviewing to reach households who were not at home during business hours, and (c) a formal replicated pilot test and statistical reliability analysis of the interview schedule utilizing several agents. Therefore, results may not be generalizable to those who were not readily cooperative with being interviewed, and to households whose adult members have daytime jobs.

3. Members of the populations who did not have telephones could not be selected. Thus, results may not be generalizable to those who cannot afford telephones.

4. Since Extension programs are determined at the local level, they are different in each parish (i.e. each respondent had not been exposed to the same educational activities).

5. Due to the necessary brevity of the instrument, the housing topic scores do not represent comprehensive achievement levels of each respondent, but were intended only for use in group comparisons and analysis of behavior predictors regarding selected practices.

6. Generalizability of the inferential multivariate analyses is somewhat limited due to the reduced sample numbers resulting from missing values for the variables: age, income, education and size of dwelling. Also, there was an error on the general public interview schedule (at question *28, regarding home maintenance inspection practices) which erroneously limited the question to those who had built or remodeled their homes.

DEFINITIONS

The following terms are defined as used in this study:

Agents: The professional parish level educators of the LCES; the agents mentioned in this study are Home Economists.

Area: One of nine geographic segments of Louisiana, defined by LCES, consisting of eight to nine parishes.
District Agents: LCES administrators who supervise all the parish agents of one area of the state.

1890 agents: Extension agents who are assigned to target their programs to low-income audiences only.

Extension (housing) audience: The population or sample of Louisiana homeowners who had participated in at least one LCES housing program (i.e. had received help or information from Extension on a housing topic).

General public: The population or sample of Louisiana homeowners who had not participated in an Extension housing program.

Housing practices: The investigated housing features and skills; when speaking of the entire study, it also encompasses housing-related knowledge that would precede a practice, judgments that result from a practice and consequences of practices.

Housing program: The total educational efforts of all LCES personnel in the broad subject matter of housing.

Housing topics: The component aspects of the housing program investigated in this study, including: home selection, home finance, space-efficient design, energy-efficient design, energy cost, building and remodeling, home maintenance and home repair.

Impact: The economic, social, environmental and/or individual consequences of program-induced learning and practices. This study examined practice adoption and, in a few instances, knowledge as high level indicators of impact.

LCES: The Louisiana Cooperative Extension Service.

Practice adoption: The selection and/or use of the investigated housing behaviors and features.

Specialists: State level personnel of the LCES who maintain expertise in one specific subject matter and work primarily with the agents, rather than directly with the public.

Topic audience: One of the topic-related subgroups of the Extension housing audience who had participated (i.e. received help or information from Extension) in a specific housing topic. Since not all members of the total Extension housing audience had participated in learning experiences associated with every topic, these subgroups were used in the comparative
analyses to determine program impact for each topic. In other words, topic participants (the Extension topic audiences) were compared against the non-participants (the general public).

**Topic score:** The mean number of points accumulated by one of the samples in a housing topic, generally representing the extent of adoption of the examined practices.

**USDA:** United States Department of Agriculture.
CHAPTER II

LITERATURE REVIEW

The Food and Agriculture Act of 1977 directed the Secretary of Agriculture to report to Congress on the "social and economic consequences" of Cooperative Extension Service programs. The language used in that directive, and its interpretation, posed an evaluation problem that was beyond the conventional (Pigg, 1980). Determining how much information could be recalled by the learner was not sufficient. This type of evaluation question called for an examination of the behavioral changes (practice adoption) of Extension audiences.

The Diffusion and Adoption Process

Implications from research on the diffusion of innovations have long been accepted and used by Extension as a theoretical basis for its strategy of change. Rogers' (1963a) review and synthesis of the research findings provided numerous implications for Extension programming and evaluation.

Rogers (1963a) described the adoption process as having five stages:

1. Awareness stage — the individual is exposed to the innovation but lacks complete information about it.

2. Interest stage — the individual becomes interested in a new idea and seeks additional information about it.

3. Evaluation stage — the individual mentally applies the innovation to his present and anticipated future situation and then decides whether or not to try it.

4. Trial stage — the individual uses the innovation on a small scale in order to determine its utility in his own situation.

5. Adoption stage — the individual decides to continue full use of the innovation.

The time span involved in this process varies greatly. The first individuals to adopt ("innovators") require a considerably shorter adoption period than do late adopters (Rogers, 1963a). In fact, adopter distributions generally follow a bell-shaped curve over time and approach normality. However, early adopters try innovations on a smaller scale than later adopters (Rogers, 1963b).
These tendencies indicate that program evaluations concerned with the prevalence and level of adoption should not immediately follow a program but allow sufficient time for later adopters to complete the process. Premature evaluations are likely to inaccurately conclude that program results were few and of small scale.

Early adopters seek new ideas, laggards (latest adopters) often can only be reached through the "trickle-down" process. As a result, the limited time and resources of change agents (Extension educators) are best concentrated on early adoptors (Rogers, 1963b).

When this is the case, it follows that the roster of program participants may represent only the "tip of the iceberg" of the eventual impact of the program. Extension program evaluations (and their users) therefore should recognize or investigate this possibility.

This is not to say that all members of a target audience who learn about a practice will adopt it. The diffusion of an idea must precede diffusion of a practice, but there is no assurance that the practice will be used. The adoption behavior of individuals is dependent upon a multitude of interrelated personal, cultural, social and situational factors (Lionburger, 1963). Rogers (1963b) identified five major factors which affect the extent and rate of adoption of a practice:

1. "Relative advantage" is the degree of perceived economic and social profitability of a practice in relation to the practice it would replace.
2. "Compatibility" is the degree to which an innovation is perceived to be consistent with existing values, norms and past experiences.
3. "Complexity" is the relative perceived degree to which a practice is difficult (or inconvenient) to use and understand.
4. "Divisibility" is the perceived degree to which a practice may be tried on a limited basis.
5. "Communicability" is the degree to which the results of a practice are diffused to others.

Careful scrutiny of these factors can provide valuable insight in not only program planning, but also in program evaluations. Negative results (no adoption) could be a result of improper or inadequate program delivery, external constraints, or beneficial negative decisions.
It should be recognized that individuals who wisely decide against adopting new alternatives may have benefited from Extension educational programs. The role of Extension educators is to present objective information and stimulate individuals to use the information to make decisions appropriate to their situation (Wilkins and DeYoung, 1983).

Program Evaluation

Whether an evaluation study measures immediate program outputs, follow-up practices or inputs, the question of its design is paramount. Design is a core consideration in choosing methodology, influenced by the intentions, procedures, timing and budget for the study (Rivera, Bennett and Walker, 1983).

Dimensions of Evaluation

Traditional methods of instructional programming utilize evaluation as one phase of a process, but recent models suggest that evaluation is part of each phase of programming. While the various models are divided and phrased differently, they all deal with questions of deciding what kind of program to have, then how to conduct it, and finally, deciding on improvements (Rivera, et al., 1983).

Scriven (1967) introduced the concepts of formative evaluation (for program development and improvement) and summative evaluation (of program outcomes). Rossi and Freeman (1982) classified three major dimensions of program evaluation: (a) analysis related to the conceptualization and design of interventions, (b) monitoring of program implementation and (c) assessment of program utility, including the program's effectiveness or impact and its efficiency (cost-effectiveness and cost-efficiency).

Some corresponding models subdivide these major dimensions. For instance, Dave (1980) divided product or impact evaluations into those which examine short-term results and those which examine long-term results. The Evaluation Research Society (1982) identified six categories of evaluation defined in terms of both the purpose of the evaluation and the types of activities involved: (a) front-end analysis (context, pre-installation, feasibility analysis), (b) evaluability assessment, (c) formative evaluation (developmental, process), (d) impact evaluation (summative, outcome,
effectiveness), (e) program monitoring, and (f) evaluation of evaluation (secondary evaluation, meta-evaluation, evaluation audit).

Levels of Program Results

Hierarchy of Evidence

Bennett (1976) has identified a "chain of events" that characterize most programs of Extension education. He then converted this chain of events into a hierarchy of objectives and evidence for program evaluation:

1. **Inputs** (time expended and staff qualifications).
2. **Activities** (educational materials developed, program publicity obtained and subject matter transmitted).
3. **People involvement** (number of participants, characteristics of participants and continuity, frequency and intensity of interaction).
4. **Reactions** (participants' interest in educational events and acceptance of educators).
5. **KASA** (direction, extent and durability of change in knowledge, attitudes, skills and aspirations of participants).
6. **Practice change** (individual and collective innovation and adoption).
7. **End Results** (attainment of ultimate goals for individuals or groups and unexpected "side effects").

These levels of evidence vary in: (a) the extent to which they can provide evidence of Extension's impact and (b) the amount of resources required for obtaining evidence. Evidence of Extension program impact becomes stronger in ascending the levels. However, obtaining evidence at higher levels generally requires more evaluative resources. The levels of evidence chosen for a particular program evaluation should vary with who will use the results, the decisions it is to assist, the nature of the program and the circumstances of its evaluation (Bennett, 1976).

Rivera (1982) constructed a pyramid of program evaluation users from the top down:

1. Policymakers
2. Policy administrators
3. Program managers
4. Program staff

Program participants and the general public could be considered a fifth level.
As a general rule, the higher the position of users, the greater their need for information on a program's end results (highest level of evidence). Conversely, the lower the position of users, the greater their need for information in lower levels of evidence (Rivera et al., 1983).

Levels of Consequences

In response to the directive for Extension to report economic and social consequences, Patton (1980) identified three levels of consequences:

1. First-order consequences—the immediate effects on people.
2. Second-order consequences—the effects on people across time and space.
3. Third-order consequences—the effects on community or regional groups and/or institutions as an aggregate effect of first and second-order consequences.

Patton (1980) also reported that local people were more interested in first-order consequences, while the USDA was most interested in third-order consequences. This is consistent with Rivera's model of evaluation users.

Impact Evaluation

Accountability. Nationally, pressure for Extension accountability has been building from many sources: Congressional Acts, Congressional Extension Oversight Hearings, the Government Accounting Office and the Extension Service USDA Administration. This need for concrete evidence of Extension's accomplishments ("external" accountability) calls for solid evaluation and a commitment from staff at all levels to do a better job of letting others know what Extension accomplishes (McKenna, 1983).

Lasley and Padgitt (1983) addressed the issue of how to best maximize staff commitment in evaluation activities. They contended that evaluation for accountability should not preclude the use of results to improve program delivery. Consequently, they asserted that program evaluations should be conducted internally, thus offering greater potential for both the professional development of staff and improvement of Extension programs. They believed staff involvement fosters communication (idea sharing), motivation to analyze program successes and failures, commitment to long-range planning and receptivity to findings.
Definition of Impact. The Extension Accountability/Evaluation (A/E) System was Extension's response to the growing need for accountability. Guidelines for the Extension A/E System (1983) define "Impact Studies" as technically valid indepth studies to assess: (a) the economic or social consequences of Extension efforts, or (b) other aspects of Extension inputs, operations or programs. Thus, the Extension A/E System emphasized studies of economic and social consequence while allowing for other types of technically valid studies.

The resource manual for Extension personnel who plan impact studies (Rivera et al., 1983) defines program impact as the economic, social, environmental and individual consequences (results) of program-induced learning and practices. These consequences emphasize the prevention, checking, reduction or solution of problems encountered by clientele.

Because direct measures of program impact are difficult to obtain, it has been suggested that utilization (e.g. clientele practices) be used as indirect or "proxy" indicators of impact (Rivera et al., 1983; Wholey et al., 1970). An impact study could be viewed as a two-way street with measurements of participant learning, performance or practice pointing toward impacts, and any measurements of end results (the impacts) pointing back toward the original influences (including the program) which produced impact (Rivera et al., 1983).

Rivera, Bennett and Walker (1983) conclude that an impact study somehow should assess a program's final consequences: (a) preferably through providing evidence bearing directly on the program's end results, or (b) by discussing how a program's measured educational and/or practice results might be expected to produce its end results.

Extension Evaluation Design

Programs of the state Extension Services are, by comparison to programs of "straight-line" agencies, diverse and not governed by specific national objectives and goals. This diversification is considered a major strength of the Extension education system, but presents major obstacles to a national evaluation where aggregation of data and similarity of objectives are being sought (Heckel, 1981).
Conditions of Impact Evaluation

According to Cronbach (1982), the basic aim of impact evaluation is to estimate the net effects or net outcomes of an intervention free and clear of the effects of other elements in the situation under evaluation.

Smith and Straughn (1983) reviewed five authors' definitions of "impact study", found a consensus with Cronbach (1982) and concluded the definitions imply that program effects can be identified, measured, and separated from those of other origins. Smith and Straughn also addressed the practical difficulties in accomplishing these conditions:

1. Identifying effects is difficult when Extension goals are stated in broad, vague terms, stated as a process or not stated at all. In addition, some effects may be unintended, negative, long-term, or for tertiary participants. The remedy is a problem-focused program design where the focus is on something specific that needs to be changed (a problem) rather than on some ultimate outcome.

2. Measuring effects is troublesome since the usual measures (tests, etc.) are inadequate for Extension, and social programs tend to have effects that are small and difficult to measure (Rossi and Freeman, 1982). The remedy involves: (a) a problem-focused program design, (b) formation of a comprehensive list made of ways the audience would behave if the objectives had been met, and (c) identification of the intensity and/or pervasiveness of the problem in a specific audience. The use of longitudinal studies also should help in detecting trends.

3. Separating effects of a program from effects created by other sources is particularly difficult and demanding. The solution is in both problem-focused program designs and evaluation designs which provide for comparisons against standards, similar programs, no programs, or the same program over time. Also, studies designed for many sites under natural conditions can help to mitigate some threats to valid findings (intervening influences).

Light (1980) and Patton (1980), however, urge that caution should be taken in reporting "average" gain of multiple sites as a measure of program benefit. Patton recognizes that precise cause-effect relationships are
impossible to determine because there is no "single treatment" to be studied. Every locality has a different program. Assuming that program consequences will be different in different places, he contends that a more realistic, sophisticated and useful evaluation question is "What is the range of consequences related to the programs and what factors appear to affect that range?"

Standards for Evaluation

Two major sets of standards appropriate to Extension program evaluation have appeared: (a) The Joint Committee on Standards for Educational Evaluation. "Standards for Evaluations of Educational Programs, Projects, and Materials" (1981), and (b) Evaluation Research Society Standards Committee. "Evaluation Research Society Standards for Program Evaluation" (1982).

The Joint Committee's Standards are organized under four main headings:

1. Utility standards call for "useful" evaluations with clear identification of audiences, clear and punctual reports, statements of evaluation qualifications and biases, and evaluator follow-through.

2. Feasibility standards state that evaluations should be realistic and prudent (i.e. practical), diplomatic (i.e. politically viable) and frugal (i.e. cost-effective).

3. Propriety standards require that evaluations be conducted legally, ethically (with balanced reporting and fiscal responsibility) and with due regard for the welfare and human dignity of those involved in the evaluation.

4. Accuracy standards deal with the technical adequacy of the evaluation (validity, reliability, data control, drawing conclusions and objectivity).

Patton (1983) took these a step further in paralleling them to basic Extension principles and process. He contends that evaluation can be viewed as a specialized application of more general Extension principles and methods because both Extension and evaluation involve making research knowledge understandable, packaging information for decision making, educating information users, and encouraging people to act on the basis of knowledge.
Rivera et al., (1983) commended the Joint Committee's standards for not equating high quality program evaluation with technically accurate study methodology. For example, how an evaluation study may be used can be more important in appraising its overall quality than its technical accuracy. Technical accuracy is necessary but does not insure appropriate utility.

In addition, Forest and Rossing (1982) emphasized that while Extension must do a better job of meeting program evaluation and accountability demands, it should not lose sight of the "human character" and strengths associated with its work. They contended that program evaluations should try to identify and communicate the human dimensions of programs as well as the "hard results" to enable others to interpret, place meaning, appreciate and relate to what has been accomplished.

Of particular interest to Rivera et al. (1983) was the section of the Evaluation Research Society's standards on structure and design. This section includes the statements:

The design for any evaluation cannot be conceived in a vacuum. It is necessarily influenced by logistical, ethical, political, and fiscal concerns and therefore must take these as well as methodological requirements into account.

For all types of evaluations, a clear approach or design should be specified and justified as appropriate to the types of conclusions and inferences to be drawn.

For impact studies, the central evaluation design problem of estimating the effects of nontreatment (absence of program) and the choice of particular method for accomplishing this should be fully described and justified.

An additional set of standards useful to Extension impact studies was developed by Kappa Systems, Inc. in 1979, under contract to the Extension Service, USDA. These standards include a set of criteria for technical accuracy to substantiate the findings and conclusions in Extension program evaluations (see Appendix A for the list of criteria).

Steps in Evaluation

Knowles (1970) divided the program evaluation process into four steps: (a) formulate the questions to be answered, (b) collect the data that will help to answer the questions, (c) analyze the data and interpret them in
relation to the questions asked, and (d) propose modifications of the plans, operations, and programs in light of the findings.

The United States General Accounting Office's "Assessing Social Program Impact Evaluation: A Checklist Approach" (cited in Rivera et al., 1983) provided a systematic framework for organizing evidence on program results with emphasis on the political nature of evaluation. It highlighted the procedures of: (a) evaluation planning, (b) data collection, (c) data analysis, (d) reporting findings, and (e) data disclosure.

Beder (1979) developed a more detailed strategy of eight steps in successful evaluations:

1. Decide on the purpose and use of the evaluation.
2. Determine what will be evaluated.
3. Acquire and allocate evaluation resources.
4. Establish a proper climate (participation and cooperation).
5. Choose an evaluation design, or approach.
6. Conduct the evaluation.
7. Report the evaluation.
8. Act on the evaluation.

Kappa Systems, Inc. (1979) completed an appraisal and summarization of studies of Extension program effectiveness, including guidelines for improving evaluations. Limitations in methodology and reporting common to many of the studies appraised were identified and used in developing ten guidelines for future studies, closely related to steps in evaluation:

1. Clearly state study purposes.
2. Specify study limitations and/or degree of generalizability.
3. Describe the Extension program being assessed.
4. Relate study questions and measures to program objectives.
5. Discuss the reliability and validity of the measures selected.
6. Establish a link between client outcomes and program delivery.
7. Provide adequate labeling of tables, charts, and graphs.
8. Separate presentation of findings from conclusions.
9. Provide adequate support for conclusions and a comparison if program success or failure is concluded.
Alternate Impact Study Designs

In order to determine the extent to which specified behavioral or status changes of participants are attributable to an Extension program, it is important that alternate (rival) explanations of these changes be eliminated or taken into account. The design of a study is the major factor in determining how well it can attribute clientele behavioral or status changes to Extension as compared to non-Extension influences. Study designs vary in their ability to account for alternate explanations (Rivera et al., 1983).

Impact study designs make or imply some form of comparison, either within or between groups. Within-group designs are generally easier to implement (than between-group designs), but they provide only limited design control over rival explanations of results—usually by means of statistical controls (Rivera et al., 1983). Between-group designs which make comparisons between two or more groups can provide stronger evidence that clientele changes are results of program participation, rather than rival explanations (Campbell and Stanley, 1966).

Rivera et al. (1983) examined 153 studies of Extension effectiveness which met the Kappa Systems, Inc. (1979) standards and classified them by type of study design. Four basic designs were identified and discussed as alternatives suitable for Extension impact studies in various circumstances. These included the "survey", "time-series", "comparison group" and "field experiment" designs.

The Survey Design. Data are collected only once, following the program. This design is generally necessary when there are no benchmark data; the program is ongoing and/or results are needed quickly. There are two major types of surveys used in program evaluation:

1. Perceptual surveys generally show participants' beliefs about the program results, providing perceived before-to-after results. However, such results possess questionable validity. Objectivists believe evaluation information should be reproducible, quantitative and scientifically objective; they feel that perceptions are influenced by what people want to believe. On the other hand, subjectivists believe that human experience is perception, thus perceptual data is valid (House, 1980).
2. Cross-sectional surveys generally include program participants and unmatched nonparticipants as respondents. They rely less on perceptions and more on quantitative analysis. Multi-variate statistical analysis is often used to attempt to control for the lack of equivalence in relevant characteristics among program participants and nonparticipants which may affect specified behaviors. However, it is frequently difficult to meet the assumptions required of those statistical techniques.

While surveys can be very useful, they typically cannot support inferences that an Extension program is a causal factor in measured clientele outcomes.

The Time-Series Design. This is a "pretest — posttest" format where data are collected at least twice from the participants. It is appropriate for ongoing programs where benchmark data are available, for new programs or for ongoing programs with a new set of participants. It provides precise quantitative data, but reports of results should address the possible influence of non-program factors.

The Comparison Group Design. This design attempts to establish a similar program participants group and nonparticipants (comparison) group. It is appropriate for new programs or for ongoing programs with a new set of participants. Such "constructed control" (Rossi and Freeman, 1982) may be accomplished by matching as much as possible: (a) characteristics of individual pairs of participants and nonparticipants, (b) statistical distributions of salient characteristics of sets of participants and nonparticipants, or (c) intact groups of participants and nonparticipants.

The comparison group design is limited since matching of program participants and nonparticipants is not complete. Thus, statistical controls may be added to a degree of constructed control to attempt to reduce differences in the characteristics of participants and nonparticipants which might affect the desired clientele changes.

Rossi and Freeman (1982) advised evaluators who use a comparison group design to identify factors in addition to the program which may effect the changes specified, so that at least these factors may be accounted for statistically in assessing Extension's degree of contribution to outcomes. Statistical controls for program comparison groups generally include
characteristics such as age, sex, socio-economic status, and aptitudes. The program and comparison groups also may be compared statistically in terms of before-to-after gain scores that are adjusted to account for initial differences in before scores.

However, Alexander (1965) warned that it may be difficult to compensate for any differences in motivation which led program participants into involvement with Extension. Possible effects of a pretest on posttest scores and comparison groups also should be considered.

The Field Experiment Design. Also called the randomized group design (Smith, 1980), a field experiment evaluation design requires making the program available to clientele selected randomly from some potential audience. The part of the audience receiving no exposure to the program is the control group.

In the comparison group design, the set of Extension program participants may volunteer to participate in the program, while the set of nonparticipants chooses not to be in the program. This difference in the voluntarism of the two groups may pose a threat to the validity of study findings on program results.

But, in the field experiment, persons who already have volunteered are randomly assigned to: (a) participate in the Extension program ("treatment"), or (b) serve in a control group. Consequently, rival explanations for clientele changes can be more completely accounted for than in the previously discussed designs.

A practical, human relations problem in conducting a field experiment is the ethics and logistics of the procedure. Although the field experiment may be the most effective design for scientifically sound conclusions regarding program results, it is often very difficult or inappropriate to randomly assign participants in an Extension educational setting. Those who desire to participate in Extension programs generally expect equal treatment. A possible approach if circumstances permit, may be to delay offering the program to the control group until after the experimental group has completed the program. A second approach is to assign volunteers to different variations of program intensity, without having a non-program control group.
These four impact study designs may overlap with each other and with other designs. The survey may be a component of all other designs. The comparison groups and field experiment designs may incorporate the time-series format.

Conscientious study design is a difficult task. Ultimately, in the "real world" selection of a study design, the question, "Why is the study of program results needed?" must be reconciled with the answer to, "What kind of study is feasible?" (Rivera et al, 1983).

Housing

Housing Consequences

The primary justification of housing education efforts (and government housing programs and policies) lies in the potential of housing to affect the physical and mental health and the social and economic well-being of individuals, families, communities and thereby the nation.

Physiological Consequences

The most basic role of human housing is to provide shelter from destructive extremes in the environment. This includes not only the provision of an environmental equilibrium, but also promotion of the healthy growth and development of the young (Morris and Winter, 1978). Adequate shelter, safety and sanitation are housing components necessary to physical well-being.

Psychological Consequences

Morris and Winter (1978) simplified the psychological question for housing in terms of whether or not the current housing meets an individual's psychic needs. Montgomery (1976) described a number of needs and requirements which should be considered when seeking to improve the fit between housing needs and structure:

1. **Sense of place** — Pride in the home is related to rootedness and a sense of belonging.
2. **Relatedness** — The house helps families fit into the web of life and establish relatedness.
3. **Privacy** — The home is the shell of privacy for families and individuals. All need privacy, though in differing degrees. In housing, privacy does not just happen; it must be planned.
4. **Psychological stimulation** — A home that is stimulating (but not over-stimulating) refreshes, strengthens and encourages individuals.

5. **Creativity** — Mastery of the personal environment is one of the effective ways people satisfy a basic need to be creative and self-expressive.

The relationship between good housing and good mental health—and bad housing and poorer mental health—was addressed by Lemkau (1976). He reported that annoyances in housing are generally the burden of the homemaker—who is also usually primarily responsible for maintaining emotional equilibrium. The homemaker has the most influence on children, therefore it is especially important to try to temper annoyances.

Lemkau (1976) suggested that inconveniences—such as poor layouts, malfunctioning equipment, maintenance problems and accidents—have a very negative effect on behavior. He contended the quality and satisfaction with any housing is gauged by how it functions and how easily it can be maintained at the inhabitants' standards.

For example, when a kitchen is poorly equipped, crowded or awkwardly arranged, the homemaker "takes the brunt" with a pass-on adverse influence on the rest of the family. Inadequate storage makes it difficult to control clutter and contributes to low morale, increasing the likelihood of intemperate and inconsistent discipline of children.

**Social Consequences**

Morris and Winter (1978) report that housing provides the setting for many of the basic social processes necessary to sustain life. Research has shown that the indirect social effects of housing may affect behavior, attitudes and even health. Housing also symbolizes the status of the family to both the wider community and to the family itself.

Cooper (1976) considered the home to be a "symbol-of-self." The more keenly people feel that they are living in a dangerous world with constant threats to the self, the greater the likelihood that they will regard the house as a fortress into which to retreat. But, with increasing economic and psychic stability, the house becomes an expression of self.

Cooper (1976) theorized that the house as symbol-of-self may partly explain the inability of our society to come to grips with the "housing problem." If the house is seen (in the USA) as the symbol of self, then it is
small wonder that there is such resistance to the state providing houses for people.

Handlin (1976) reported that property ownership has been one of the most available and readily seized upon means of social mobility in the U.S. Property ownership established a connection between rich and poor that helped to knit together social fabric.

An examination of government housing legislation over the past 50 years reveals a consistent theme—that a primary goal has been to facilitate and encourage home ownership (Yearns, 1976). The federal government introduced the amortized, long term mortgage and income tax incentives. The USDA Farmers Home Administration (FmHA) had a major role in the development of rural housing by making direct loans to families in rural areas.

The prevailing American convictions about the social consequences of adequate housing is exemplified in Nagle's address at the 1978 "Quality Housing Environment for Rural Low-Income Families" workshop:

Adequate housing for all Americans is a strong plus to national well-being. A decent home in a suitable environment, with the home preferably owner-occupied, adds strength and stability to family and community life. It also fosters fuller assumption of the obligations of citizenship.

Likewise, the U.S. Department of Housing and Urban Development (1980) informs potential home buyers:

When you settle in the community of your choice, you gain a stake in its future, its plans and problems. You will develop a sense of responsibility and pride in homeownership and, with your neighbors, will have a strong voice in determining the policies the community adopts and the direction it takes.

The National Association of Home Builders (NAHB, 1982) expanded on that theme in its statement that the opportunity to own a home is a cornerstone of democracy and the goal of owning a home inspires Americans to work hard, save and to achieve.

Economic Consequences

Housing production is a major segment of the national economy. During a normal year, residential construction accounts for four percent of the
Gross National Product and employs three million Americans. It is also a trigger industry for thousands of other businesses (appliances, materials, furniture, etc.). The construction of each 100,000 new single family homes generates 176,000 man-years of employment and generates $1.25 billion in federal taxes and $206 million in state and local taxes (NAHB, 1982). In 1983, housing generated $47 billion in wages, $25 billion in taxes and $86 billion in new economic activity (NAHB, 1984).

In the 1970's, housing prices rose faster than incomes, and interest rates doubled. In 1981 only 15% of first-time home buyers could afford a median priced new home -- a sharp drop from the 50% who could do so in 1970.

According to Hoben (1982) the housing affordability squeeze produces the following negative consequences:

1. **Unemployment.** Not only do construction workers lose their jobs but the jobs of others connected with housing are affected. Lumber and other material producers, workers in the home furnishings industries and persons involved in home sales and financing -- suffer.

2. **Higher business costs.** Workers demand higher wages in order to afford more costly housing. Those who already own homes with favorable mortgages demand subsidies or wage increases before they agree to sell their homes to move to new locations. Companies face higher labor costs as a result.

3. **Higher government costs and lower revenues.** As government support payments for the unemployed or for subsidies for housing or businesses rise, there may be concurrent decline in government revenues since unemployed workers and troubled businesses pay fewer taxes.

4. **Negative social impacts.** Young people may be forced to postpone household formation. Many potential home buyers will have no opportunity for homeownership, and others will experience residential overcrowding. Changing households will be locked into their present homes which are no longer suitable.

**Contemporary Problems of Affordable Homeownership**

Housing norms, values, constraints and opportunities interrelate to determine the rate of homeownership and quality of housing among American housing consumers. These factors are examined to identify the problems and standards of today's housing consumer.
Housing Behavior

In "Housing, Family and Society", Morris and Winter (1978) described their model of family housing behavior, based upon the synthesis of relevant research to that time. It stated that the motivation which prompts housing behavior is not the desire for shelter, but the desire for the right kind of shelter. The family has been viewed as a social system that consciously evaluates its housing and neighborhood conditions against specific criteria. The criteria used by families are cultural norms. (Morris and Winter, 1978)

When there is a gap between housing conditions on the one hand and norms on the other, the family becomes dissatisfied. Reduced satisfaction tends to produce one of two behavioral responses: moving to a new dwelling or making alterations in the present dwelling. The resulting new housing conditions presumably would bring the family’s housing more closely in line with the norms. (Morris and Winter, 1978)

Many families, however, may be unable to overcome residential deficits because of constraints on their behavior. Such constraints, of course, are primarily economic, but may involve racial, ethnic, and sexual discrimination, as well. When the constraints are overwhelming, other responses occur that are referred to as adaptation rather than adjustment. Adaptation involves alteration of the family’s norms, its composition, or its organization. (Morris and Winter, 1978)

Effective housing policy, Morris and Winter (1978) conclude, should be aimed at the removal of constraints and barriers to family housing adjustment. Likewise, it follows that effective housing education should also entail the alleviation of housing constraints (including ignorance of alternatives and methods).

Tenure Norms

Strong norms in favor of home ownership have existed since the founding of the U.S. Part of the impetus for immigration to the U.S. was the suppressed desire of European peasants for ownership of land. The norm has been sanctioned by the income tax laws and government-insured mortgages, as well as lending institutions and creditors who extend credit more readily to owners than to renters. (Morris and Winter, 1978)
In addition, landlord-tenant law and custom traditionally have favored the landlord and placed the tenant in a relatively powerless position. Thus, the negative aspects of renting give additional credence to the ownership norm as negative sanctions for those not in conformance (cited in Morris and Winter, 1978). Tremblay (1981) examined four housing norms in terms of their strength in American society. He concluded that although somewhat subjective, it appears that the ranking of these housing norms based on their strength is: home ownership, detached single family dwelling, private outside space and conventional structure type.

Despite economic constraints and the recent drop in the rate of homeownership, it appears the norm of home ownership has not declined. The findings of the Southern Region S-141 study (Montgomery, 1983) of 1804 nonmetropolitan households revealed that a large majority of the respondents preferred single family, owner occupied houses.

Holm (1983) concluded from his study of college students that they are very committed to the American Dream of owning a single family home (only six percent indicated they would not buy a home). Predictably, respondents with greater family size goals, higher social class, females and married respondents were more likely to expect home ownership.

Morris, Winter and Sward (1984) found that the popularity of the single-family owned home in terms of reported norms is so high that there are only minor detractors and they appear at the high income and education levels. They concluded that housing norms for tenure and structure type do not differ by income, only actual housing and the constraints do.

Hinkle and Combs (1983) analyzed the lifestyle sacrifices of home buyers. They found that the purchase of a home did entail sacrifices, particularly in types of expenditures often made with discretionary income. The extent of sacrifice was greater for the younger home owners, for those with lower incomes and for first time buyers.

**Housing Adjustment**

Morris and Winter (1978) report that housing adjustment tends to occur whenever the family has a normative deficit that causes a significant reduction in housing satisfaction. When the deficit is both perceived by the family and involves a prominent housing condition, it reduces satisfaction.
Anderson and Anderson’s (1978) laboratory study indicated that housing satisfaction is a nonlinear function of the eight potential determinants considered (family size, income, housing cost, house size, age of house, quality of house, quality of neighborhood and distance from work), and that significant interaction among factors is present. For example, satisfaction increased rapidly from below average housing quality to average; but, the increase was small between average and above average quality. Similarly, there was a sharp increase in satisfaction as size increased from 900 to 1200 square feet, and a lesser increase from 1200 to 1600. The cost factor interacted with each of the other seven factors and appeared to "enter the model in a multiplicative rather than an additive way."

Hanna and Lindamood (1981) found that the components of satisfaction which had the greatest correlation with overall satisfaction were: satisfaction with structural quality, outside appearance, inside appearance and size of home. Of moderate importance to overall satisfaction were: room and food preparation arrangement, number of rooms, amount of outdoor space and amounts of inside and outside storage. Of little importance to overall satisfaction were the type of dwelling, sewage disposal method and water supply (probably because most people are satisfied with these items).

Lam (1985) added that homeowners are more satisfied than renters. He also found that newer, better maintained homes were more satisfactory, and as neighborhood satisfaction increased, housing satisfaction increased.

In general, a family’s housing tends to lag behind its needs. The unfilled needs (deficits) serve as a source of motivation for adjustment to bring needs and housing into closer accord. Of course, it is possible for a family to anticipate changing housing needs and act in anticipation. (Morris and Winter, 1978)

The sources of influence on a family’s housing adjustment vary in strength. Morris and Winter (1978) suggested that generally: cultural and family norms are relatively weak in influence; the internal functioning of the family is intermediate in influence; and the current conditions along with the constraints on changing those conditions are strong in influence.
Constraints to Housing Adjustment

According to Morris and Winter (1978), when there is a reduction in housing satisfaction, overcoming the deficit that produced the dissatisfaction depends upon overcoming any constraints that impinge on the family's ability to correct it. Three kinds of constraints were identified. The first involves intrafamilial strengths and weaknesses when confronted with problems. The second includes economic constraints along with social, and political barriers. Third are the overriding attractive features of the present dwelling and its location which may deter adjustments.

Family Decision-Making

The Southern Regional Project S-141 study (Plowman, 1983) found that for three-fourths of the respondents, decisions about housing were made jointly by the husband and wife. In addition, the final decisions were accomplished with very little assistance from friends, relatives or housing professionals.

Angell (1976) observed that the American consumer encounters a serious dilemma when attempting to make wise housing decisions. Consumer advocates and agencies report that poor decision-making is common and that housing is a major area of complaint.

According to Morris and Winter (1978), the past history of the family with regard to its experience with housing and its experience operating as a family makes a difference in the way in which the family deals with a housing need or deficit. To some degree, problem-solving skills are related to the family's level of integration, adaptability, degree of role specialization, solidarity, and conventionality. An additional dimension seems to be related to the family's problem-solving history. Success in dealing with previous problems generally results in greater skill in solving later problems. Further, successful problem solving tends to raise expectations about future success and to raise the standards for judging the problem to be solved.

Affordability of Homeownership

Chi (1984) found that the most important determinant of a renter's probability to purchase a home is total family income. Therefore, it follows that the current, local cost of housing and homeownership is also a major determinant of homeownership.
Cost of Housing. The National Association of Home Builders (NAHB, 1985) believes that housing affordability problems will limit housing opportunities for much of the decade, especially among first-time home buyers. In addition to the purchase price of the home, the cash cost of homeownership includes ongoing expenditures for mortgage interest, fuel and utility costs, maintenance and repairs, taxes and insurance. On the other hand, the deductibility of home mortgage interest from taxable income reduces the direct cost of homeownership by reducing the homeowner’s tax expenditures. Also, the expectation of capital gains indirectly reduces costs while the loss of potential interest on the downpayment or accumulated equity indirectly increases costs. Thus, changes in the cash, direct or indirect costs can affect the total cost of homeownership (NAHB, 1985).

Between 1979 and 1984, total homeownership costs increased sharply. By 1982, higher home prices, interest rates and utility costs, combined with declining gains from appreciation, raised the total cost of owning a home to nearly 40 percent of median family income (NAHB, 1985).

NAHB (1985) contends that although high housing costs and mortgage interest rates will continue to discourage young renter households from purchasing first homes, many households (particularly those whose heads were born during the first wave of the baby boom) will have the purchasing power to afford good quality housing. Despite high costs and affordability problems, most American households continue to aspire to own single-family detached houses. As a result, the demand for housing by first-time buyers has remained strong in recent years.

Nevertheless, the high cost of suitable housing has increased the proportion of income which is spent on housing (Hoben, 1982). Family financial stability (and resulting consequences for the larger community) and a suitable housing mix for future housing demand call for careful decision making -- by both housing consumers and policy makers.

Energy Costs. Despite the rapid rise and current high cost of heating and cooling a home, Combs (1981) found that many homeowners perceive the costs of energy-efficient housing to be greater than the anticipated benefits. This may explain why new homes continue to fall far short of the level of energy efficiency that is cost-effective and technologically feasible.
Home Finance. Deregulation, innovations in financial markets and technological advances in the mortgage delivery system have brought rapid change to the housing finance system in recent years. By 1985, the system was more flexible and resilient than it was a few years earlier, and various financial and technical innovations were available which could lower costs for the borrower (NAHB, 1985).

As a result of these changes, affordability of mortgage credit, rather than mortgage "availability", became the major finance problem. The cost of home mortgage credit and the ability of prospective home buyers to qualify for loans became the central concern. The market share of adjustable rate mortgages (ARMs) climbed sharply after the summer of 1983, when the deregulation occurred (NAHB, 1985).

Edwards (1982) stated that new mortgage designs have increased the choices available to home buyers and provided more opportunity to fit housing finance decisions more closely to specific needs and circumstances, but they have required that greater risk be assumed. She concluded that would-be home buyers will need to collect and evaluate greater amounts of complex information and to deal with more uncertainty than ever before.

The recent decline and rise of interest rates and the Tax Reform Act of 1987 have further complicated the home finance decision for consumers. Now, homeowners as well as buyers are faced with the risk and opportunities of complex mortgage alternatives, refinancing, second mortgages and home equity loans.

Risk. Johnson (1982) examined the rise and fall of housing as an investment. In the past (when nearly all houses appreciated faster than inflation and interest rates were low), homeownership was considered such a "good investment" and tax shelter that its housing function was secondary. However, the demographic trends, interest rate changes, lower inflation rate and prices have eroded the role of owner-occupied housing as a store of value and perceived riskless investment. Johnson believed the trends suggest rough times for many homeowners who may never realize their expected capital gains from homeownership. However, he contends that the downturn in the worth of housing as an investment is good in that
the relative price reductions will tend to once again make ownership more affordable.

Compounding the problem is Guntermann and Wade's (1981) finding of a significant variation in home appreciation rates across a census tract. This has important implications for consumers because it indicates that not all houses or portions of the housing stock provide equally strong protection against inflation. In fact, during 1985 and 1986, many Louisiana homes depreciated in value due to the state's economic recession and resulting high unemployment.

Guntermann and Wade (1981) conclude that housing, as an investment, exhibits the characteristics of other financial investments in terms of the tradeoffs between risk and return. Areas with the highest rates of appreciation also had the greatest variation of return.

Housing Education Impact Evaluations

Correspondence with Extension housing specialists from other states, a literature search and review of the 1985 Narrative Accomplishment Reports submitted to the federal Extension Service revealed no formal, statewide, broad Extension housing program impact evaluations similar to this study to date. State level housing program accomplishment reports were based upon informal followup surveys, estimates derived from local feedback and other non-research based sources.

However, a few Extension impact studies which addressed specific components of the broad area of housing have been conducted. In addition, there has been considerable research dealing with the relationships between energy conservation practices and characteristics of people and their residences. Following are findings of those studies which have relevance to this research.

Extension Impact Studies

Past housing-related impact studies examined the outcomes of specific, short term programs. The primary purpose of these studies was to determine the effectiveness of the programs' delivery methods.

Glass and Reese (1976) surveyed the participants of a "You Can Do It" home maintenance and repair program which consisted of a TV demonstration series and a letter/fact sheet mail-out. They found that
exposure to the TV series was low, but the printed materials were used. Not surprisingly, the greatest adoption rates occurred in program topics where the most people had the opportunity to use the information prior to the survey, namely "storage" and "cleaning products". It was estimated that the 231 participants saved $2,511 as a result of the home repairs they had completed following the program.

White and Ladewig (1979) compared the cost-effectiveness (in terms of practice adoption) of the group and mail methods of their local energy education program versus the home energy audit program advocated by the U.S. Department of Energy. Data were obtained on energy conservation practices before and during the program at four different "intensity levels" of participation, including no participation (control group). They concluded that their group and mail educational methods were effective and more cost-effective than individual service (audit) programs. The greatest improvement (13% before vs. 22% during) occurred in the group of participants who self-enrolled in a letter series without attending meetings; this group also had the lowest initial adoption level (before the program).

However, it is of interest to note that when all participants were grouped together, only a slightly greater percentage (63%) had adopted at least one conservation practice during the program than that of the control group (58%). This could be a premature finding if insufficient time had passed for adoption to occur.

Yearns's (1984) impact study of an Extension home energy audit program compared a control group to participants who had completed an audit at least six months prior to the study. The educational program involved a do-it-yourself audit followed by computer analysis and personal consultation about the results.

Among the participants, the mean number of post-audit energy conserving structural improvements (0.99) was significantly greater than the number of pre-audit improvements (0.56). However, the mean index of post-audit improvements per month was not significantly higher for audit participants than for control group respondents. The only investigated structural improvements which were significantly more prevalent among the participants were basement and crawl space insulation. Yearns
suggested that this lack of significant difference might be related to the audit
group being more advantaged and starting with more energy efficient homes
than the control group.

**Household Characteristics and Energy Conservation**

Socioeconomic status has been a frequently used indicator of
conservation behavior in the social science literature. Yearns (1984)
reviewed ten such studies and reported the following consistent
relationships: (a) Higher-income families were more likely than
lower-income families to engage in conservation behaviors that require a
substantial cash outlay; (b) Educational level has been found to be
positively related to conservation behavior; (c) Age had a negative
relationship to the adoption of conservation behaviors; (d) The type of
structure was closely related to energy conservation behavior; and, (e)
Residents of larger homes and older homes were more likely to take
conservation actions. Furthermore, Bailey (1980) found that household size
was positively related to conservation behavior.

Gladhart's (1984) research indicated that the primary determinants of
conservation were not socioeconomic status, but price change and prior
consumption level. He contended that family characteristics determined
consumption, but had little relationship to actual conservation.

The distinction between consumption and actual conservation was also
emphasized by Williams, Larenor and Braun (1979). Their findings clearly
rejected any relationships between household variables (income, education of
head, sex of head, age of head and family size) and actual energy savings
(the energy saved by the respondent through modification of family
behavior and the housing structure). Tenure and structural quality were
the only variables tested that significantly related to the percent of actual
energy saved through conservation practices.

**Summary**

**Program Evaluation**

Evaluating the consequences or impacts of Cooperative Extension Service
programs calls for the acquisition of high level evidence--i.e. KASA change
(level 5), practice change (level 6) and/or end results (highest
level)--within the constraints of feasibility and practicality. Thus, the
design of a program impact evaluation must be carefully conceived, taking into account the following principles:

1. Because of the time lag involved in the adoption process, Extension impact studies should not immediately follow a program, but allow sufficient time for later adopters to act.

2. Impact studies should address questions of accountability as well as provide information to be used for improvement of program delivery. Internally conducted studies offer greater potential for program improvement through staff involvement, but require observance of criteria for technically valid research.

3. The basic aim of impact evaluation is to identify, measure and separate the outcomes of Extension programs from effects created by other sources. Thus, evaluation designs must provide for comparisons against standards, similar programs, no programs or the same program over time. For home economics programs, the comparison group and time-series designs can provide such comparisons within the constraints of feasibility and practicality.

Housing

The levels of housing adequacy, suitability and production create profound physiological, psychological, social and economic consequences for the occupants, their communities and this nation. Housing expenses are a major segment of the household budget. "Good" housing contributes to physical and mental well-being, which in turn, contributes to community and national well-being. Home ownership is valued by U.S. citizens and government policy as a means of fostering community stability and citizen involvement. Housing production, remodeling and maintenance constitute a major segment of the national economy.

At the heart of these consequences is the concept of housing satisfaction. Dissatisfaction results from the gap between housing conditions and housing norms. Such dissatisfaction leads to either housing adjustments or adaptation to the housing deficits if constraints prevent the appropriate adjustments. Effective housing education should entail the alleviation of constraints to housing adjustments (including ignorance of alternatives and methods) which would increase housing satisfaction.
A strong American housing norm, regardless of household income level, is home ownership. The housing components which have had high correlation with overall satisfaction were the structural quality, appearance and size of a home.

The primary constraint to homeownership and satisfying housing conditions is cost vs. income (affordability). The total cost of homeownership generally includes the home price, land cost, finance charges (the interest rate), utility costs, maintenance costs, insurance and possibly slow capital gain or even depreciation.

Consequently, it follows that an Extension housing program impact evaluation should examine the gain of knowledge or skills and adoption of practices and housing features which reduce economic (cost) constraints to home ownership and housing satisfaction. Though perhaps of secondary priority, it is also of value to examine educational changes unrelated to cost which affect physical and mental well-being.

**Housing Education Impact Evaluations**

This study appears to have been the first effort to conduct a broad-based, state level impact evaluation of an Extension housing program. Past housing-related impact studies primarily examined the effectiveness of delivery methods used in specific, short term programs. However, there has been considerable research which addressed the relationships between energy conservation and household characteristics.
CHAPTER III

RESEARCH PROCEDURES

Study Design

A comparison group research design was utilized in order to be able to identify Extension's contribution to outcomes. Data were collected in 1984 from matched samples of two populations—the Extension audience and the general public.

This study will also form the basis for a time-series design when data collection will be repeated in 1988. At that time, the 1984 results will provide a benchmark for comparison with the 1988 results to determine net educational gain due to Extension programs (i.e. 1984-88 change in Extension Audience minus 1984-88 change in general public will indicate net change in audience attributable to Extension as opposed to outside influences).

Study Coordination

The Home Economics Division of the LCES concurrently conducted impact studies of its adult programs in the subject matters of housing, house furnishings and nutrition. Therefore, the investigators coordinated procedures to minimize confusion and workload among parish Extension agents.

Populations

The "audience" (test) population consisted of all Louisiana homeowners who had participated in at least one Extension housing program during the previous three years (by means of direct contact or written materials such as publications and newsletters). The "general public" (comparison) population consisted of Louisiana homeowners who had not participated in Extension housing programs.

Sample Size

The necessary sample sizes were derived from Krejcie and Morgan's (1970) "Table for Determining Sample Size from a Given Population". The level of precision used in the table calculation was .05.

The resulting minimum sample size for the comparison population was 384, based upon the number of households in the state according to 1980 Census data. The minimum sample size for the Extension audience was 379,
based upon the estimate that the housing audience was comprised of 30,000 or fewer.

As a result of the random selection of parishes to be included in the housing program study and the varying number of agents in each parish, a sample of 435 was selected from each population (see Sampling Techniques). The final number of usable Extension audience interview schedules was 424 (97.5% of the sample). The final number of usable general public interview schedules was 392 (90.1% of the sample).

Sampling Techniques

A sampling procedure was utilized whereby the total sample number was divided among the number of applicable agents in 21 randomly selected parishes, then the samples were randomly drawn from each selected parish. The reasons for this procedure were: (a) based upon the assumption that the size of the Extension audience in a given parish and the educational impact upon them is roughly proportional to the number of agents in a parish; and (b) to preserve validity relative to interviewer (agent) performance by requiring that each agent be concerned with only one subject matter and an equal (minimum) number of interviews. Since a comparison group research design should attempt to establish similar test and comparison groups (Rossi and Freeman, 1982), the comparison sample selection controlled for sex and geographic location (home town) of residence to match these characteristics of the test samples.

The sequence and details of the sampling procedure were as follows:

1. One-third of the state's parishes were randomly drawn for each of the three studies—Housing, House Furnishings and Nutrition.

2. The number of applicable agents (See Data Collection Techniques) was determined for each parish. The number of agents was multiplied by 15 for the total minimum sample size for each parish. This produced a statewide sample size of 435 for each group (for this housing program study) based upon a total of 29 agents.

3. Lists of the appropriate Extension housing audience populations (names, phone numbers and home towns) were secured from each applicable agent. A table of random numbers was used to draw the test samples and an equal number of alternates from each parish.
4. The comparison samples were drawn from the telephone directories of the same towns as the test samples. A table of random numbers was used to select the page number, then the name on each selected page of each telephone directory. The proportion of comparison sample and alternate members from each town were matched with that of the test sample. Two alternates were selected for each comparison sample member, in anticipation of a greater difficulty in securing willing and qualified respondents than for the Extension audience sample. In some instances, it was necessary to draw additional alternates to obtain the required number of complete interviews.

5. The complete lists of names, phone numbers, and home towns were provided the interviewers (agents) with the interview schedules when data collection was to commence. Alternates were substituted for primary sample members when: respondents did not fit the defined population characteristics; comparison group respondents did not match the sex ratio of the comparison test sample; and, sample members could not be reached after three attempts were made at different times of the day.

Instrument Development

Two substantially identical interview schedules were developed for this study—one for the general public (See Appendix B) and one for the Extension housing audience (see Appendix C). The only differences between the two instruments were: (a) a series of five questions asked of the general public to determine their level of prior participation in Extension programs and to disqualify those who had participated in Extension housing programs, (b) questions asked of the Extension audience to determine the type of participation (if any) in each specific housing program topic, and (c) a question asked of the Extension audience concerning their sharing of Extension information with others.

The remaining items in the interview schedules were derived from the objectives of the Extension housing program of work and the corresponding program content (LCES publications, audio/visual materials, agent in-service training lessons). Most of these items were structured to obtain nonsubjective information about the respondents' homes and practices. None of the items assessed attitudes, intentions or aptitudes. This was done
to produce inherent instrument reliability and to provide evidence of "practice adoption" as a high level indicator of program impact. (Only questions * 6, 9, 12b, 14 and 27 of the Extension Audience interview schedule involved respondent judgements. See Appendix C.)

The instrument was reviewed, revised and ultimately approved by Extension administrators and evaluation specialists. The approved instrument was then informally pilot tested by the investigator and a parish LCES Home Economist on a total of 12 target population members in four parishes. During the process, the instrument was revised as problems with clarity of questions or directions arose. Organizational time constraints did not allow for readministration of the instrument with pilot respondents for making reliability calculations.

The content validity of the instrument was established through the aforementioned approval process and its additional review by an expert panel consisting of Dr. Karen Dominguez (Assistant Professor, LSU School of Architecture), Dr. Virginia Rowland (Assistant Professor, Housing and Home Management, LSU School of Home Economics) and Dr. Donlene Butler (Home Economist and Parish Chairman, Plaquemines Parish who holds an EdD in Extension Education with a technical emphasis in the housing specialization of Home Economics).

Data Collection

Data were collected by means of telephone interviews conducted by the Extension Home Economists who work with adult audiences (excluding "Expanded Foods and Nutrition Extension Program" agents and "1890" agents) in each selected parish. These agents received packets of instructions on how to administer the survey and conduct telephone interviews.

Treatment of Data

To facilitate statistical analysis and inter-group comparisons, a weighted point system was developed to convert and summate question responses into "topic scores". Points were accumulated for each practice adopted according to its relative value or importance within a topic. The sum of these points produced the sample's score for that topic.

These topic scores were not intended to represent the scope or degree of learning about a topic on the part of individuals, but to provide a basis for
prediction of practices and for comparison of the difference between those who had and had not been exposed to Extension programs on each topic. The point system was developed by the investigator prior to data collection. The previously cited panel of three housing education experts reviewed and modified this point system until a consensus was reached on the relative weight (value) of each adopted practice.

Data Analysis

Descriptive Statistics

Means, grouped frequencies and percentages were determined for the interval data questions (the Extension audience interview schedule questions * 4, 5, 11, 20, 23, 30, 32, 33 and 36). Frequencies and percentages were determined for the remaining questions.

Inferential Statistics

Analysis of covariance was used at the .05 level to determine if significant differences existed between the mean housing topic scores, home repairs and energy costs of the general public versus the Extension topic audience subgroups. Mean scores were determined for each housing topic from the point values assigned to each response. The covariates included the independent variables: household size, age, income level, respondent's educational level, location, design status, age of dwelling, length of residence and size of dwelling. Race was not used in the analysis because the groups had nearly equal racial composition; co-owners' education was not included because of substantial missing data (not all respondents co-owned their homes); and, type of dwelling was excluded since nearly all respondents lived in single-family homes.

Stepwise multiple regression was used at the .05 level to develop models of household characteristics (the independent variables) which significantly predicted the housing topic scores, number of home repairs and energy costs. The criterion which determined the cut-off point of the stepwise process was the entered variable's effect upon mean square error; the step prior to any rise in error established the model for each dependent variable reported in Chapter IV. Dummy variables were created for the groupings of the noncontinuous independent variables.
CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

In this chapter, the findings of this study are presented and organized in accordance with the research objectives. The first segment of this chapter describes the respondents and their housing. The second part describes their housing practices for Extension use in needs assessment and program planning. The third segment examines evidence of program impact. The final segment examines predictors of housing practices.

Description of Sample

Characteristics

The Extension audience sample was significantly older, more affluent and better educated than the general public sample. However, those differences were not substantial. The majority of both groups of respondents were white females between 40 and 65 years of age whose formal education had not continued beyond high school. Most had family incomes at or below $35,000 and approximately half of each sample had incomes below $25,000. The majority of households consisted of three or fewer individuals. Over half of the Extension audience respondents resided in one- or two-person households (See Table 1).

Likewise, Table 2 reveals small, though significant differences between the housing characteristics of the Extension audience and general public samples. The most noteworthy differences were that 9.59% of the general public as opposed to only 3.6% of the Extension audience lived in mobile homes, and the Extension audience contained fewer owners of very small homes (less than 1000 square feet) and more owners of large homes (over 2500 square feet) than the general public. The majority of both groups lived in a single-family house between 15 and 30 years old and had acquired that home prior to 1974 (when energy conservation became a common concern following the "energy crisis"). The homes of half the Extension audience and over 40% of the general public were custom designed for them. Most homes were between 1000 and 2500 square feet in size.
### Table 1

**Household/Respondent Characteristics**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Extension audience&lt;sup&gt;a&lt;/sup&gt;</th>
<th>General public&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size of household (number of people)</td>
<td>No. % Mean</td>
<td>No. % Mean</td>
</tr>
<tr>
<td>1</td>
<td>76 18.01 2.86</td>
<td>42 10.82</td>
</tr>
<tr>
<td>2</td>
<td>160 37.92 37.92</td>
<td>122 31.44</td>
</tr>
<tr>
<td>3-4</td>
<td>114 27.01 27.01</td>
<td>169 43.56</td>
</tr>
<tr>
<td>5-6</td>
<td>60 14.22 14.22</td>
<td>47 12.11</td>
</tr>
<tr>
<td>7-11</td>
<td>12 2.84 2.84</td>
<td>8 2.06</td>
</tr>
<tr>
<td>Missing data</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Age</td>
<td>55.72</td>
<td>49.21</td>
</tr>
<tr>
<td>19-29</td>
<td>15 3.80 3.80</td>
<td>45 12.06</td>
</tr>
<tr>
<td>30-39</td>
<td>47 11.90 11.90</td>
<td>77 20.64</td>
</tr>
<tr>
<td>40-49</td>
<td>75 18.99 18.99</td>
<td>73 19.57</td>
</tr>
<tr>
<td>50-59</td>
<td>82 20.76 20.76</td>
<td>65 17.42</td>
</tr>
<tr>
<td>60-69</td>
<td>99 25.06 25.06</td>
<td>69 18.50</td>
</tr>
<tr>
<td>70-79</td>
<td>61 15.44 15.44</td>
<td>38 10.19</td>
</tr>
<tr>
<td>80-93</td>
<td>16 4.05 4.05</td>
<td>6 1.61</td>
</tr>
<tr>
<td>Missing data</td>
<td>29</td>
<td>19</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>332 79.81 79.81</td>
<td>304 79.80</td>
</tr>
<tr>
<td>Black</td>
<td>83 19.95 19.95</td>
<td>74 19.42</td>
</tr>
<tr>
<td>Other</td>
<td>1 0.24 0.24</td>
<td>3 0.78</td>
</tr>
<tr>
<td>Missing data</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under $25,000</td>
<td>194 49.74 49.74</td>
<td>199 54.82</td>
</tr>
<tr>
<td>$25,000 - $35,000</td>
<td>108 27.69 27.69</td>
<td>117 32.23</td>
</tr>
<tr>
<td>Over $35,000</td>
<td>88 22.56 22.56</td>
<td>47 12.95</td>
</tr>
<tr>
<td>Missing data</td>
<td>34</td>
<td>29</td>
</tr>
</tbody>
</table>

*(table continues)*
### Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Extension audience(^a)</th>
<th>General public(^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Respondents' Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No diploma</td>
<td>73</td>
<td>18.30</td>
</tr>
<tr>
<td>High school graduate</td>
<td>177</td>
<td>44.36</td>
</tr>
<tr>
<td>Trade school/some college</td>
<td>67</td>
<td>16.79</td>
</tr>
<tr>
<td>College graduate</td>
<td>82</td>
<td>20.55</td>
</tr>
<tr>
<td>Missing data</td>
<td>25</td>
<td>-</td>
</tr>
<tr>
<td>Co-owners' Education</td>
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<td></td>
</tr>
<tr>
<td>No diploma</td>
<td>53</td>
<td>18.28</td>
</tr>
<tr>
<td>High school graduate</td>
<td>126</td>
<td>43.45</td>
</tr>
<tr>
<td>Trade school/some college</td>
<td>48</td>
<td>16.55</td>
</tr>
<tr>
<td>College graduate</td>
<td>63</td>
<td>21.72</td>
</tr>
<tr>
<td>Missing data</td>
<td>134</td>
<td>-</td>
</tr>
</tbody>
</table>

**Note.** Audience and general public samples differ significantly at p ≤ .05 in:
- Age, \(t(766) = 5.91\);
- Income, \(\chi^2(2, n = 753) = 11.92\);
- Respondents' education, \(\chi^2(7, n = 750) = 18.50\).

\(^a\)N = 424. \(^b\)N = 392

### Housing Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Extension audience(^a)</th>
<th>General public(^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Location</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Town/city</td>
<td>226</td>
<td>53.68</td>
</tr>
<tr>
<td>Farm</td>
<td>73</td>
<td>17.34</td>
</tr>
<tr>
<td>Rural nonfarm</td>
<td>122</td>
<td>28.98</td>
</tr>
<tr>
<td>Missing data</td>
<td>3</td>
<td>-</td>
</tr>
</tbody>
</table>

*(table continues)*
<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Extension audience</th>
<th>General public</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td><strong>Type of dwelling</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single-family house</td>
<td>402</td>
<td>96.40</td>
</tr>
<tr>
<td>Mobile home</td>
<td>15</td>
<td>3.60</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Missing data</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td><strong>Design status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Custom designed</td>
<td>213</td>
<td>50.36</td>
</tr>
<tr>
<td>Already built or planned</td>
<td>210</td>
<td>49.65</td>
</tr>
<tr>
<td>Missing data</td>
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<td></td>
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<tr>
<td><strong>Age of dwelling (years)</strong></td>
<td></td>
<td></td>
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<tr>
<td>1-10</td>
<td>84</td>
<td>20.19</td>
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<tr>
<td>11-20</td>
<td>109</td>
<td>26.20</td>
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<tr>
<td>21-30</td>
<td>108</td>
<td>25.96</td>
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<tr>
<td>31-40</td>
<td>57</td>
<td>13.70</td>
</tr>
<tr>
<td>41-50</td>
<td>29</td>
<td>6.97</td>
</tr>
<tr>
<td>Over 50</td>
<td>29</td>
<td>6.97</td>
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<tr>
<td>Missing data</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td><strong>Length of residence (years)</strong></td>
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<tr>
<td>1-10</td>
<td>126</td>
<td>29.86</td>
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<tr>
<td>11-20</td>
<td>135</td>
<td>31.99</td>
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<tr>
<td>21-30</td>
<td>89</td>
<td>21.09</td>
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<tr>
<td>31-40</td>
<td>45</td>
<td>10.66</td>
</tr>
<tr>
<td>41-50</td>
<td>20</td>
<td>4.74</td>
</tr>
<tr>
<td>51-60</td>
<td>7</td>
<td>1.66</td>
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<tr>
<td>Over 60</td>
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<td>2</td>
<td></td>
</tr>
</tbody>
</table>

(table continues)
### Table 2

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Extension audience</th>
<th>General public</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Size (square feet)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 1000</td>
<td>21</td>
<td>5.5</td>
</tr>
<tr>
<td>1000-1499</td>
<td>88</td>
<td>23.04</td>
</tr>
<tr>
<td>1500-1999</td>
<td>113</td>
<td>29.58</td>
</tr>
<tr>
<td>2000-2499</td>
<td>76</td>
<td>19.90</td>
</tr>
<tr>
<td>2500-2999</td>
<td>36</td>
<td>9.43</td>
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<tr>
<td>3000-3499</td>
<td>29</td>
<td>7.59</td>
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<tr>
<td>3500-3999</td>
<td>8</td>
<td>2.09</td>
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<td>4000-4499</td>
<td>6</td>
<td>1.57</td>
</tr>
<tr>
<td>4500-4999</td>
<td>1</td>
<td>0.26</td>
</tr>
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<td>5000-6000</td>
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<td>1.05</td>
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<td>Missing data</td>
<td>42</td>
<td></td>
</tr>
</tbody>
</table>

Note. Audience and general public samples differ significantly at $p \leq .05$ in:
type of dwelling, $\chi^2(1, n = 798) = 17.73$; design status, $\chi^2(1, n = 812) = 8.16$;
age of dwelling, $t(797) = 3.91$; length of residence, $t(809) = 4.13$; and home size, $t(698) = 3.93$.

\(aN = 424\). \(bN = 392\)

### Table 3

**Contact with Extension by the General Public**

<table>
<thead>
<tr>
<th>Type of Extension contact</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting or program</td>
<td>87</td>
<td>22.19</td>
</tr>
<tr>
<td>Leaflet/publication</td>
<td>149</td>
<td>38.01</td>
</tr>
<tr>
<td>Personal visit or phone</td>
<td>99</td>
<td>25.26</td>
</tr>
</tbody>
</table>

Note. \(N = 392\)

**Participation in Extension**

By definition of the populations for this study, all Extension audience respondents had participated in at least one Extension housing program and
none of the general public had utilized Extension for housing education or information. However, many from the general public had used Extension publications, had contact with an agent or participated in Extension programs unrelated to housing (see Table 3).

**Perceived Housing Education Needs**

At the conclusion of the interview, respondents were asked about their housing education needs. Table 4 shows that the most often mentioned topic by both groups was energy conservation, followed by home repair, remodeling and home maintenance.

**Table 4**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Extension audience</th>
<th>General public</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Conservation</td>
<td>No. 65 21.96%</td>
<td>No. 59 27.19%</td>
</tr>
<tr>
<td>Home repair</td>
<td>No. 57 19.26%</td>
<td>No. 43 19.82%</td>
</tr>
<tr>
<td>Remodeling, general</td>
<td>No. 34 11.49%</td>
<td>No. 24 11.06%</td>
</tr>
<tr>
<td>Home maintenance</td>
<td>No. 29 9.80%</td>
<td>No. 20 9.22%</td>
</tr>
<tr>
<td>Storage</td>
<td>No. 22 7.43%</td>
<td>No. 8 3.69%</td>
</tr>
<tr>
<td>Kitchen planning/remodeling</td>
<td>No. 16 5.41%</td>
<td>No. 5 2.30%</td>
</tr>
<tr>
<td>Home planning/selection</td>
<td>No. 10 3.38%</td>
<td>No. 4 1.84%</td>
</tr>
<tr>
<td>Heating/cooling systems</td>
<td>No. 8 2.70%</td>
<td>No. 0 0%</td>
</tr>
<tr>
<td>Home finance</td>
<td>No. 4 1.35%</td>
<td>No. 5 2.30%</td>
</tr>
<tr>
<td>Flood prevention/drainage</td>
<td>No. 2 0.68%</td>
<td>No. 2 0.92%</td>
</tr>
<tr>
<td>Other (furnishings, crafts, etc.)</td>
<td>No. 31 10.47%</td>
<td>No. 29 13.36%</td>
</tr>
<tr>
<td>Miscellaneous housing topics</td>
<td>No. 11 3.72%</td>
<td>No. 10 4.61%</td>
</tr>
</tbody>
</table>

\( ^aN = 424 \quad ^bN = 392 \)

The respondents were also asked for their first and second choices of how they would prefer this information to be made available to them. Table 5 reveals that the most preferred format was the free publication. Another prevalent choice was individual contact with an agent.
Demonstrations and workshops were often selected by the Extension audience, but less so by the general public. The favored second choice of the general public was newspaper articles.

Table 5
Preferred Educational Formats

<table>
<thead>
<tr>
<th>Educational format</th>
<th>Extension audience</th>
<th></th>
<th>General public</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1st Choice</td>
<td>2nd Choice</td>
<td>1st Choice</td>
<td>2nd Choice</td>
</tr>
<tr>
<td>Free publication</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Individual contact</td>
<td>130</td>
<td>41.14</td>
<td>78</td>
<td>26.09</td>
</tr>
<tr>
<td>Demonstration</td>
<td>79</td>
<td>25.00</td>
<td>58</td>
<td>19.40</td>
</tr>
<tr>
<td>Workshop</td>
<td>47</td>
<td>14.87</td>
<td>67</td>
<td>22.41</td>
</tr>
<tr>
<td>Newspaper article</td>
<td>41</td>
<td>12.98</td>
<td>52</td>
<td>17.39</td>
</tr>
<tr>
<td>Loan-out kit</td>
<td>10</td>
<td>3.17</td>
<td>22</td>
<td>7.36</td>
</tr>
<tr>
<td>Correspondence course</td>
<td>5</td>
<td>1.58</td>
<td>14</td>
<td>4.68</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0.00</td>
<td>5</td>
<td>1.67</td>
</tr>
</tbody>
</table>

aN = 424. bN = 392

Housing Practices

For the purpose of this study, "housing practices" refers to the housing-related knowledge, skills, judgments, actions taken and dwelling features included in this study. All are practices which LCES teaches or recommends. The following results indicate the level of adoption or perceived knowledge of each housing practice for each sample.

Home Selection

As a reflection of the outcome of their home selection practices, respondents were asked to judge how well their house had lived up to the expectations they had for it in fitting the needs of their families. A large majority of both samples (75.96% of the Extension audience respondents and 71.98% of the general public respondents) judged that the house fits their
needs as well as or better than they had expected (see Table 6). Very few expressed substantial dissatisfaction with their home selections.

Table 6
Judgment of Dwelling's Current Suitability as Compared to Original Expectations

<table>
<thead>
<tr>
<th>Level of fit to needs</th>
<th>Extension audience(^a)</th>
<th>General public(^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>As well as or better than expected</td>
<td>316</td>
<td>75.96</td>
</tr>
<tr>
<td>Not quite as well as expected</td>
<td>87</td>
<td>20.91</td>
</tr>
<tr>
<td>Not nearly as well as expected</td>
<td>13</td>
<td>3.13</td>
</tr>
<tr>
<td>Missing data</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

\(^aN = 424. \quad ^bN = 392\)

Table 7
Prepurchase Home Inspections Conducted

<table>
<thead>
<tr>
<th>Inspected home components</th>
<th>Extension audience(^a)</th>
<th>General public(^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Roof</td>
<td>323</td>
<td>76.18</td>
</tr>
<tr>
<td>Drainage of land</td>
<td>301</td>
<td>70.99</td>
</tr>
<tr>
<td>Heating and cooling systems</td>
<td>295</td>
<td>69.58</td>
</tr>
<tr>
<td>Appliances</td>
<td>256</td>
<td>60.38</td>
</tr>
</tbody>
</table>

\(^aN = 424. \quad ^bN = 392\)

Table 7 shows data relating to the more specific housing selection practice of inspecting a house for deficiencies and needed repairs before purchasing it. Over half of both the Extension audience and the general public samples said that they had "thoroughly checked out" the roof, drainage of rain away from the house, the heating and cooling systems and
the appliances. The roof was inspected by the greatest proportion of each group (over three-fourths of the Extension audience and nearly two-thirds of the general public). Inspection of the appliances was the most often overlooked procedure by both groups.

**Home Finance**

Table 8 shows that few respondents felt they had a "very adequate" level of understanding of mortgage alternatives. Over half the general public labeled their level of understanding as "not adequate".

Table 8

<table>
<thead>
<tr>
<th>Perceived Understanding of Mortgage Alternatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of understanding</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Very adequate</td>
</tr>
<tr>
<td>Nearly adequate</td>
</tr>
<tr>
<td>Not adequate</td>
</tr>
<tr>
<td>Missing data</td>
</tr>
</tbody>
</table>

<sup>a</sup><sub>N = 424.</sub> <sup>b</sup><sub>N = 392</sub>

**Space-Efficient Design**

Table 9 shows that each of the space-efficient home design features included in this study was present in roughly half of the respondents' homes. Two-thirds of the Extension audience and almost as many of the general public had a multi-purpose (living-dining combination) room. However, fewer than 40% of the Extension audience and 30% of the general public had other multi-purpose rooms; also, nearly 54% of the Extension audience and 42% of the general public possessed rooms in their homes which were seldom used (representing substantial waste of space).
Table 9
Adoption of Space-Efficient Home Features

<table>
<thead>
<tr>
<th>Features</th>
<th>Extension audience</th>
<th>General public</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Open plan</td>
<td>176</td>
<td>41.51</td>
<td>192</td>
<td>48.98</td>
</tr>
<tr>
<td>Short or open hallways</td>
<td>240</td>
<td>56.60</td>
<td>246</td>
<td>62.76</td>
</tr>
<tr>
<td>Multi-purpose rooms</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Living-dining room</td>
<td>283</td>
<td>66.75</td>
<td>248</td>
<td>63.27</td>
</tr>
<tr>
<td>Other</td>
<td>166</td>
<td>39.15</td>
<td>116</td>
<td>29.59</td>
</tr>
<tr>
<td>No seldom used rooms</td>
<td>195</td>
<td>45.99</td>
<td>228</td>
<td>58.16</td>
</tr>
<tr>
<td>No walk-in closets</td>
<td>228</td>
<td>53.77</td>
<td>212</td>
<td>54.08</td>
</tr>
<tr>
<td>Enough convenient storage</td>
<td>210</td>
<td>49.53</td>
<td>194</td>
<td>49.49</td>
</tr>
</tbody>
</table>

aN = 424. bN = 392

Energy-Efficient Design and Energy Cost

The homes of the respondents did not generally contain the cost-effective energy-efficient design features which LCES recommends; Table 10 reports, in descending order, the adoption level of each such feature. Very few had insulation over their ceilings with an R-value over 26; approximately 22% of the Extension audience and 12% of the general public had the minimum recommended R-19 to R-26 level of ceiling insulation. Slightly more than 10% of each group had solar screens or reflective windows on the west-facing windows of their homes. Less than one-third of the homes had window placement oriented properly to the sun, insulated or storm windows, or special air infiltration barriers built into the structure. Nearly 40% of the Extension audience and 30% of the general public had a roof ridge vent.

The two features with the highest adoption levels were high-efficiency air conditioners or heaters and overhangs or awnings on the south side of the house. Over half the Extension audience and almost 40% of the general public responded that their homes contained these features.

The mean highest 1983 summer utility bill was $163.98 for the Extension audience and $172.58 for the general public. Based upon these figures and
the mean house size of each group, the average energy cost per square foot of home size was 8.41 $/ft²$ for the Extension audience and 9.71 $/ft²$ for the general public. At an average Louisiana utility rate of 7.2 $/kwh$, it was estimated that the Extension audience consumed 1.168 kwh/ft²; the general public consumed 1.349 kwh/ft².

Table 10
Adoption of Energy-Efficient Home Features

<table>
<thead>
<tr>
<th>Features</th>
<th>Extension audience</th>
<th>General public</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>High efficiency A/C or heater</td>
<td>216</td>
<td>51.67</td>
</tr>
<tr>
<td>Overhang/awnings on south side</td>
<td>209</td>
<td>50.36</td>
</tr>
<tr>
<td>Ridge vent</td>
<td>155</td>
<td>37.35</td>
</tr>
<tr>
<td>Most window area is on south side</td>
<td>116</td>
<td>29.22</td>
</tr>
<tr>
<td>Insulated or storm windows</td>
<td>119</td>
<td>28.68</td>
</tr>
<tr>
<td>Structural air-infiltration barriers</td>
<td>102</td>
<td>24.76</td>
</tr>
<tr>
<td>Least window area is on west side</td>
<td>82</td>
<td>20.66</td>
</tr>
<tr>
<td>Solar screens/film on west side</td>
<td>44</td>
<td>10.58</td>
</tr>
<tr>
<td>Ceiling insulation</td>
<td>414</td>
<td></td>
</tr>
<tr>
<td>Over R-26</td>
<td>21</td>
<td>5.06</td>
</tr>
<tr>
<td>R-19 to R-26</td>
<td>91</td>
<td>21.93</td>
</tr>
</tbody>
</table>

Note: n varies because "not applicable" and "no responses" were omitted from the data.

Building and Remodeling

As previously indicated, half of the Extension audience and 40% of the general public had custom built their homes. Table 11 reports the proportion and number of each sample that had ever remodeled. More respondents had done general home remodeling and kitchen remodeling than had made additions of a room or conversions of a garage, porch or attic to a room. Also, more Extension audience respondents had done the specified types of remodeling than did general public respondents.
Table 11
Types of Home Remodeling Experienced

<table>
<thead>
<tr>
<th>Type</th>
<th>Extension audience&lt;sup&gt;a&lt;/sup&gt;</th>
<th>General public&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Kitchen remodeling</td>
<td>140</td>
<td>33.02</td>
</tr>
<tr>
<td>Addition</td>
<td>102</td>
<td>24.06</td>
</tr>
<tr>
<td>Conversion of garage, porch or attic</td>
<td>75</td>
<td>17.69</td>
</tr>
<tr>
<td>Other</td>
<td>153</td>
<td>36.08</td>
</tr>
</tbody>
</table>

<sup>a</sup><sub>N = 424</sub>.  <sup>b</sup><sub>N = 392</sub>

Contracting Precautions

Of the respondents who had hired a contractor to build, remodel or do major repairs in the three years preceding their interview, a majority had taken at least one precaution to protect themselves from cost overruns or poor workmanship (see Table 12). Approximately three-fourths of the Extension audience had written provisions in their contracts that the last payment to the contractor was due only after job completion, cleanup and inspection and that a maximum price was guaranteed; fewer of the general public (69% and 63%, respectively) had these provisions. Just over half the audience and 66% of the general public had seen receipts or lien waivers from suppliers and subcontractors before paying the contractor in full.

Cost-Cutting Construction Methods

Table 13 shows that less than half the respondents who had custom built or added on to their homes had planned the spaces in multiples of four feet to reduce waste of materials (modular planning). Thirty-one percent of the Extension audience and 24% of the general public had used "any other special cost-cutting construction methods", such as 24-inch on center framing or prefabricated wall panels.
Table 12

Contracting Precautions Taken

<table>
<thead>
<tr>
<th>Type</th>
<th>Extension audience</th>
<th>General public</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Maximum price in writing</td>
<td>78</td>
<td>72.90</td>
</tr>
<tr>
<td>Last payment withheld</td>
<td>82</td>
<td>76.64</td>
</tr>
<tr>
<td>Saw lien waivers or supplier receipts</td>
<td>56</td>
<td>52.34</td>
</tr>
</tbody>
</table>

Note. Applies only to those who had hired a contractor to build, remodel or do major repairs in the last three years.

\[a_n = 107. b_n = 63\]

Table 13

Cost-Cutting Construction Methods Used

<table>
<thead>
<tr>
<th>Features</th>
<th>Extension audience</th>
<th>General public</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Modular design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Used throughout</td>
<td>93</td>
<td>32.86</td>
</tr>
<tr>
<td>Partially used</td>
<td>31</td>
<td>10.95</td>
</tr>
<tr>
<td>Other</td>
<td>88</td>
<td>31.32</td>
</tr>
</tbody>
</table>

Note. Applies only to those who had custom built or added-on to their homes; \(n\) varies because "no responses" were omitted from the data.

Remodeling Value Analysis

Slightly over half the respondents who had remodeled their homes at some time had at least "somewhat" looked into how the remodeling would affect the market value of their homes before proceeding with the job (see Table 14). Approximately 25% of the Extension audience and 21% of the general public remodelers stated that they had "thoroughly" investigated this
market value consideration. The remaining respondents had not considered market value ramifications at all.

Table 14

Analysis of Market Value Before Remodeling

<table>
<thead>
<tr>
<th>Extent</th>
<th>Extension audience</th>
<th>General public</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Thoroughly considered</td>
<td>50</td>
<td>25.25</td>
</tr>
<tr>
<td>Somewhat considered</td>
<td>57</td>
<td>28.79</td>
</tr>
<tr>
<td>Not considered</td>
<td>91</td>
<td>45.96</td>
</tr>
</tbody>
</table>

Note. Applies only to those who had remodeled.

\[a_n = 198. \quad b_n = 136.\]

Table 15

Adoption of Efficient Kitchen Design Features

<table>
<thead>
<tr>
<th>Features</th>
<th>Extension audience</th>
<th>General public</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Enough electric outlets</td>
<td>266</td>
<td>72.48</td>
</tr>
<tr>
<td>Enough work center counter space</td>
<td>239</td>
<td>65.30</td>
</tr>
<tr>
<td>Enough convenient storage space</td>
<td>235</td>
<td>65.28</td>
</tr>
<tr>
<td>No traffic path across work triangle</td>
<td>201</td>
<td>56.62</td>
</tr>
</tbody>
</table>

Note. \[n\] varies because "no responses" were omitted from the data. It is speculated that the low number of total responses to these questions was due to interviewer error; apparently some interviewers thought these questions applied only to respondents who had remodeled (as did the previous question in the instrument).
Efficient Kitchen Design

In terms of their family needs, over 60% of the respondents said their kitchens had enough electric outlets, counter space for food preparation between the sink and refrigerator (work center), and convenient storage space (see Table 15). However, fewer (near 57% of the Extension audience and 44% of the general public) had kitchen arrangements which avoided a major family traffic path across the work triangle.

The data also revealed that most respondents, and particularly those of the Extension audience group, were familiar with the meaning of the concept "kitchen work triangle". That is, only 6.2% of the Extension audience and 16.5% of the general public did not understand the term, "work triangle".

Home Maintenance and Repair

Preventive Maintenance Inspections

Table 16 reveals that in the two years prior to their interviews, approximately three-fourths of the respondents had their air conditioners inspected to find needed maintenance or repairs. The water heater was the next most commonly inspected item, followed by the drainage of rain away from the house.

Table 16

Adoption of Home Maintenance Inspection Practices

<table>
<thead>
<tr>
<th>Features</th>
<th>Extension audience</th>
<th>General public</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Air conditioner</td>
<td>304</td>
<td>78.55</td>
</tr>
<tr>
<td>Water heater</td>
<td>280</td>
<td>70.35</td>
</tr>
<tr>
<td>Drainage</td>
<td>227</td>
<td>61.68</td>
</tr>
<tr>
<td>Attic</td>
<td>207</td>
<td>55.95</td>
</tr>
<tr>
<td>Chimney</td>
<td>92</td>
<td>49.73</td>
</tr>
</tbody>
</table>

Note. Inspections were conducted within the last two years. n varies since not all homes contain each of these components and "no responses" were omitted from the data.
Half the Extension audience and over 60% of the general public (who owned a chimney) had neglected to have their chimneys inspected. Inspection of the attic also was neglected by half the general public and over 44% of the Extension audience.

Table 17
Home Repairs Completed During the Previous Three Years

<table>
<thead>
<tr>
<th>Type of repair</th>
<th>Extension Audience</th>
<th>General Public</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Repairs</td>
<td>People</td>
</tr>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Repaired toilet or faucet</td>
<td>557</td>
<td>70.50</td>
</tr>
<tr>
<td>Removed mildew from siding</td>
<td>331</td>
<td>46.25</td>
</tr>
<tr>
<td>Replaced electric fixture</td>
<td>369</td>
<td>45.24</td>
</tr>
<tr>
<td>Painted room (interior walls)</td>
<td>389</td>
<td>43.26</td>
</tr>
<tr>
<td>Replaced screening</td>
<td>352</td>
<td>33.42</td>
</tr>
<tr>
<td>Replaced broken window glass</td>
<td>150</td>
<td>22.51</td>
</tr>
<tr>
<td>Repaired hole in wall</td>
<td>63</td>
<td>9.59</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>2211</td>
<td></td>
</tr>
</tbody>
</table>

aN = 424. bN = 392

Do-It-Yourself Home Repairs

Of the do-it-yourself home repair jobs listed in Table 17, the type completed by the greatest proportion of respondents or their families (over 70% of the Extension audience and 64% of the general public) within the three years prior to the interviews was toilet or faucet repair. Between 47% and 33% (in descending order) had removed mildew from the siding of their homes; replaced an electric switch, outlet or light fixture; painted all the inside walls of a room; or replaced the screening in a window or door. Near 22% had repaired a broken window; under 10% had repaired a wall.
Table 17 also shows that the total number of repair jobs completed by the Extension audience was 2,211. The general public completed 1,724 repairs. Based upon the quoted rates (in 1984) of local professional repairmen for each type of repair job, it was conservatively estimated that the Extension audience sample saved over $80,000 and the general public sample saved over $62,000 by doing their own repairs.

Evidence of Program Impact

The statistical tests of each of the eight housing topics compared the housing practices (scores or values) of the general public respondents to that of the relevant Extension topic audience (i.e. the subset of the total Extension housing audience sample who had "received help or information" from Extension on the pertinent housing topic). While Extension provided "help and information" on all the included topics in response to local needs, the state level emphases from 1981 to 1984 were energy conservation, home maintenance/repair and kitchen design. Following are the results of the statistical tests (see Table 18) and an account of topic audience sizes and levels of participation (see Tables 19-24).

Home Selection

Table 18 shows that there was a significant difference between the adjusted mean "home selection" scores of the topic audience and the general public. The adjusted mean score of the audience was 15.93 out of a possible 20; the general public's adjusted mean score was 13.64.

However, less than 20% of the entire Extension audience had received help or information in home selection guidelines. Of these, over 91% had received publications or "handouts" on the topic; more than three-fourths had personal contact with an Extension agent; almost as many had attended a meeting, demonstration or workshop; and, over half had read an Extension newspaper article (see Table 19).
Table 18

Comparison of Mean Housing Topic Scores of the Extension Topic Audiences vs. the General Public

<table>
<thead>
<tr>
<th>Topic (score)</th>
<th>Extension topic audience</th>
<th>General public</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>m</td>
</tr>
<tr>
<td>Home selection (20)</td>
<td>75</td>
<td>17.71</td>
</tr>
<tr>
<td>Home finance (5)</td>
<td>44</td>
<td>3.57</td>
</tr>
<tr>
<td>Space-efficient design (30)</td>
<td>182</td>
<td>16.27</td>
</tr>
<tr>
<td>Energy-efficient design (40)</td>
<td>172</td>
<td>15.49</td>
</tr>
<tr>
<td>Energy cost</td>
<td>165</td>
<td>175.77</td>
</tr>
<tr>
<td>Building &amp; remodeling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contracting (15)</td>
<td>46</td>
<td>11.20</td>
</tr>
<tr>
<td>Cost-Cutting (10)</td>
<td>81</td>
<td>5.07</td>
</tr>
<tr>
<td>Value analysis (5)</td>
<td>68</td>
<td>2.84</td>
</tr>
<tr>
<td>Kitchen design (15)</td>
<td>87</td>
<td>11.44</td>
</tr>
<tr>
<td>Home maintenance (25)</td>
<td>172</td>
<td>14.97</td>
</tr>
<tr>
<td>Home repairs</td>
<td>176</td>
<td>6.60</td>
</tr>
</tbody>
</table>

* p ≤ .05

Note. "Housing topic scores" refers not only to the point system scores, but also to the analyzed interval data—number of repairs made and energy cost (highest summer utility bill). m = actual means; m'/SE = adjusted means and standard errors derived from analysis of covariance (covariates were household and housing characteristics).
Table 19

Level of Participation by "Home Selection" Topic Audience

<table>
<thead>
<tr>
<th>Type of educational contact</th>
<th>No.</th>
<th>%a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visits with an agent (in person or by phone)</td>
<td>64</td>
<td>76.19</td>
</tr>
<tr>
<td>Demonstrations, workshops or meetings</td>
<td>60</td>
<td>71.43</td>
</tr>
<tr>
<td>Publications or &quot;handouts&quot;</td>
<td>77</td>
<td>91.67</td>
</tr>
<tr>
<td>Extension newspaper articles</td>
<td>47</td>
<td>55.95</td>
</tr>
</tbody>
</table>

a n = 84 (19.81% of total Extension audience sample).

Home Finance

There was a significant difference between the adjusted mean "home finance" scores of the topic audience and the general public. The adjusted mean score of the audience was 3.54 out of a possible 5; the general public's adjusted mean score was 1.99 (see Table 18).

However, less than 13% of the entire Extension audience had received help or information in the area of home finance. Within this topic audience, nearly three-fourths had received publications or "handouts" on the topic. Slightly fewer had personal contact with an Extension agent; attended a meeting, demonstration or workshop; and read an Extension newspaper article (see Table 20).

Table 20

Level of Participation by "Home Finance" Topic Audience

<table>
<thead>
<tr>
<th>Type of educational contact</th>
<th>No.</th>
<th>%a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visits with an agent (in person or by phone)</td>
<td>34</td>
<td>64.16</td>
</tr>
<tr>
<td>Demonstrations, workshops or meetings</td>
<td>33</td>
<td>62.27</td>
</tr>
<tr>
<td>Publications or &quot;handouts&quot;</td>
<td>38</td>
<td>71.70</td>
</tr>
<tr>
<td>Extension newspaper articles</td>
<td>30</td>
<td>56.61</td>
</tr>
</tbody>
</table>

a n = 53 (12.50% of total Extension audience sample).
Table 21
Level of Participation by "Space-Efficient Design" Topic Audience

| Type of educational contact                        | No. | %  
|---------------------------------------------------|-----|-----
| Visits with an agent (in person or by phone)       | 126 | 57.02  
| Demonstrations, workshops or meetings              | 145 | 65.62  
| Publications or "handouts"                         | 185 | 83.72  
| Extension newspaper articles                       | 84  | 38.01  

\(n = 221\) (52.12% of total Extension audience sample).

Space-Efficient Design

There was not a significant difference between the adjusted mean "space-efficient design" scores of the topic audience and the general public. The audience's adjusted mean score was 16.66 out of a possible 30; the general public's adjusted mean score was 17.04 (see Table 18).

Approximately half of the entire Extension audience had received help or information in the area of space-efficient home planning or storage. Of these, the greatest proportion had received publications or "handouts" on the topic; nearly two-thirds had attended a meeting, demonstration or workshop; fewer had personal contact with an Extension agent; and, a minority had read an Extension newspaper article (see Table 21).

Energy-Efficient Design

The adjusted mean "energy-efficient design" score of the topic audience was significantly greater than that of the general public. The audience's adjusted mean score was 15.34 out of a possible 40; the general public's adjusted mean score was 11.54 (see Table 18). This difference was the most substantial among all the scores.

The adjusted energy cost (derived from recall of the highest utility bill during the previous summer) of the topic audience was not significantly less than that of the general public. The audience's adjusted energy cost was $169.31; the general public's adjusted energy cost was $172.28 (see Table 18).
Half of the entire Extension audience had received help or information in the area of energy-efficient home design. Of these, the greatest proportion had received publications or "handouts" on the topic; over three-fourths had attended a meeting, demonstration or workshop; less than half had personal contact with an agent or read an Extension newspaper article (see Table 22).

Table 22
Level of Participation by "Energy-Efficient Design" Topic Audience

<table>
<thead>
<tr>
<th>Type of educational contact</th>
<th>No.</th>
<th>%a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visits with an agent (in person or by phone)</td>
<td>99</td>
<td>46.70</td>
</tr>
<tr>
<td>Demonstrations, workshops or meetings</td>
<td>169</td>
<td>79.72</td>
</tr>
<tr>
<td>Publications or &quot;handouts&quot;</td>
<td>187</td>
<td>88.21</td>
</tr>
<tr>
<td>Extension newspaper articles</td>
<td>98</td>
<td>46.23</td>
</tr>
</tbody>
</table>

a n = 212 (50.00% of total Extension audience sample).

Building and Remodeling

The "building and remodeling" housing topic included four component sub-topics: contracting (precautions), cost-cutting (construction methods), value analysis (remodeling) and kitchen design. There was a significant difference in all but the contracting adjusted mean scores of the general public versus the "building and remodeling" topic audience (see Table 18). The audience's and general public's adjusted mean scores, respectively, were: 9.73 versus 7.48 out of a possible 15 in contracting, 5.00 versus 2.68 out of 10 in cost-cutting, 2.81 versus 1.93 out of 5 in value analysis and 11.09 versus 9.76 out of 15 in kitchen design.

Less than one-fourth of the entire Extension audience had received help or information in building and remodeling. Of these, nearly 94% had received publications or "handouts" on the topic; almost three-fourths had personal contact with an Extension agent; fewer had attended a meeting, demonstration or workshop; and, less than half had read an Extension newspaper article (see Table 23).
Table 23

Level of Participation by "Building and Remodeling" Topic Audience

<table>
<thead>
<tr>
<th>Type of educational contact</th>
<th>No.</th>
<th>% (^a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visits with an agent (in person or by phone)</td>
<td>70</td>
<td>72.92</td>
</tr>
<tr>
<td>Demonstrations, workshops or meetings</td>
<td>57</td>
<td>59.38</td>
</tr>
<tr>
<td>Publications or &quot;handouts&quot;</td>
<td>90</td>
<td>93.75</td>
</tr>
<tr>
<td>Extension newspaper articles</td>
<td>46</td>
<td>47.92</td>
</tr>
</tbody>
</table>

\(^a\) \(n = 96\) (22.64% of total Extension audience sample).

Table 24

Level of Participation by "Home Maintenance and Repair" Topic Audience

<table>
<thead>
<tr>
<th>Type of educational contact</th>
<th>No.</th>
<th>% (^a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visits with an agent (in person or by phone)</td>
<td>79</td>
<td>36.58</td>
</tr>
<tr>
<td>Demonstrations, workshops or meetings</td>
<td>154</td>
<td>71.30</td>
</tr>
<tr>
<td>Publications or &quot;handouts&quot;</td>
<td>196</td>
<td>90.75</td>
</tr>
<tr>
<td>Extension newspaper articles</td>
<td>64</td>
<td>29.63</td>
</tr>
</tbody>
</table>

\(^a\) \(n = 216\) (50.94% of total Extension audience sample).

Home Maintenance and Repair

Table 18 reveals that the adjusted mean home maintenance score of the topic audience (14.07 out of a possible 25) was significantly greater than that of the general public (12.38). The adjusted mean number of home repairs completed by the audience (6.82) was significantly greater than that of the general public (4.91).

Half of the entire Extension audience had received help or information in the areas of home inspections and do-it-yourself home repairs. Of these, the greatest proportion (over 90%) had received publications or "handouts" on the topic; almost three-fourths had attended a meeting, demonstration or
workshop; far fewer had personal contact with an Extension agent or read an Extension newspaper article (see Table 24).

**Diffusion of Learnings**

Over 60% of the Extension audience had shared what they had "learned about housing from the Extension Service" with others. The number of secondary beneficiaries of Extension housing education efforts totaled 7,031. Thus, for each person reached by direct contact (personal or written) in the Extension housing program, 16.58 more were reached by diffusion from the original audience. (See Table 25)

<table>
<thead>
<tr>
<th>Type of audience</th>
<th>No.</th>
<th>%a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondents who shared learnings</td>
<td>258</td>
<td>60.85</td>
</tr>
<tr>
<td>Secondary beneficiaries of Extension education</td>
<td>7031</td>
<td>1658.25</td>
</tr>
</tbody>
</table>

a N = 424

**Predictors of Housing Practices**

All the regression models of housing practices (housing topic scores) on household characteristics were statistically significant. In each case, household characteristics accounted for under one-fourth of the variance of housing practices. The strongest prediction models ($R^2 > .20$) were those determined for the dependent variables: contracting, home selection, energy-efficient design, and energy cost (see Table 26).
### Table 26

**Multiple Regression Models of Housing Practices on Household Characteristics**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Contracting precautions</th>
<th>Home selection</th>
<th>Energy-efficient design</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$R^2$</td>
<td>$b$</td>
<td>$F$</td>
</tr>
<tr>
<td>Household size</td>
<td>.017</td>
<td>-0.458</td>
<td>2.79</td>
</tr>
<tr>
<td>Age</td>
<td>.044</td>
<td>0.073</td>
<td>5.76*</td>
</tr>
<tr>
<td>Income$^a$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under $25,000</td>
<td>.005</td>
<td>-1.208</td>
<td>5.26*</td>
</tr>
<tr>
<td>$25,000-$35,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Over $35,000</td>
<td>omitted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education$^a$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No diploma</td>
<td>.045</td>
<td>-4.861</td>
<td>12.45*</td>
</tr>
<tr>
<td>H.S. diploma</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade school/</td>
<td>.012</td>
<td>-1.553</td>
<td>2.13</td>
</tr>
<tr>
<td>some college</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College degree</td>
<td>omitted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Location$^a$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Town/city</td>
<td>.034</td>
<td>-2.697</td>
<td>7.41*</td>
</tr>
<tr>
<td>Farm</td>
<td>.073</td>
<td>-5.114</td>
<td>18.73*</td>
</tr>
<tr>
<td>Rural nonfarm</td>
<td>omitted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design status</td>
<td>.059</td>
<td>2.493</td>
<td>24.98*</td>
</tr>
<tr>
<td>Age of dwelling</td>
<td>.003</td>
<td>-0.051</td>
<td>2.46</td>
</tr>
<tr>
<td>Length of residence</td>
<td>.028</td>
<td>-0.060</td>
<td>5.10*</td>
</tr>
<tr>
<td>Size of home</td>
<td>.024</td>
<td>0.001</td>
<td>13.71*</td>
</tr>
</tbody>
</table>

| Model $R^2$ | 0.224 | 0.223 | 0.218 |
| Model $F$   | 6.40* | 25.07*| 21.32*|
| MS error    | 22.085| 30.033| 47.903|
| Intercept   | 10.229| 14.851| 12.348|
| Total df    | 139   | 619   | 619   |

*(table continues)*
<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Energy cost</th>
<th></th>
<th></th>
<th>Home maintenance</th>
<th></th>
<th></th>
<th>Kitchen design</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>R²</td>
<td>b</td>
<td>F</td>
<td>R²</td>
<td>b</td>
<td>F</td>
<td>R²</td>
<td>b</td>
<td>F</td>
</tr>
<tr>
<td>Household size</td>
<td>.116</td>
<td>14.731</td>
<td>43.06*</td>
<td>.024</td>
<td>-0.465</td>
<td>17.49*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under $25,000</td>
<td></td>
<td></td>
<td></td>
<td>.017</td>
<td>-2.550</td>
<td>11.95*</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>$25,000–$35,000</td>
<td>.005</td>
<td>12.971</td>
<td>3.24</td>
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<td></td>
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</tr>
<tr>
<td>Over $35,000</td>
<td>omitted</td>
<td></td>
<td></td>
<td>omitted</td>
<td></td>
<td></td>
<td>omitted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>No diploma</td>
<td>.002</td>
<td>-10.793</td>
<td>1.71</td>
<td>.051</td>
<td>-3.926</td>
<td>20.56*</td>
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</tr>
<tr>
<td>H.S. diploma</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade school/some college</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>College degree</td>
<td>omitted</td>
<td></td>
<td></td>
<td>omitted</td>
<td></td>
<td></td>
<td>omitted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Location</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Town/city</td>
<td>.002</td>
<td>7.143</td>
<td>1.14</td>
<td>.003</td>
<td>-0.904</td>
<td>2.04</td>
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<td></td>
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<tr>
<td>Farm</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Rural nonfarm</td>
<td>omitted</td>
<td></td>
<td></td>
<td>omitted</td>
<td></td>
<td></td>
<td>omitted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design status</td>
<td>.005</td>
<td>15.000</td>
<td>4.51*</td>
<td></td>
<td></td>
<td></td>
<td>.063</td>
<td>1.632</td>
<td>23.32*</td>
</tr>
<tr>
<td>Age of dwelling</td>
<td>.010</td>
<td>-0.386</td>
<td>3.59</td>
<td>.003</td>
<td>-0.015</td>
<td>2.16</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Length of residence</td>
<td></td>
<td></td>
<td></td>
<td>.002</td>
<td>0.028</td>
<td>1.15</td>
<td></td>
<td></td>
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<tr>
<td>Size of home</td>
<td>.077</td>
<td>0.029</td>
<td>40.45*</td>
<td>.115</td>
<td>0.003</td>
<td>28.41*</td>
<td>.037</td>
<td>0.001</td>
<td>32.53*</td>
</tr>
</tbody>
</table>

Model R² 0.216 0.188 0.127
Model F 23.31* 23.71* 20.73*
MS error 6125.892 51.584 14.591
Intercept 68.232 10.024 8.809
Total df 599 516 574

* indicates statistical significance.
<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Remodeling value analysis</th>
<th>Home repairs</th>
<th>Home finance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>R²</td>
<td>b</td>
<td>F</td>
</tr>
<tr>
<td>Household size</td>
<td>.024</td>
<td>0.629</td>
<td>16.86*</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incomea</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under $25,000</td>
<td>.006</td>
<td>0.504</td>
<td>1.92</td>
</tr>
<tr>
<td>$25,000--$35,000</td>
<td>.006</td>
<td>0.668</td>
<td>3.76</td>
</tr>
<tr>
<td>Over $35,000</td>
<td>omitted</td>
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</tr>
<tr>
<td>Educationa</td>
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</tr>
<tr>
<td>No diploma</td>
<td>.003</td>
<td>-0.822</td>
<td>2.04</td>
</tr>
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<td>H.S. diploma</td>
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</tr>
<tr>
<td>Trade school/some college</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College degree</td>
<td>omitted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Locationa</td>
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<td></td>
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<tr>
<td>Town/city</td>
<td>.014</td>
<td>0.508</td>
<td>4.07*</td>
</tr>
<tr>
<td>Farm</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Rural nonfarm</td>
<td>omitted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design status</td>
<td>.032</td>
<td>-0.717</td>
<td>7.15*</td>
</tr>
<tr>
<td>Age of dwelling</td>
<td>.001</td>
<td>-0.028</td>
<td>15.88*</td>
</tr>
<tr>
<td>Length of residence</td>
<td>.036</td>
<td></td>
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<tr>
<td>Size of home</td>
<td>.013</td>
<td>0.001</td>
<td>8.23*</td>
</tr>
<tr>
<td>Model R²</td>
<td>0.109</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model F</td>
<td>5.41*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS error</td>
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<tr>
<td>Intercept</td>
<td>1.548</td>
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<td></td>
</tr>
<tr>
<td>Total df</td>
<td>271</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(table continues)
<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Cost-cutting construction</th>
<th>Space-efficient design</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$R^2$</td>
<td>$b$</td>
</tr>
<tr>
<td>Household size</td>
<td>.018</td>
<td>0.479</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income$^a$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under $25,000</td>
<td>.009</td>
<td>1.320</td>
</tr>
<tr>
<td>$25,000–$35,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Over $35,000</td>
<td>omitted</td>
<td></td>
</tr>
<tr>
<td>Education$^a$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No diploma</td>
<td>.006</td>
<td>-0.771</td>
</tr>
<tr>
<td>H.S. diploma</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade school/some college</td>
<td>.003</td>
<td>0.893</td>
</tr>
<tr>
<td>College degree</td>
<td>omitted</td>
<td></td>
</tr>
<tr>
<td>Location$^a$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Town/city</td>
<td>.002</td>
<td>-0.591</td>
</tr>
<tr>
<td>Farm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural nonfarm</td>
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<td></td>
</tr>
<tr>
<td>Design status</td>
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<tr>
<td>Age of dwelling</td>
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<tr>
<td>Length of residence</td>
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<td>-0.024</td>
</tr>
<tr>
<td>Size of home</td>
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<td>0.001</td>
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<tr>
<td>Model $R^2$</td>
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<tr>
<td>Model F</td>
<td>4.69*</td>
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<tr>
<td>MS error</td>
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</tr>
<tr>
<td>Intercept</td>
<td>2.386</td>
<td></td>
</tr>
<tr>
<td>Total df</td>
<td>384</td>
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</tr>
</tbody>
</table>

**Note.** Results of stepwise multiple regression analysis. $R^2$ = addition to model $R^2$. $b$ = partial regression coefficient. MS = mean square.

(table notes continue)
Analysis used dummy variables; coefficients represent deviations of each indicated category from omitted base category. \(^\text{a}\) Age of home variable added .0512 to \(R^2\) in step 2, was replaced by design status in step 3 adding .0004 to \(R^2\), then was reentered in step 4 adding .022 to \(R^2\). The design status value shown (.052 \(R^2\)) is the rounded sum of .0512 and .0004. \(^\text{c}\) Town/city variable added .022 to \(R^2\) in step 2, was replaced by design status in step 3 adding .010 to \(R^2\), then was reentered in step 4 adding .014 to \(R^2\). The design status value shown (.032 \(R^2\)) is the sum of .022 and .010. \(^\text{d}\) Length of residence variable was entered in step 1, but replaced by age of dwelling in step 3.

\(p \leq .05\)

**Contracting Precautions Model**

The practice of including precautionary cost control clauses in building or remodeling contracts yielded the most substantial prediction model of this study. Household characteristics predicted nearly a fourth of the variance in the contracting scores. These characteristics included: location of residence, educational level of respondent, age of respondent, and household size. However, household size was not a significant predictor even though it contributed to the model without increasing error (see Table 26).

Those who lived on a farm had a much lower probability of using contracting precautions than rural nonfarm homeowners. Urban dwellers were also less likely to use such precautions than nonfarm rural residents.

Predictably, those who had not completed high school were less likely to have taken contracting precautions than college graduates. In addition, contracting scores tended to improve with advancing age.

**Home Selection Model**

Nearly equal in \(R^2\) to the contracting precautions model was the home selection model. Education, design status, size of home, household size, income, length of residence and age of dwelling were the model's component independent variables. Each of these variables, except age of dwelling, was statistically significant (see Table 26).

The strongest positive regression showed that those with custom built homes were most likely to have higher home selection scores—reflecting satisfaction with their housing choice and adoption of prepurchase home
inspection practices. There was also a positive relationship between home size and home selection scores.

Conversely, those who had not completed high school were most likely to have low home selection scores. Larger households, the lowest income group (under $25,000) and those who had lived in the same home for many years were also more likely to have lower home selection scores.

**Energy-Efficient Design Model**

Size of home, age of dwelling, design status, income, education, household size and location accounted for slightly over one-fifth of the variance in adoption of energy-efficient housing features. All but the last two variables were significant predictors (see Table 26).

Consistent with previous research findings on indicators of conservation behavior: home size had a strong positive relationship with energy-efficient design; higher income households were more likely to adopt energy-efficient features than lower income households; and, those who lacked a high school diploma were less likely to possess energy-efficient homes. As expected, this study also found that custom designed homes were more likely to contain recommended features.

Contrary to previous findings were the relationships of age of home and household size to adoption of energy-saving home features. However, since the previous research examined "conservation actions" rather than strictly warm climate energy-efficient housing features, it was not surprising that this study found older homes less likely to contain these features than newer homes. Household size was not a significant predictor in this model.

**Energy Cost Model**

The remaining model of this study which predicted over 20% of a dependent variable's variance was the energy cost model. The "highest summer utility bills" for 1983 were predicted by the combined regression of household size, size of dwelling, design status, age of dwelling, income, education and location. However, only the first three of these household characteristics were significant predictors in the model (see Table 26).

As expected, the most important predictors were household size and home size; as they increased, so did the energy cost. Also, custom built homes were more likely to have higher energy bills. This appears
contradictory to the higher energy-efficient design scores of custom built homes, but is understandable when considering that this study did not account for conservation behaviors (such as thermostat settings, lifestyle, etc.) or the presence of energy intensive features common in custom designed homes (such as larger window areas, more appliances, etc.).

**Home Maintenance Model**

Less than a fourth of the variance of the home maintenance scores was attributable to home size, education, income, location and length of residence. Most of that effect was due to size of dwelling, education and income which were the only significant predictors (see Table 26).

As home size increased, so did the practice of conducting various preventive maintenance inspections. Those without a high school diploma and with annual incomes under $25,000 were more likely to neglect preventive maintenance inspections.

**Kitchen Design Model**

Size of home, design status, household size and age of dwelling accounted for 12.7% of the variance in kitchen design scores. Age of dwelling was not statistically significant in the model (see Table 26).

Perceived adequacy of four given aspects of their kitchens was more likely as the size of the home increased and for owners of custom designed homes. Smaller households were more likely to have higher kitchen design scores than larger households.

**Remodeling Value Analysis Model**

Predicting slightly less than 11% of the variance of the value analysis scores was the combination of age of dwelling, size of home, design status, location and income. However the income dummy variables were not significant in the model (see Table 26).

Owners of newer homes and custom designed homes were less likely to investigate how remodeling would affect the market value of their homes than owners of older homes and homes that were not custom built. On the other hand, owners of larger homes and those who resided in a town or city were more likely to analyze potential effects on value before remodeling.
Home Repairs Model

Age of dwelling, household size, income, education, design status and size of dwelling together explained less than eight percent of the variance in the number of do-it-yourself home repairs completed in the last three years. Only the first three predictors listed were significant contributors to the model (see Table 26).

As might be expected, number of home repairs increased with age of home. Likewise, repairs were more numerous for larger households. However, the lowest income group was somewhat less likely to make do-it-yourself repairs than the highest income group. While it seems this group would have the greatest need for such a practice, that tendency has frequently been informally observed by educators and home product dealers.

Home Finance Model

Homeowners' perceived levels of understanding of home mortgage alternatives was meagerly predicted by household characteristics ($R^2 = .051$). The prediction model consisted of the variables: income, length of residence, size of dwelling, household size, education and location. Only income and length of residence were significant predictors in the model (see Table 26).

The lowest income group (under $25,000) was less likely to understand home finance than the highest income category (over $35,000). Length of residence also had a negative relationship with understanding of home finance.

Cost-Cutting Construction Model

The cost-cutting construction model contained four predictors and explained little of the score variance (4.7%). The sole significant predictor was size of dwelling (see Table 26). Owners of larger homes had a greater probability of utilizing cost-saving construction techniques and modular planning.

Space-Efficient Design Model

The weakest prediction model of this study was the combination of five household characteristics which accounted for approximately four percent of the variance in the space-efficient design scores. These scores reflected the presence of space-efficient design features in owners' homes. The household characteristics in the model included: household size, income, age of
dwellings, education and location. However, education and location were not significant predictors in the model (see Table 26).

Larger households and low income households were more likely to have space-efficient homes. Newer homes were less likely to be space-efficient than older homes.
CHAPTER V

SUMMARY

Description of the Study

The objectives of this study were to:

1. Determine the housing practices of the LCES housing audience and of the general public (for use in program planning).
2. Determine if significant differences existed between the housing topic scores (housing practices) of the general public and the Extension housing audiences (for accountability and impact assessment).
3. Determine if household and housing characteristics (income level, age, household size, education, location, age of home, size of home, length of residence and design status) are significant predictors of housing practices.

The research procedure utilized a "comparison group" design in order to identify Extension's contribution to outcomes. Data were collected in 1984 from matched samples of two populations—the Extension housing audience and the general public.

The "audience" (test) population consisted of all Louisiana homeowners who had participated in at least one Extension housing program during the previous three years. The "general public" (comparison) population consisted of Louisiana homeowners who had not participated in Extension housing programs.

A sampling procedure was utilized whereas the total sample number was divided among the number of applicable agents in 21 randomly selected parishes, then the samples were randomly drawn from each selected parish. The comparison sample selection controlled for sex and geographic location (home town) of residence to match these characteristics of the test samples.

Two almost identical interview schedules were developed for this study—one for the Extension housing audience and one for the general public. The matching questions in the interview schedules were derived from the objectives of the Extension housing program of work and the corresponding program content. Most of these questions were structured to obtain nonsubjective information about the respondents' homes and
practices. None of the items assessed attitudes, intentions or aptitudes. This was done to produce inherent instrument reliability and to provide evidence of "practice adoption" as a high level indicator of program impact.

Data were collected from the samples by means of telephone interviews conducted by the Extension Home Economists who work with adult audiences. The number of usable Extension audience interview schedules was 424 (97.5% of the sample). The number of usable general public interview schedules was 392 (90.1% of the sample).

To facilitate statistical analysis and inter-group comparisons, a weighted point system was developed to convert and summate question responses into "topic scores". In other words, points were accumulated for each practice adopted according to its relative value or importance within a topic. The sum of these points produced the sample's score for that topic. These topic scores were not intended to represent the scope or degree of learning about a topic in individuals, but to provide a basis for comparison of the difference between those who had and had not been exposed to Extension programs on each topic.

Descriptive statistics were determined for all questions. Analysis of covariance was used at the .05 level to determine if significant differences existed between the adjusted mean housing topic scores, home repairs and energy costs of the general public versus the Extension topic audiences. Stepwise multiple regression was used at the .05 level to develop models of the household characteristics (the independent variables) which predicted the housing topic scores, number of home repairs and energy costs.

Results

Respondent Profile

The majority of respondents (both groups) were white, female, middle-aged high school graduates whose incomes did not exceed $35,000. Their small households had lived in the same urban, single-family detached house for over 10 years. Their most frequently expressed housing education needs were energy conservation, home repair, remodeling and home maintenance. Their preferred educational delivery method by far was the free publication, followed by individual contact and group methods (demonstrations and workshops).
Housing Practices

The majority felt their houses lived up to their expectations and had conducted pre-purchase home inspections. However, most felt they did not have an adequate understanding of home finance.

Energy-efficient design features were not prevalent and varied widely in rate of adoption (from 52% to 3%); the most widely adopted features were high efficiency heating/cooling systems and overhangs or awnings; few had properly oriented and shaded windows, adequate ceiling insulation levels or structural air-infiltration barriers. Each space-efficient home design feature was present in roughly half of the homes. The majority had positive judgments of the adequacy of most aspects of their kitchens.

Most of those who had recently hired a contractor included at least one of three given cost-control precautions in their written contract, but not all three. Less than a third of respondents had used any cost-cutting construction methods. Nearly half had given no consideration to how remodeling would affect the market value of their homes before proceeding with the job.

Home maintenance inspection practices varied. About three-fourths of the respondents had their air conditioners inspected; over 60% also had inspected their water heaters. However, chimneys were neglected by over half and attic inspections were neglected by close to half of respondents. Roughly two-thirds had made "do-it-yourself" plumbing repairs in the preceding three years; less than half had completed other types of home repairs in that time span. The total count of repair jobs completed in three years was 2,211 by the Extension audience and 1,724 by the general public.

Extension's Impact

The Extension topic audiences had significantly greater adjusted scores/values than the general public in the following housing topics: home selection, home finance, energy-efficient design, cost-cutting construction methods, remodeling value analysis, kitchen design, home maintenance and home repairs. Differences were not statistically significant for space-efficient design, energy cost and contracting precautions.
Over 60% of the Extension housing audience had shared what they learned with 7,031 others. For each person reached by Extension, 16.58 more benefited by diffusion from the original audience.

**Prediction Models**

In all cases, household characteristics accounted for less than a fourth of the variance in housing practices (housing topic scores/values). The strongest prediction models ($R^2 > .20$) found were for contracting precautions, home selection, energy-efficient design and energy cost.

**CONCLUSIONS**

The conclusions of this study are listed below. They are grouped according to the objective to which each refers.

**Objective 1**

1. The Louisiana Extension housing audience as a whole had a high adoption rate (over two-thirds of audience) in: home selection, prepurchase home inspections, two out of three contracting precautions, equipment maintenance inspections and do-it-yourself repairs.

2. The Extension audience had not yet reached a high saturation of adoption or knowledge level of: home finance, energy-efficient housing features, space-efficient design features, cost-cutting construction methods, remodeling value analysis, efficient kitchen design and structural preventive maintenance inspections. Adoption rates were particularly low (less than one-third of audience) in: recommended ceiling insulation levels, window shading and orientation, air infiltration barriers, double-pane/storm windows, "special cost-cutting construction methods" (other than modular planning), and "very adequate understanding" of home finance.

3. The general public in Louisiana had a high adoption rate in: home selection, one out of three contracting precautions, and preventive maintenance inspection of their air conditioners.

4. The general public did not have a high saturation of adoption or knowledge level of the remaining housing practices. Adoption rates were particularly low in: "very adequate understanding" of home finance, seven out of nine energy-efficient design features, and cost-cutting construction methods.
Objective 2

1. On a statewide basis, Louisiana Extension housing education efforts prior to 1984 had a positive impact upon the adoption of practices and level of knowledge of participants in all subject matter areas included in this study except space-efficient design and contracting precautions. The most substantial effect was in the adoption of energy-efficient design features, though participants' homes were still not close to recommended standards.

2. The pre-1984 statewide emphases in energy conservation, home maintenance and repair, and kitchen planning all showed positive impact in adoption levels. However, the energy improvements were not sufficient to overcome other energy consuming practices or housing characteristics and produce significantly lower peak summer utility bills.

3. The housing education programs of the Louisiana Extension Service extend far beyond the direct audience. Thus, the ultimate impact may be considerably greater than that determined from the direct audience alone.

Objective 3

While household characteristics were statistically significant predictors of all housing practices included in this study, they generally did not combine to form strong models for predicting adoption of housing features/practices and knowledge level. However, the respective models of household characteristics did provide some noteworthy and useful predictors of contracting practices, home selection practices, adoption of energy-efficient design features, peak summer energy costs (highest utility bill), home maintenance practices and kitchen design features.

a. Farm residents, the under-educated and younger households tend to either neglect or be ignorant of important precautions they should take when contracting to build or remodel.

b. The undereducated tend to neglect prepurchase home inspections and become less satisfied with their home selections than they had expected to be. Owners of custom built homes are generally more satisfied with their homes than those who purchased existing homes.

c. Owners of large and custom designed homes adopt more energy-efficient design features appropriate to the Louisiana climate.

d. Larger houses and households have higher summer utility costs.
e. Owners of large homes and the well educated tend to take preventive maintenance measures.

f. Custom built homes tend to have better designed kitchens.

IMPLICATIONS AND RECOMMENDATIONS

Based upon the findings of this study, objectives of the housing program area and priorities of the Louisiana Cooperative Extension Service, the investigator derived the following implications and recommendations:

1. The greatest educational need, as well as demand, is for energy management programs—particularly in terms of structural components that reduce cooling loads. A major statewide educational program in warm climate energy-efficient housing should be a top priority as it has a great potential for successful impact and substantial economic consequences on all levels (immediate, long-term and societal).

Since the adoption rate of structural energy-efficient features is so low, it may be most effective and efficient to concentrate educational efforts on "early adoptors" who would then facilitate the diffusion process to later adoptors. This means that such programs should initially be targeted toward people planning to custom build large homes and to custom builders who cater to such people, since they are already more likely than others to adopt energy-efficient features.

2. There also appears to be a substantial educational need in the areas of home finance and cost-cutting construction methods. These topics, however, generally are of interest to people only at the "teachable moment" and thus do not create a massive educational demand. Still, informed decisions by borrowers or homeowners in these areas could have major immediate and long term economic consequences. Therefore, home finance and cost-cutting construction methods should be second and third programming priorities in housing, and program delivery methods should be carefully targeted to the appropriate audiences.

a. Home finance education should naturally be directed toward borrowers—of any socioeconomic strata. This group not only includes homebuyers, but also those planning to refinance or obtain home equity loans.
b. Programs on cost-cutting construction methods should outreach to households planning to build as well as to builders and designers (draftsmen) of both custom and speculative homes for any market segment.

3. Educational assistance and programs for home remodelers should concentrate on the previously stated priorities of energy-efficiency, finance and cost-cutting construction methods but also include the "why and how" of conducting a payback market value analysis.

4. Since pre-1984 educational efforts in space-efficient home design were not effective, there is a need for program assessment. The level of agents' expertise and the supply or content of teaching materials should be assessed since inservice training, new educational aids and/or different delivery methods may be needed.

5. It is understandable that there was no Extension impact in contracting precautions. Prior to 1984, Extension had no publications, teaching materials or agent training programs on that topic. Therefore, it is likely that the topic audience who had received Extension help or information on home building or remodeling did not receive any instruction on contracting precautions.

   a. Furthermore, such precautionary practices seem to be substantially related to preexisting factors. In other words, older, college educated, rural nonfarm residents tend to learn about cautious contracting on their own or through other means.

   b. Though a major program effort is not called for, a simple (easy to read) publication should be developed and made accessible to both urban and rural residents. Efforts should be made to make its availability known to young and less educated homeowners and prospective homeowners.

6. Do-it-yourself home repair educational programs should be targeted to reach those outside the ongoing Extension audience.

7. Kitchen design should no longer be a state level program emphasis, but only incorporated into other home planning educational efforts where appropriate or as requested by local clientele.

8. Due to high adoption rates among the respondents, it may be appropriate to eliminate planned educational efforts directed toward homeowners in home selection and equipment maintenance inspections.
However, home selection and maintenance programs may be needed by first-time home buyers.

9. Further study is needed to substantiate the results, conclusions and implications of this research and evaluation, since not all segments of the defined populations were fully represented in the final samples. In particular, renters and those who are not at home during business hours may have different educational needs and adoption levels than people who fit the described sample profile.
BIBLIOGRAPHY


APPENDIX A

Standards for Appraising Studies
Kappa Systems, Inc.

1. The study report contains findings on Extension program impacts (results). Or, the study report contains findings on clientele's sources or ratings of Extension supplied information, if it does not contain findings on impacts of an Extension program.
   - Studies should contain findings within at least one of the following three levels of program impacts:
     (a) learning by Extension program participants (e.g., knowledge, attitude, skill or aspiration change);
     (b) practices or application of learning by program participants; and
     (c) consequences of participants' learning or practices -- economic, social, personal and/or environmental, including benefits, satisfactions, needs or problems.
   - Impact data should be collected from (clientele), not only from Extension staff reports.
   - Clients' or observers' (e.g., 4-Hers' parents) perceptions of impacts are acceptable as well as objectively measured impacts.
   - Studies of clientele's sources or ratings of value of information (including Extension's) may not contain impact findings.

2. The study report adequately describes the Extension program being assessed. That is, the report identifies, e.g.,
   - need or rationale for the program
   - program objectives and how they might be accomplished through program activities
   - Extension's particular programming contribution, in the event that a joint agency program is evaluated.

3. The report expresses the purposes of the evaluative study in relation to:
   - the objectives and structure of program being evaluated
   - rationale for the evaluation--intended importance and utility
   - identification of audiences for whom the evaluation is intended.
4. The study report describes the nature of the "target" population for the program, the extent of clientele participation in the program and the sampling procedure, if any, in obtaining data on program impacts.
   o Representativeness of samples of program participants is described.
   o Sample sizes should be greater than 20 (with the exception of units of analysis other than individuals such as firms, organizations and governmental units).

5. The study report establishes a clear link between client outcomes and Extension program delivery, i.e., the report:
   o shows that the Extension program preceded the client outcome
   o shows that degree of clientele outcomes varies with extent of exposure to or involvement in program delivery
   o addresses explicitly or implicitly the extent to which other influences besides Extension could have accounted for the client outcome (client's self-reported perceptions of degree to which outcomes are due to Extension programs are acceptable).

6. The study report discusses the validity of the measurements or observations of clientele learning, practices and consequences of learning/practices, e.g., the report:
   o shows that the instruments or observation measure variables that are relevant and appropriate
   o shows that the instruments adequately cover the domains of well specified constructs.

7. The study report's findings and conclusions appear to be based on a valid analysis of the data regarding the impacts of the Extension program:
   o logical relationships are established between data sets
   o adequate labelling of tables, charts and graphs
   o clear separation between findings based on data collection and analysis, and general conclusions about the programs' results.

8. The study report provides a comparison if program success or failure is judged, e.g.,
   o program impacts are compared to some established standard or goal, or to impacts of other programs of a similar nature or to absence of a similar program.
APPENDIX B

General Public Interview Schedule
[WRITE IN PENCIL:]

____ Name of Respondent

____ Telephone Number

____ Home Town of Respondent

HOUSING

BENCHMARK STUDY

GENERAL PUBLIC

Respondent # ------ ___ ___ 3-5
Parish Code ----------- ___ 6-7
Card # ------ 1 ___ 8

[PLEASE CIRCLE YOUR PARISH]

1 - Acadia  
2 - Claiborne  
3 - East Baton Rouge  
4 - Franklin  
5 - Grant  
6 - Jefferson Davis  
7 - Rapides  
8 - Red River  
9 - Richland  
10 - St. Bernard  
11 - St. James/St. John  
12 - St. Landry  
13 - St. Martin  
14 - Terrebonne  
15 - Union  
16 - Vermilion  
17 - Vernon  
18 - West Carroll  
19 - West Feliciana  
20 - Winn
**Housing**

**Introduction**

- **If a man or child answers the telephone and you need to interview a woman, say:**
  
  Hello, this is __________ from Louisiana State University and the Cooperative Extension Service. Could I please speak with the lady of the household?

- **When an adult of the appropriate sex answers, say:**

  Hello, Ms./Mr. __________. I am __________ with Louisiana State University and the Cooperative Extension Service. We are doing a statewide survey of homeowners to help us do a better job of planning our educational programs for the public.

1. Ms./Mr. __________, do you own or rent your home? [Circle Ms. or Mr.]

   - **Own**
   - **Rent**

   [If rent, discontinue interview by saying:] We appreciate your time and interest. But since this particular survey is for homeowners, I don't want to take any more of your time. Feel free to call upon Extension for practical information on any phase of home and family living.

   [If own, continue interview.]

   You were selected to be interviewed in a random drawing from the telephone book and your name will not be used in any way in the results. The questions I need to ask you will probably take about 10 minutes.

   [Optional:] And as a token of appreciation for your time, I will send you a booklet which lists the hundreds of free "how-to" leaflets currently available from the Extension Service.

   But first I'd like to say that if you have any questions now or later, I'd be happy to answer them. Okay?

2. Ms./Mr. __________, have you ever attended an educational meeting or program by the Cooperative Extension Service? [Circle Yes or No.]

   - **Yes**
   - **No**

3. Have you ever used any Extension leaflets that deal with any aspect of Home Economics? [Circle Yes or No.]

   - **Yes**
   - **No**

4. Have you ever visited or called an Extension Home Economist? [Circle Yes or No.]

   - **Yes**
   - **No**

5. Have you ever received any help or information from the Extension Service on any aspect of home planning, home selection, energy conservation, home maintenance or home repair? [Circle Yes or No.]

   - **Yes**
   - **No**

   [If "Yes" for question 5, discontinue interview by saying:] Thank you, Ms./Mr. __________. We appreciate your interest and cooperation. And we invite you to call upon Extension for practical information on any phase of home and family living. [If you had offered to send a publication list, get address of respondent now.]

   [If "No" for question 5, continue interview.]
6. Was your home custom designed for you or did you buy a house that was already built or planned?  
   Custom designed---  [1]  
   Already built or planned-------- [2]  

7. Do you live in a single-family house, a condominium or a mobile home?  
   House--------- [1]  
   Condo---------- [2]  
   Mobile Home---- [3]  
   Other---------- [4]  

8. What is the age of your home?  
   ______ years old  

9. How long ago did you move into your home?  
   ______ years ago  

10. How well has the house lived up to the expectations you had for it in fitting the needs of your family? Does it fit your needs as well as, not quite as well or not nearly as well as you had expected?  
   As well as (or better)----- [1]  
   Not quite--------- [2]  
   Not nearly------- [3]  

11. Were the following thoroughly checked out before you closed the deal on your house? First, did someone check out:  
   - The condition of the roof? ------------  
   - The appliances? ----------------------  
   - The land drainage around the house?---  
   - Both the heating and cooling systems?  
   1  2  3  
   Yes, No, Don't Know  
   ______  

12. Today, there are so many new types of home mortgages--such as Adjustable Rate Mortgages, Graduated Payment Mortgages and buydowns. To what extent do you feel you know enough about all the different types to make a good choice? Would you say your level of understanding is:  
   Very adequate,------ [1]  
   Nearly adequate, or [2]  
   Not adequate?------ [3]  

13. What is the approximate square footage of your house? [IF UNSURE, GET ESTIMATE.]  
   ______sq. ft.  

14. Which of the following descriptions more closely describe your house plan? [CHECK #1 OR #2 FOR BOTH a. & b.]  
   a. #1 - the activity rooms (all except bedrooms & baths) are completely enclosed and separate from one another; or  
   #2 - it is an "open plan" with partial walls and combined activity areas.  
   #1-- [1]  
   #2-- [2]  

   Again, which of these two descriptions more closely describe your house?  
   b. #1 - there is a lot of enclosed hall space (has full walls on 3 sides); or,  
   #2 - there is little enclosed hall space (i.e., short or open hallway).  
   #1-- [1]  
   #2-- [2]
15. Does your home have:
   - any rooms which are seldom used?-----------------------------------
   - any "walk-in" closets?---------------------------------------------
   - any multi-purpose rooms, such as:
     - a living-dining room?-----------------------------------------
     - any other multi-purpose rooms?-------------------------------

16. Does your home have enough convenient storage where you need it?
    Yes (enough)------ 1
    Almost ---------- 2
    No (not enough)--- 3

Now think about which sides of your home face mostly north, south, east and west. 
[IF HOUSE DOES NOT FACE SOMEWHAT "NORTH, SOUTH, EAST OR WEST," SKIP QUESTIONS (16-17)]

17. Which side has the most total window area?

18. Which side has the least total window area?

19. We would like to know if your home has:
   - a high efficiency air conditioner or heater?
   - either double-pane windows or permanent storm windows?
   - a 3-foot roof overhang or awning on the south side?
   - reflective windows or solar screens on the west side?
   - any special "air infiltration" barriers built into the structure?
   - a "ridge vent" on the roof?

20. Do you happen to know the R-value of the insulation over your ceiling (in the attic)?
    Less than 19------ 1
    19 - 26--------- 2
    Over 26-------- 3
    Don't know------ 4

21. About what was your highest utility bill last summer? (both electricity and gas)
    $________________ 46-49
22. Have you hired a contractor to build, remodel or do major repairs in the last three years?

Yes-------- 1  
No---------- 2  
Don't Know--- 3  
N/A--------- 4  

(IF YES, ASK:)

a. Did the contract specifically state:

- a guaranteed maximum price?  
- that the last payment was due only after job completion, cleanup and your inspection?

b. Did the contractor show you receipts (or lien waivers) from his suppliers and subcontractors before you paid him in full?

23. We would like to know if you have done any of the following types of remodeling. And for each type that you've done, please tell me how many years ago it was done. First:

<table>
<thead>
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<th>Have Done</th>
<th>99</th>
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<tbody>
<tr>
<td>Yes--------</td>
<td>1</td>
</tr>
<tr>
<td>No----------</td>
<td>2</td>
</tr>
<tr>
<td>Don't Know---</td>
<td>3</td>
</tr>
<tr>
<td>N/A---------</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>years ago</th>
<th>54-55</th>
</tr>
</thead>
<tbody>
<tr>
<td>years ago</td>
<td>56-57</td>
</tr>
<tr>
<td>years ago</td>
<td>58-59</td>
</tr>
<tr>
<td>years ago</td>
<td>60-61</td>
</tr>
</tbody>
</table>

[ASK ONLY IF CUSTOM BUILT HOME OR ADDED-ON TO HOME]

24. a. When you last custom built or added-on to your home, were the spaces planned in multiples of 4 to reduce waste of materials? In other words, is everything either 4, 8, 12, 16 or 20 feet long?

- Yes-------- 1  
- Partly------ 2  
- No--------- 3  
- Don't Know--- 4  

b. Were any other special cost-cutting construction methods (such as 24 inch on center framing or pre-fabricated wall panels, etc.) used?

- Yes-------- 1  
- No--------- 2  
- Don't Know--- 3  

[ASK ONLY IF REMODELED HOME]

25. Before remodeling, to what extent had you looked into how the remodeling would affect the market value of your home? Would you say that it was considered:

- Thoroughly------ 1  
- Somewhat, or----- 2  
- Not at All?------- 3  

Now, please think about your kitchen.

26. Does a major family traffic path cross your kitchen's work triangle?

- Yes-------- 1  
- No--------- 2  
- Don't Know--- 3  

27. With your family needs in mind, does your kitchen have enough:

- electric outlets?
- counter space for food preparation between the sink and refrigerator?
- convenient storage space?

[ASK ONLY IF BUILT OR REMODELED HOME]

28. In the last two years, which of the following have been inspected (by either you or someone else) to find needed maintenance or repairs?

- the attic?
- the chimney?
- the water heater?
- the air conditioner?
- the drainage of rain away from the house?

29. How many times in the last three years have you or a family member personally:

[WRITE "0" WHEN NOT APPLICABLE OR UNKNOWN]

- replaced the screening in a window or door?
- replaced a broken window glass?
- replaced an electric switch, outlet or light fixture?
- repaired a hole in the wall?
- repaired a toilet or leaking faucet?
- painted all the inside walls of a room?
- removed all mildew from the siding (outside walls)?

Well, we are almost finished. Now, I just need some information about your household so your answers can be properly categorized.

30. How many people live in your home?

31. Do you live:

In a town or city--- 1
On a farm, or------- 2
In the country, but not on a farm----- 3
32. What are the highest grades or levels of education that you and any co-owner of your home have had the opportunity to complete?

<table>
<thead>
<tr>
<th>Respondent's Education</th>
<th>Co-owner's Education</th>
</tr>
</thead>
</table>

33. What age were you on your last birthday?

<table>
<thead>
<tr>
<th>Age in Years</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>36-37</td>
<td>___</td>
</tr>
</tbody>
</table>

34. Would you say that your annual family income is:

<table>
<thead>
<tr>
<th>Income Level</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under $25,000</td>
<td>1</td>
</tr>
<tr>
<td>Between $25,000 and $35,000</td>
<td>2</td>
</tr>
<tr>
<td>Over $35,000</td>
<td>3</td>
</tr>
</tbody>
</table>

35. What is your race?

<table>
<thead>
<tr>
<th>Race</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>1</td>
</tr>
<tr>
<td>Black</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
</tr>
</tbody>
</table>

36. With your needs in mind, what housing related information or skills-training would be most useful to you? [RECORD TOPIC]

37. How would you prefer this information to be made available? Please tell me your first and second choices from the following. [WRITE "1" FOR FIRST CHOICE AND "2" FOR SECOND CHOICE.]

<table>
<thead>
<tr>
<th>Method of Availability</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>In a free publication</td>
<td>1</td>
</tr>
<tr>
<td>In a live demonstration</td>
<td>2</td>
</tr>
<tr>
<td>In a workshop</td>
<td>3</td>
</tr>
<tr>
<td>In a correspondence course</td>
<td>4</td>
</tr>
<tr>
<td>In newspaper articles</td>
<td>5</td>
</tr>
<tr>
<td>In a &quot;loan-out&quot; kit</td>
<td>6</td>
</tr>
<tr>
<td>In a one-to-one visit with an agent</td>
<td>7</td>
</tr>
<tr>
<td>Other</td>
<td>8</td>
</tr>
</tbody>
</table>

This is the end of the interview. Is there anything you'd like to ask? Thank you, Mr./Ms. _______. You have been very helpful in our study. Please remember, we in Extension are very anxious to be of help to you. Please call us anytime for information on any aspect of home and family living, horticulture or agriculture.

[IF YOU OFFERED TO SEND A PUBLICATION LIST, GET MAILING ADDRESS NOW.]
APPENDIX C

Extension Audience Interview Schedule
and
Point Values of Responses
[WRITE IN PENCIL:]

________________________________________
Name of Respondent

________________________________________
Telephone Number

________________________________________
Home Town of Respondent

HOUSING

BENCHMARK STUDY

EXTENSION AUDIENCE

Respondent # ----- 1
Parish Code -------- 2
Card # -----3

[PLEASE CIRCLE YOUR PARISH]

1 - Acadia
2 - Claiborne
3 - East Baton Rouge
4 - Franklin
5 - Grant
6 - Jefferson Davis
7 - Rapides
8 - Red River
9 - Richland
10 - St. Bernard
11 - St. James/St. John
12 - St. Landry
13 - St. Martin
14 - Terrebonne
15 - Union
16 - Vermilion
17 - Vernon
18 - West Carroll
19 - West Feliciana
20 - Winn
Hello, ______ This is (of the Cooperative Extension Service). The Extension Service is doing a statewide survey of homeowners to help us do a better job of planning our educational programs.

1. Ms./Mr. ________, do you own or rent your home? [CIRCLE MS. OR MR.]
   Own-------------------
   Rent------------------

[IF RENT, DISCONTINUE INTERVIEW BY SAYING:] We appreciate your time and interest. But since this particular survey is for homeowners, I don’t want to take any more of your time. Feel free to call upon Extension for practical information on any phase of home and family living.

[IF OWN, CONTINUE INTERVIEW.]

Ms./Mr. ________________, you were selected to be interviewed in a random drawing and your name will not be used in any way in the results. The questions I need to ask you will probably take about 10 to 15 minutes. But first I’d like to say that if you have any questions now or later, I’d be happy to answer them. Okay?

2. Was your home custom designed for you or did you buy a house that was already built or planned?

3. Do you live in a single-family house, a condominium or a mobile home?

4. What is the age of your home?

5. How long ago did you move into your home?

Please think back to the time just before you bought or built your home.

6. How well has the house lived up to the expectations you had for it in fitting the needs of your family? Does it fit your needs as well as, not quite as well or not nearly as well as you had expected?

7. Were the following thoroughly checked out before you closed the deal on your house? First, did someone check out:

   - The condition of the roof? ---------------
     1 Yes 2 No 3 Don't Know

   - The appliances?------------------------
     3 0 0

   - The land drainage around the house?-----
     4 0 0

   - Both the heating and cooling systems?----
     4 0 0

   - 1
   - 12
   - 11
   - 10
   - 9
   - 8
   - 7
   - 6
   - 5
   - 4
   - 3
   - 2
   - 1
8. Had you or a family member received help or information from the Extension Service on home selection guidelines? (before this house)  
   [IF YES, ASK:] From which of the following sources did you receive that information?  
   - Extension publications (or handouts)?  
   - Extension demonstrations, workshops or meetings?  
   - Extension newspaper articles?  
   - Visits with an agent (in person or by phone)?  
   
<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9. Today, there are so many new types of home mortgages--such as Adjustable Rate Mortgages, Graduated Payment Mortgages and buydowns. To what extent do you feel you know enough about all the different types to make a good choice? Would you say your level of understanding is:  

<p>| | | |</p>
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<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Very adequate</td>
<td>Nearly adequate, or</td>
<td>Not adequate</td>
</tr>
</tbody>
</table>

10. Have you or a family member received information from the Extension Service on home finance?  
   [IF YES, ASK:] From which of the following sources did you receive that information?  
   - Extension publications (or handouts)?  
   - Extension demonstrations, workshops or meetings?  
   - Extension newspaper articles?  
   - Visits with an agent (in person or by phone)?  
   
<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
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</tbody>
</table>

11. What is the approximate square footage of your house? [IF UNSURE, GET ESTIMATE.]

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>sq. ft.</td>
</tr>
</tbody>
</table>

12. Which of the following descriptions more closely describe your house plan?  
   [CHECK #1 OR #2 FOR BOTH a. & b.]

   a. #1 - the activity rooms (all except bedrooms & baths) are completely enclosed and separate from one another; or  
   #2 - it is an "open plan" with partial walls and combined activity areas.  

<p>| | |</p>
<table>
<thead>
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<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>#1</td>
<td>#2</td>
</tr>
</tbody>
</table>

   Again, which of these two descriptions more closely describe your house?  

   b. #1 - there is a lot of enclosed hall space (has full walls on 3 sides); or,  
   #2 - there is little enclosed hall space (i.e., short or open hallway).  

<p>| | |</p>
<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>#1</td>
<td>#2</td>
</tr>
</tbody>
</table>
13. Does your home have:

- any rooms which are seldom used? .......................... 0 6 38
- any "walk-in" closets? ........................................ 0 2 39
- any multi-purpose rooms, such as:
  - a living-dining room? ..................................... 5 0 40
  - any other multi-purpose rooms? ......................... 4 0 41

14. Does your home have enough convenient storage where you need it?

Yes (enough) ------- 5 1 42
Almost .................. 3 2 43
No (not enough) ------- 0 3 44

15. Have you or a family member received help or information from the Extension Service on space-efficient home planning or storage?

Yes------------------ 1 45
No------------------- 2 46

[IF YES, ASK:] From which sources did you receive that information? Was it:

- Extension publications (or handouts)? ................. 47
- Extension demonstrations, workshops or meetings?
- Extension newspaper articles? ......................... 48
- Visits with an agent (in person or by phone)? 

Now think about which sides of your home face mostly north, south, east and west.

[IF HOUSE DOES NOT FACE SOMewhat "NORTH, SOUTH, EAST OR WEST," SKIP QUESTIONS (16-17)]

16. Which side has the most total window area?

North 2 4 1 0 0 48
South 1 2 3 5 0 49

17. Which side has the least total window area?

18. We would like to know if your home has:

- a high efficiency air conditioner or heater? 
  5 0 0 50
- either double-pane windows or permanent storm windows? 
  3 0 0 51
- a 3-foot roof overhang or awning on the south side? 
  5 0 0 52
- reflective windows or solar screens on the west side? 
  4 0 0 4 53
- any special "air infiltration" barriers built into the structure? 
  5 0 0 54
- a "ridge vent" on the roof? 
  2 0 0 55
19. Do you happen to know the R-value of the insulation over your ceiling (in the attic)?

- Less than 19:
  - Yes: 1
  - No: 3
- 19 - 26:
  - Yes: 5
  - No: 2
- Over 26:
  - Yes: 7
  - No: 3
- Don't know:
  - Yes: 0
  - No: 4

20. About what was your highest utility bill last summer? (both electricity and gas)

- $__________

21. Have you or a family member received help or information from the Extension Service on energy-efficient home design?

- Yes: 1
- No: 2

[IF YES, ASK:] From which sources did you receive that information? Was it:

- Extension publications (or handouts)?
  - Yes: 1
  - No: 2

- Extension demonstrations, workshops, or meetings?
  - Yes: 5
  - No: 0

- Extension newspaper articles?
  - Yes: 0
  - No: 0

- Visits with an agent (in person or by phone)?
  - Yes: 5
  - No: 1

22. Have you hired a contractor to build, remodel or do major repairs in the last three years?

- Yes: 1
- No: 2

[IF YES, ASK:] Did the contract specifically state:

- a guaranteed maximum price?
  - Yes: 5
  - No: 0
  - Don't know: 0

- that the last payment was due only after job completion, cleanup and your inspection?
  - Yes: 5
  - No: 0
  - Don't know: 0

- b. Did the contractor show you receipts (or lien waivers) from his suppliers and subcontractors before you paid him in full?

- Yes: 1
- No: 2
- Don't know: 0

23. We would like to know if you have done any of the following types of remodeling. And for each type that you've done, please tell me how many years ago it was done. First:

- Kitchen remodeling?
  - Have Done: years ago
  - Never Done: 70-71

- Convert a garage, porch or attic to a room?
  - Have Done: years ago
  - Never Done: 72-73

- Add on a room?
  - Have Done: years ago
  - Never Done: 74-75

- Any other type of remodeling?
  - Have Done: years ago
  - Never Done: 76-77
24. a. When you last custom built or added-on to your home, were the spaces planned in multiples of 4 to reduce waste of materials? In other words, is everything either 4, 8, 12, 16 or 20 feet long?

   Yes---------  5  1
   Partly------  2  2
   No---------  0  3
   Don't Know-- 0  4  ____  9

   b. Were any other special cost-cutting construction methods (such as 24 inch on center framing or prefabricated wall panels, etc.) used?

   Yes---------  5  1
   No---------  0  2
   Don't Know-- 0  3  ____  10

25. Before remodeling, to what extent had you looked into how the remodeling would affect the market value of your home? Would you say that it was considered:

   Thoroughly--  5  1
   Somewhat, or-- 3  2
   Not at All?--  0  3  ____  11

Now, please think about your kitchen.

26. Does a major family traffic path cross your kitchen's work triangle?

   Yes---------  0  1
   No---------  4  2
   Don't know what a work triangle is-- 0  3  ____  12

27. With your family needs in mind, does your kitchen have enough:

   - electric outlets?

   Yes - 1
   Almost - 2
   No - 3

   (enough)  (not enough)  ____  13

   - counter space for food preparation between the sink and refrigerator?

   4  2  0

   3  2  0  ____  14

   - convenient storage space?

   4  2  0  ____  15

28. Have you or a family member received help or information from the Extension Service on building or remodeling a home?

   Yes--------- 1  ____  16
   No---------  2

[IF YES, ASK:] From which sources did you receive that information? Was it:

   - Extension publications (or handouts)?-- 17
   - Extension demonstrations, workshops or meetings?-- 18
   - Extension newspaper articles?-- 19
   - Visits with an agent (in person or by phone)?-- 20
29. In the last two years, which of the following have been inspected (by either you or someone else) to find needed maintenance or repairs?

<table>
<thead>
<tr>
<th></th>
<th>Inspected</th>
<th>Not Inspected</th>
<th>Don't Know</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>the attic?</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>the chimney?</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>the water heater?</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>the air conditioner?</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>the drainage of rain away from the house?</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

30. How many times in the last three years have you or a family member personally:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Number of Repairs Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>replaced the screening in a window or door?</td>
<td>26-27</td>
</tr>
<tr>
<td>replaced a broken window glass?</td>
<td>28-29</td>
</tr>
<tr>
<td>replaced an electric switch, outlet or light fixture?</td>
<td>30-31</td>
</tr>
<tr>
<td>repaired a hole in the wall?</td>
<td>32-33</td>
</tr>
<tr>
<td>repaired a toilet or leaking faucet?</td>
<td>34-35</td>
</tr>
<tr>
<td>painted all the inside walls of a room?</td>
<td>36-37</td>
</tr>
<tr>
<td>removed all mildew from the siding (outside walls)?</td>
<td>38-39</td>
</tr>
</tbody>
</table>

31. Have you or a family member received help or information from the Extension Service on do-it-yourself home repairs and inspections?

<table>
<thead>
<tr>
<th>Help Received</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

[IF YES, ASK:] From which sources did you receive that information?

<table>
<thead>
<tr>
<th>Source</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extension publications (or handouts)?</td>
<td>41</td>
<td></td>
</tr>
<tr>
<td>Extension demonstrations, workshops or meetings?</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>Extension newspaper articles?</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>Visits with an agent (in person or by phone)?</td>
<td>44</td>
<td></td>
</tr>
</tbody>
</table>

Well, we are almost finished now.

32. Have you passed on anything you've learned about "housing" from the Extension Service to others?

<table>
<thead>
<tr>
<th>Passed On</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

[IF YES, ASK:] About how many people have you shared information with?

<table>
<thead>
<tr>
<th>People Shared</th>
<th>46-48</th>
</tr>
</thead>
</table>
7

Now, I just need some information about your household so your answers can be properly categorized.

33. How many people live in your home? ________ people

34. Do you live:
   - In a town or city--- 1
   - On a farm, or-------- 2
   - In the country, but not on a farm--- 3

35. What are the highest grades or levels of education that you and any co-owner of your home have had the opportunity to complete?

<table>
<thead>
<tr>
<th>Respondent's Education</th>
<th>Co-owner's Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>----------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td></td>
<td>54-55</td>
</tr>
</tbody>
</table>

36. What age were you on your last birthday? ________ years old

37. Would you say that your annual family income is:
   - Under $25,000------ 1
   - Between $25,000 and $35,000, or------ 2
   - Over $35,000-------- 3

38. What is your race?
   - White--------------- 1
   - Black--------------- 2
   - Other-------------- 3

Now, we'd like to offer you the opportunity to tell us what you want or need.

39. With your needs in mind, what housing related information or skills-training would be most useful to you? [RECORD ONE TOPIC]

40. How would you prefer this information to be made available? Please tell me your first and second choices from the following. [WRITE "1" FOR FIRST CHOICE AND "2" FOR SECOND CHOICE.]
   - in a free publication-------- 1
   - in a live demonstration------ 2
   - in a workshop---------------- 3
   - in a correspondence course--- 4
   - in newspaper articles-------- 5
   - in a "loan-out" kit----------- 6
   - in a one-to-one visit with an agent------------------ 7
   - other:______________________ 8

   63

   64

This is the end of the interview. Is there anything you'd like to ask? Thank you, Ms./Mr. _______________. You have been very helpful in our study. Please remember, we in Extension are very anxious to be of help to you. Please call us anytime.
APPENDIX D

Correspondence with Agents
Dear ____________,

This year, we have been directed to conduct statewide "benchmark" studies in Housing, Home Furnishings and Nutrition. These studies will then be repeated in 1988 to reveal the "impact" of our statewide educational programs during that time span (1984-88).

"So what's my role?", you ask? We have randomly assigned each parish to one of the three subject matters so you will work with only one type of questionnaire. Every 1862 agent working with adult audiences will share the surveying load so no one will be overburdened (1890 agents will be doing a separate study).

__________ parish has been randomly selected to participate in the Housing study; and you will personally be responsible for the completion of telephone interviews. Half of your interviews will be of randomly selected people from your Extension audience (the "test" group); the other half will be of randomly selected women from your parish who have not participated in Extension programs (the "control" group).

The questionnaires, samples and instructions will be sent to you in early May. You will have four weeks to complete them. Please mark your calendar and block some time in May for conducting the interviews.

Your samples (both groups of people to be interviewed) will be randomly selected at the state office and their names and phone numbers will be sent to you with the questionnaires. In order to do this, I need a list of the names, home towns and phone numbers of your parish's Housing program audience by March 20. Please use the attached form for this list; add additional pages if necessary.

Your Housing audience list should include only people who:

- attended Extension sponsored Housing programs since 1981 (workshops, demos, presentations);  
- received Housing publications or fact sheets since 1981; or  
- consulted with Extension agents about Housing problems since 1981.

Do not include your newsletter mailing list, unless the newsletter is devoted only to Housing. Include your entire Homemaker club list only if all clubs had at least one Housing program since 1981.

I realize that you probably don't have a record of the names of all the people who fit into the above categories, so just send the names that you have.
For the purposes of this study, "Housing" programs are only those that relate to:
- home selection, planning, remodeling;
- house maintenance, home repair, exterior or structural renovation;
- energy efficient structural design and retrofit (insulation, passive solar, storm windows, attic ventilation, selection of heating/cooling equipment, caulking, etc.);
- home financing; or
- household equipment selection, care (not use).

Do not include programs that relate to home furnishings, interior design (wallpapering, window treatments, etc.) or non-structural energy conserving practices (equipment use and maintenance, window treatments, lifestyle changes, etc).

If you have any questions at all, don't hesitate to call me. It is extremely important that the prescribed procedures be followed precisely. We have to document the methodology and defend the accuracy of our findings. We are counting on you to conscientiously do your part to make this a meaningful study -- one that will be worth the time and effort. Thank you in advance!

Sincerely,

Claudette H. Reichel
Extension Assistant
Housing/Household Equipment

CHP/vy
Attachment
DUE
March 20, 1984
to Claudette Reichel

Parish

Agent

HOUSING PROGRAM AUDIENCE
1981–84

<table>
<thead>
<tr>
<th>Name</th>
<th>Phone Number</th>
<th>Hometown</th>
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</table>

May 18, 1984

Dear

You have a very important part to play in the success of this benchmark survey. To insure that it is a valid study we are asking that before you interview anyone, take some time to read and understand the following attachments:

1. THE SAMPLES
2. DIRECTIONS FOR QUESTIONNAIRES
3. HOW TO ADMINISTER THE SURVEY
4. GUIDELINES FOR CONDUCTING INTERVIEWS
5. THE INTERVIEW SCHEDULES (QUESTIONNAIRES)

Why are we doing this? Along with the new 4-year program planning system is a new National Extension Accountability and Evaluation (A/E) system. There has been mounting pressure from Congress and the Federal General Accounting Office for more "credible" program evaluations. It's a tall order, but it is vital that we do our best to justify continued Extension (local, state and federal) funding.

The findings from these "impact studies" will also be used for internal evaluation of statewide programs -- for us to determine where we are.

Here's the way it will work. We will do the Housing Benchmark Study now. Then, we will repeat the same study (with new people) in 1988 to determine Extension's impact from 1984-1988.

The completed interview schedules should be on your District Agent's desk by June 30.

Sincerely,

Satish Verma
Specialist
Program Development

Claudette Reichel
Extension Assistant
Housing/Household Equipment

SV/CR/vy
Attachments
CC: Dr. Denver T. Loupe Dr. L. L. McCormick Dr. Bruce Flint
    Dr. Bobbie McFatter District Agents Dr. Betty Jane Fairchild
    Peggy Gentry

LOUISIANA COOPERATIVE EXTENSION SERVICE PROVIDES EQUAL OPPORTUNITIES IN PROGRAMS AND EMPLOYMENT LOUISIANA STATE UNIVERSITY AND A & M COLLEGE, LOUISIANA PARISH GOVERNORS BOARD, SOUTHERN UNIVERSITY, AND UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING.
THE SAMPLE
(the people to be interviewed)

A. THE EXTENSION AUDIENCE "TEST" SAMPLE

1. Look at the circled names on the list of your parish's Housing Program audience which was sent to the State Office. These are your Extension Audience "test sample" -- the people who must be called.

The underlined names with an "A" written beside them are the alternates for the test sample. Also notice that the alternates are numbered. They should be listed in that order.

2. Use the attached form(s) to enter the names of the audience test sample (the circled names) and the alternates (A1, A2, A3, etc.) for the audience test sample.

3. If there is more than one agent assigned to this study in your parish, divide up the circled names so each of you has an equal number and your own list.

4. Indicate the sex (M or F) of each name on the test sample list.

B. THE GENERAL PUBLIC "COMPARISON" SAMPLE

1. A typed list of the general public "comparison sample" and the general public alternates is attached. This sample was selected at random from the telephone books of the same towns as the Extension audience sample. Notice that there are two alternates for every sample member, all from the same town.

2. If your parish has two or more agents assigned to this study, there should be the same number of lists attached. You may pool together the comparison sample lists and divide the names among yourselves any way that is most convenient for you.

3. The Extension audience sample and the general public comparison sample must be matched by sex when you call them. In other words, if all Extension audience respondents are women, you must interview only women from the general public sample (i.e. you ask for the "lady of the household"). If your audience respondents included 3 men, you must interview 3 men (no more and no less) from the general public sample.
<table>
<thead>
<tr>
<th>TEST SAMPLE</th>
<th>ALTERNATES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Name</td>
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<td>11.</td>
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<td>15.</td>
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</tbody>
</table>
DIRECTIONS FOR QUESTIONNAIRE

1. Be sure you understand all questions and directions before beginning.

2. Everything typed in caps and brackets are directions to you (the interviewer). They are not to be read aloud to the respondent.

3. All phrases in parentheses are clarifications. Do not read them the first time you read the questions aloud. If the respondent does not understand the question, then read them when you repeat the question.

4. Do not paraphrase or explain questions in your own words. That would negate the comparability of the responses. You may repeat the question in part or in whole, but don't expand on it or provide definitions (until after you have recorded the answer).

5. Underlined words and phrases should be emphasized as you read the questions.

6. Try to sound natural -- like you are talking rather than reading. If you can do that, the respondent will probably be more receptive.

7. Interview the Extension sample first--to build up your confidence and familiarity with the questionnaire--before interviewing the general public.

8. If you offer the general public respondents an Extension publication list or other publication (see questionnaire), be sure to get the person's address at the end of the interview.

9. To indicate the respondent's answers, confine your checkmark to the space inside the appropriate box. Try to keep your marks from "spilling" into another box so we don't make mistakes when coding the answers for computer tabulation.

10. Disregard coding numbers and blanks on the right side of the questionnaires. They should be left blank.

11. Use a pencil to mark the question responses -- at least until you have determined that the respondent is fully qualified for the entire interview. If he/she does not qualify, erase the introduction and cover page and reuse that questionnaire.

12. Any questionnaire that is not filled in from the first through the last page is not considered to be a "completed interview." When an interview is discontinued for any reason, an alternate must be interviewed to replace the discontinued one.

---Contact Claudette Reichel for questions about the Housing questionnaires.

---Contact Dr. Satish Verma for other questions about the study.
HOW TO ADMINISTER THE SURVEY

1. Become thoroughly familiar with both questionnaires -- particularly the introductions and all directions (typed in caps). Practice it on someone. Study the interviewing tips handout (especially parts "B" and "C").

2. Make a list of the names, phone numbers and sex of your Extension Audience test sample. See "The Samples" attachment for "how-to" directions and a form for the list.

3. a. Interview, by phone, the Extension audience test sample first. Be sure to use the gold Extension Audience questionnaire.

   b. If you cannot reach someone on the audience test sample list after three attempts at different times, scratch off that name and interview the first alternate ("A-1") instead.

   c. If anyone: (1) is not a homeowner; (2) refuses to complete the interview; or (3) does not speak English well enough, make a note of it by their name and interview the next alternate instead.

4. Count the number of Extension audience test sample men and women you interviewed.

5. a. Interview, by phone, the general public comparison sample after you know how many men and women you need. (See "The Sample" attachment). Be sure to use the blue general public questionnaire.

   b. You should interview the same proportion of women and men in the comparison sample (the general public) as you interviewed in the test sample (the Extension audience).

   c. Notice that there are two alternates ("A-1" and "A-2") beside each name on the comparison sample list. All three are from the same home town.

   d. If someone on the list: (1) cannot be reached after three attempts at different times; (2) is not a homeowner; (3) refuses to complete the interview; (4) does not speak English well enough; (5) is a single homeowner of the wrong sex or, (6) has ever utilized Extension housing information, then make a note of it and interview "A-1" instead. If "A-1" does not work out, interview "A-2" beside it. If "A-2" falls through also, find another alternate on the list from the same town.

   e. It was suggested that you offer the general public respondents a "free" Extension publication list as: (1) an incentive for completing the interview, and (2) an outreach effort to expand your future audience. This is optional, but highly recommended. You could count these people as educational contacts in your reports and perhaps find new clientele. (See the boxed paragraph in the introduction of the general public questionnaire).

6. When interviewing, do not explain or rephrase the question. If the respondent doesn't understand, just record that as the answer.

7. Do not let any respondents read the questionnaire. You must interview them.

8. Send the completed questionnaires to your District Agent by June 30.
VITA

Claudette Marie Hanks Reichel was born in New Iberia, Louisiana in 1955. She was the 1973 class salutatorian of Mt. Carmel High School in New Iberia. Following high school graduation, she enrolled at the University of Southwestern Louisiana and was awarded several scholarships before completing a Bachelor of Science degree in Home Economics Education in May, 1977. While in undergraduate school, she was a part-time Adult Basic Education instructor employed by the Lafayette parish school board.

In the fall of 1977, she entered the Home and Family Life program of the College of Home Economics at Florida State University and held graduate teaching and research assistantships in the Department of Home Economics Education. The research projects involved the development of instructional modules for Home Economics teachers of adults.

Following the completion of coursework, she was employed as the Bay County 4-H Coordinator, Florida Cooperative Extension Service, from October 1979 to February 1981. During that time, she completed her thesis on the Tallahassee Section 8 public housing program and was awarded a Master of Science degree in Housing (Home and Family Life) from FSU in August, 1980.

Shortly afterwards, she was offered a housing specialist position with the Louisiana Cooperative Extension Service. In March, 1981, she began employment as such on the Baton Rouge campus of Louisiana State University. She is an active member of the American Association of Housing Educators and the College Educators in Household Equipment Association and is an academic member of the National Association of Home Builders.

She was married to Mark Alan Reichel on May 8, 1982. They currently have one child, Natalie Lane Reichel, born December 29, 1985.
DOCTORAL EXAMINATION AND DISSERTATION REPORT

Candidate: Claudette Hanks Reichel

Major Field: Extension Education

Title of Dissertation: Evaluation of the Louisiana Cooperative Extension Service Housing Education Program, and Analysis of Audience and General Public Housing Practices

Approved:

[Signatures]

Major Professor and Chairman
Dean of the Graduate School

EXAMINING COMMITTEE:

[Signatures]

Date of Examination:

October 14, 1987