

UTILIZATION OF USE AND CARE BOOKS OF  
KITCHEN AND LAUNDRY AREA EQUIPMENT

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## CHAPTER I

### INTRODUCTION

"Life expectancy of appliances, like any other mechanical equipment, depends to a large degree upon reasonable maintenance and the type of usage to which it is subjected."<sup>1</sup> The use and care book is the manufacturer's primary method of communication to the consumer concerning the appliance's "reasonable maintenance" and "type of usage." Other possible means of manufacturer-consumer communication are salesmen, magazine and newspaper articles, advertisements, or perhaps store displays. These sources, however, are not always available at the precise time that the homemaker is in need of them.

The following quotations concerning the use and care book are taken from presentations at the 1970 Association of Home Appliance Manufacturers Conference entitled New Horizons: A Short Course in Homemaking Equipment and Techniques: (a) "As dishwashers become essential appliances in the homes, more education as to proper use and care is necessary;"<sup>2</sup> (b) "All washers of all brands will get clothes clean

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<sup>1</sup>Charles Klankin, If It Doesn't Work, Read the Instructions (New York, 1970), p. 64.

<sup>2</sup>Retta Presby, "Dishpan Hands or Pushbutton Fingers," New Horizons: A Short Course in Homemaking Equipment and Techniques (Chicago, 1970), p. 20.



if the manufacturer's instructions are followed;"<sup>3</sup> and (c) "Once you have purchased the refrigerator, be sure to read the manufacturer's instruction book. It will point out all the features and how to make the most of them."<sup>4</sup> Statements, similar to these, relating to other large appliances and their use and care books are also in the proceedings of the conference, thus emphasizing the importance the trade puts upon the instruction booklets.

Today's homemaker has more electric and gas appliances and utensils than her mother or more than perhaps were even on the market when she herself started housekeeping fifteen to thirty years before. In her book, Selection and Care of Electric Equipment, published in 1942, Edna Meshkee listed the following equipment in a chapter entitled "What Equipment Is Most Frequently Purchased for Home Use": iron, washing machine, refrigerator, toaster, vacuum cleaner, and range.<sup>5</sup> By today's standards this list of equipment is indeed limited. One of the major differences between the list of 1942 and a list of equipment in today's kitchen would be the addition of numerous pieces of small electrical equipment: blender, broiler/oven, knife, hand mixer, to name a few.

A second difference would be the addition of large appliances. In their "Industry Trends" Merchandising Week lists the following appliances and their respective percentages showing estimated industry

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<sup>3</sup> Ann Olson and Raymond M. Goodman, "Understanding Your Washer," New Horizons: A Short Course in Homemaking Equipment and Techniques (Chicago, 1970), p. 30.

<sup>4</sup> Virginia Gries, "How to Purchase a Refrigerator to Meet Your Needs," New Horizons: A Short Course in Homemaking Equipment and Techniques (Chicago, 1970), p. 71.

<sup>5</sup> Edna Meshkee, Selection and Care of Electric Equipment (Minneapolis, Minnesota, 1942), p. 5.

shipment of the first eleven months of 1973 as compared to 1972; electric clothes dryers, +13.6%; gas clothes dryers, +.7%; automatic and semi-automatic clothes washers, +10.7%; portable dishwashers, +18.6%; under-counter dishwashers, +15.2%; disposers, +7.9%; chest freezers, +33.3%; upright freezers, +62.8%; electric ranges, +7.5%; gas ranges, -5.0%; and refrigerators, +7.5%.<sup>6</sup> Of these twelve appliances, only four were mentioned in the 1942 list of frequently purchased items.

Not only has the number of appliances and utensils increased, but also the number of convenience features have increased. Examples of such features are ice makers in refrigerators, "burner with a brain" in range tops, "delay-cook-hold" controls in ovens, variety of water levels in clothes washers, different temperatures in clothes dryers, "pots and pans" cycles in dishwashers, sixteen speeds on blenders, broiler unit in electric skillets, knife sharpener in can openers, and the list can continue for as many pieces of household equipment as there are on the market.

Due to this increase of both small equipment and large appliances and their convenience features in today's kitchens and laundry areas and their availability in today's market place, it has become even more important that the homemaker utilizes her use and care book frequently, until she is familiar with "reasonable maintenance" and "type of usage" required for each piece of equipment in her home.

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<sup>6</sup>"Industry Trends," Merchandising Week, CVI (January 14, 1974), p. 74.

## Purposes

The general purpose of this study was to investigate the utilization of the use and care book for kitchen and laundry area large appliances and small equipment by means of a questionnaire. The small electric equipment selected for this study were: blender, portable broiler/oven, can opener, coffeemaker, deep fat fryer, dutch oven, fondue pot, food mixer, hand iron, ice cream freezer, ice crusher, knife, popcorn popper, rotisserie, toaster, and skillet. The large appliances included: clothes dryer, clothes washer, dishwasher, food freezer, garbage disposer, microwave oven, range, and refrigerator.

The specific purposes of this study were to ascertain: 1) the utilization of the use and care book for selected small equipment and large appliances by the homemaker, and 2) the possible factors that influence her utilization of the use and care book. The factors that were to be in the realm of this study were: age of homemaker, education of homemaker, length of ownership of equipment, storage of the use and care book, frequency of use of equipment, reasons for utilization of the use and care book, and readability and understandability of the use and care book.

## Hypotheses

The null hypotheses were:

There will be no significant association between the utilization of the use and care book and the following:

- (1) age of the homemaker,
- (2) education of the homemaker,

- (3) length of time of ownership of the equipment,
- (4) frequency of use of equipment,
- (5) location of storage of the use and care book,
- (6) number of reasons for the use of the use and care book, and
- (7) ease of reading and understanding the use and care book.

### Procedure

The study was of homemakers in two counties in Missouri. The instrument used to collect data was a questionnaire of fixed alternative questions. The questionnaire, designed by the writer, was used to compare certain demographic information and practices of the homemakers in their utilization of the use and care books for related pieces of household equipment.

### Assumptions

This study was planned on the basis of the following assumptions:

1. The sample of homemakers selected for the study was representative of the population of rural homemakers in Lincoln and Pike Counties in the state of Missouri.
2. The participants recorded fairly accurate information since the questionnaire was anonymous.
3. The participants recorded fairly accurate information since the requested information has its source in their activities.

### Limitations

Some of the limitations of the study were:

1. Since the instrument was an anonymous questionnaire, there was no way to remedy the problem if the homemakers did not understand instructions or questions.

2. The conclusion of the study could be valid only for the population from which the sample was taken.

3. Purposive sampling, a non-random type of sampling, was used for the study.

### Terminology Used in Study

The use and care book as defined by VanZante in her textbook, Household Equipment Principles, is: "The instruction book may contain the guarantee or warranty. It also explains proper usage of the appliance. . . . Care and certain minor servicing details may be included."<sup>7</sup> Some of the synonyms for the use and care book are instruction book, owner's manual, service manual, instruction manual, or operating manual.

### Format for Thesis

This chapter contains purposes of the study, the hypotheses to be tested, procedure, assumptions, limitations, and the terminology used in the study. A review of literature is presented in Chapter II. Chapter III contains a description of the method of procedure, which includes: selection of population, selection of sample, development of questionnaire, collection of data, and treatment of data. An analysis

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<sup>7</sup>Helen J. VanZante, Ph.D., Household Equipment Principles (Englewood Cliffs, New Jersey, 1964), p. 16.

of data is given in Chapter IV. Summary, conclusions, and recommendations are presented in Chapter V.

## CHAPTER II

### REVIEW OF LITERATURE

"There are many definitions of 'communication.' One of the broadest defines it as any information-sharing activity."<sup>1</sup> The use and care books made available to the purchaser of household equipment by the manufacturers is, in many instances, the only form of communication between the manufacturer and the consumer.

#### Purpose of the Use and Care Book

"Information-sharing activity" is the primary purpose of the use and care book. Guenther Baumgart, president of the Association of Home Appliance Manufacturers, feels that the consumer should use this instruction book to serve two purposes: (1) as a prepurchase guide to see if the appliance will perform as the consumer intends, and (2) as a post-purchase and post-installation guide to become familiar with the correct operation and care of the equipment.<sup>2</sup> A further need that this type of communication is to meet is " . . . where directions are to be given or where general principles or facts are to be presented to

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<sup>1</sup>Kenneth E. Anderson, Introduction to Communication Theory and Practice (Menlo Park, California, 1972), p. 4.

<sup>2</sup>Guenther Baumgart, "Finding and Using Appliance Information Today," Today's Realities: A Short Course in Homemaking Equipment and Techniques (Chicago, 1972), p. 47.

members of a group who are unequal in attainment, ability, or aptitude."<sup>3</sup>

Instruction books are not limited to the household equipment industry. The Institute of Chemical Engineers have formed a Safety Panel to create an overall guide for those persons dealing with both the operation and maintenance safety of plant producing, handling, and storing of gases.<sup>4</sup> Executive housekeepers and supervisors of building maintenance are provided a guide for the installation, initial treatment, everyday maintenance, and special problems of different floor materials.<sup>5</sup>

In his article "How to Write Better Instruction Manuals," Clarke states

More than any other single document, the instruction manual, if properly prepared, tells the complete 'Story' of the product. It can be the chief instrument for insuring proper performance, reliability, and safety of the product.<sup>6</sup>

#### Content of the Use and Care Book

A brief survey of the use and care books of eleven pieces of household equipment by eight different manufacturers (see Appendix A, page 53) showed that the following items were in the books:

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<sup>3</sup>R. W. Selvidge, Instruction Sheets: How To Write and How To Use Them (Peoria, Illinois, 1926), p. 5.

<sup>4</sup>R. C. Tutton, et al., "Cryogenics Safety Manual--A Guide to Good Practices," Cryogenics, X (1970), p. 368.

<sup>5</sup>"New Manual on 'Floors and Floor Maintenance'," Soap and Chemical Specialties, XLIV (March, 1968), pp. 38, 84.

<sup>6</sup>Emerson Clarke, "How to Write Better Instruction Manuals," Machine Design, XLIII (December 23, 1971), p. 34.



1. table of contents (nine books),
2. labeling of product parts (seven books),
3. use of product (eleven books),
4. care of product (seven books),
5. recipes (seven books),
6. guarantee for product (eleven books),
7. safety in use of product (eight books), and
8. servicing of product (seven books).

In a letter dated February 27, 1974 Kathleen A Meyer, Director of the Home Economics Department of Oster Corporation, stated

When we are compiling a combination recipe-instruction book, we must include the following information:

1. The important safeguards which are required by Underwriter Laboratory.
2. Complete instruction explaining each part of the appliance.
3. A care and cleaning section.
4. Specific instructions, such as assembling the container or mounting the container on the motor base.
5. A 'HOW TO USE' section including various operating 'DO'S AND DON'TS.'
6. The recipes follow the instructions.<sup>7</sup>

Instruction manuals are reviewed for effectiveness and are revised when necessary to communicate new techniques to the consumers.<sup>8</sup>

The correct operating and servicing to minimize machine downtime are of particular interest in industry. In an industrial magazine, Machinery, Joseph H. Harty feels that the following components are necessary for a good instruction manual:

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<sup>7</sup> Correspondence from Kathleen A. Meyer, Oster Corporation (February 27, 1974).

<sup>8</sup> Correspondence from John J. Hamilton, Waring Products Division (March 20, 1974) and Kathleen A. Meyer, Oster Corporation (February 27, 1974).

1. the introduction giving a general description of the product, plus instructions on the use of the manual;
2. a table of contents listing the different sections of the manual and subjects included in each section;
3. the nomenclature of the manual for ease of reading;
4. a list of specifications such as capacity charts and production rates;
5. electrical connections, levelling points and other installation procedures;
6. lubrication points and frequency of service for proper care of equipment;
7. operating procedures including function of controls and how to start machine;
8. adjustment and replacement instructions for proper maintenance;
9. information for ordering parts.<sup>9</sup>

#### Utilization of the Use and Care Book

Communication, to be effective, must have two or more participants --the giver and the receiver. If the purchaser does not use the manufacturer's use and care book, then the process of communication is not completed. In his book about Montgomery Ward, Herndon illustrates the importance of this completed communication process:

The second major cause of complaint is simply not reading the instructions. Lewis, commenting on this, said, 'I defy any woman, certainly my own wife, or for that matter, any man, including myself or even a technician, to get a new range or

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<sup>9</sup>Joseph H. Harty, "Better Service Manuals, Less Downtime," Machinery, LXXII (April, 1966), pp. 114-117.

washer or drier or dishwasher, probably with eight push buttons on it for everything you could possibly think of-- I'll defy that person to remember what every control is for without referring to the instruction book for a long period of time. About a fourth of all our calls are made simply because somebody pushed the wrong button or did something the instruction book said plainly not to do'.<sup>10</sup>

In determining the influence and sources of information that students majoring in home economics would use to help in the selection, use and care of household equipment, Keith found that 96.4 per cent of the total sample used their use and care books. Ninety-five and eight-tenths per cent of the single students used theirs while the engaged and married used their books 97.1 per cent and 96.6 per cent, respectively.<sup>11</sup>

In her study of the use of booklets for automatic washers Tilden found that 31 of 34 women read either parts or all of their manuals prior to the initial use of the washer. After the initial use, 23 of the participants used their manuals occasionally. Nineteen used the manual for aid with specific laundry problems. The women gave as the main reasons for liking to use the manual were use of the stain removal chart, ease of reading, and thorough explanations of information.<sup>12</sup>

Forty-one (37.3%) of 100 respondents read the instruction manual word for word in Anseth's study. A portion of the sample (32.7%) read about the product's parts and glanced over the rest of the information.

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<sup>10</sup> Booton Herndon, Satisfaction Guaranteed: An Unconventional Report To Today's Consumers (New York, 1972), p. 248.

<sup>11</sup> Molly Jane Keith, "Attitudes and Opinions of Selected Home Economics Majors as Related to Household Equipment" (Unpub. M. S. Thesis, Oklahoma State University, 1965).

<sup>12</sup> Betty Jo Tilden, "An Analysis and Use of Instruction Booklets for Automatic Washers" (Unpub. M. S. Thesis, Ohio State University, 1962).

Five and five-tenths per cent did not read any of the manual. Of those reading the manual, 82.8 per cent read about the operation of the equipment, 73.7 per cent referred to the care section, 66.4 per cent consulted the warranty terms, 42.7 per cent referred to what to check before calling the service man, while 46.4 per cent read to see where to send the equipment for repair. Installation and safety information was referred to by 48.2 per cent and 47.3 per cent, respectively.<sup>13</sup>

Forty-six and eight-tenths per cent of the responding consumers in Burley's study reported as having referred to the manual once after operating the machine the first time. Of those referring to the manual, 88.88 per cent had read the safety precautions and 88.76 per cent had read the warranty.<sup>14</sup>

A three year study was conducted at the Oak Ridge National Laboratory (ORNL) in Tennessee relating the use of instructions by research persons versus the general population. The instructions in the study were those given for the proper application of automobile licenses. The findings show that of the general population, over 10 per cent were either unwilling or unable to follow simple instructions. Also, the general population did not improve in the following of instructions in successive years. A final conclusion of the study was:

. . . it would appear that employees at ORNL, because of their higher educational level, training in and/or association with physical sciences, are more willing and better able

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<sup>13</sup>Eva Peterson Anseth, "An Evaluation of Use and Care Booklets as Completed by 110 Montana Residents" (Unpub. M. S. Thesis, Montana State University, 1969).

<sup>14</sup>Linda Ellen Burley, "Assumed vs. Actual Perceptions of Consumers as Related to an Automatic Washer Instruction Book" (Unpub. M. S. Thesis, Iowa State University, 1973).

to follow instructions. Or, alternatively, having been pre-conditioned by years of taking orders from superiors . . . 15  
ORNL employees meekly tow the line of bureaucratic fashion.

To help increase the usage of the use and care instructions, the Electric Appliance Service News suggests placing a decal on equipment that informs the consumer of checkpoints to refer to before calling a serviceperson.<sup>16</sup>

In her study Weber interviewed homemakers for their evaluation of the readability of instruction manuals. Some of the characteristics of good instruction manuals were detailed table of contents; word labels instead of number labels for equipment parts; information in outline, not paragraph, form; sections of manual clearly labeled; instructions in steps; and pictures and diagrams in operation information.<sup>17</sup>

Instructions written in a narrative form crowds information into paragraphs which places a high emphasis on reading and concentration skills. Another difficulty with this form of instruction is that the sequence of information may not be parallel to the sequence of action needed to perform the activity.<sup>18</sup>

Respondents to studies have given favorable responses to manuals. Thirteen and five-tenths per cent in Anseth's study felt that wording of warranty could be improved and 20.9 per cent felt that organization

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<sup>15</sup>W. S. Lyon and H. H. Ross, "Following Instructions: Research People Versus a General Population," ChemTech, IX (1971), pp. 510-511.

<sup>16</sup>"The Consumers' Observation Post," Consumer Bulletin, XLVII (August, 1965), p. 3.

<sup>17</sup>Charles W. Behrens, "How Useful Is Your Instruction Manual?," Appliance Manufacturer, XXII (February, 1974), pp. 66-67.

<sup>18</sup>Richard W. Haney, "The Effect of Instruction Format on Functional Testing Performance," Human Factors, XI (April, 1969), pp. 181-187.

could be improved. A majority (80.1%) felt that the size of printing was acceptable. Over half (61.0%) of the respondents reported that manuals are easy to understand.<sup>19</sup>

Findings of Burley's study were also favorable concerning the use and care book and their ease of use. One-hundred per cent of her sample reported that the books were not too complicated. Easy to locate directions were reported by 96.77 per cent and 55.5 per cent felt that the size of type made reading easy.<sup>20</sup>

Suggestions for improvement of instruction manuals were minimal in Tilden's study. Shorter in length, improvement of design, and more information on use were the main points of desired improvements.<sup>21</sup> Tilden's study is the oldest study of this group, which may account for these findings. Manufacturers are more interested in making their communications to the consumer more readable and, therefore, more usable today than they were ten years ago.<sup>22</sup>

Tilden also found that "Little or no relationship was implied between booklet placement and actual use." A large proportion (66.6%) of her sample that used the manual kept it near the washer.<sup>23</sup> Fifty per cent of the respondents in Anseth's study kept their manuals in a specific place other than with the equipment. Ten per cent did not know the location of their manuals, while 19.6 per cent kept theirs

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<sup>19</sup>Anseth.

<sup>20</sup>Burley.

<sup>21</sup>Tilden.

<sup>22</sup>"Warranties and Consumers: Big Change in the Small Print," Merchandising Week, I (April 28, 1969), p. 16.

<sup>23</sup>Tilden.

near the equipment.<sup>24</sup> Over half (56%) in Burley's study stored their use and care books in the same area as the equipment. Ninety-nine (96.11%) of her respondents stated that they still had the instruction booklets.<sup>25</sup>

#### Sources of Information Other Than the Use and Care Book

There are a number of sources of manufacturer-consumer communication other than the use and care book. The service person is one of these sources. "The serviceman's job is often one of educating the range user so that she will know how to use and take care of her range."<sup>26</sup>

Mearing identified housekeeping magazines as a source of information.<sup>27</sup> Home demonstrations were recognized as a source of information by Tilden.<sup>28</sup>

Home demonstrations were of major interest to Steiner. She found that 53 per cent of her sample had demonstrations for their ranges. This segment made more frequent use of their range features than those

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<sup>24</sup> Anseth.

<sup>25</sup> Burley.

<sup>26</sup> William H. Crouse, Electrical Appliance Servicing (New York, 1950), p. 283.

<sup>27</sup> Nancy Jane Mearing. "Sources of Information That Homemakers Recognize on Care and Use of Selected Items of Household Equipment" (Unpub. M. S. Thesis, Purdue University, 1952).

<sup>28</sup> Tilden.

who did not have a demonstration.<sup>29</sup> Averitte found that two-thirds of the dealers surveyed gave post-sale demonstrations in the home after installation of the equipment.<sup>30</sup>

Averitte also identified the following as most frequently used means of communication between the manufacturer and the consumer: magazines, newspapers, direct mail, radio, and television.<sup>31</sup> Lightfoot's study on consumer information recognized demonstrations, directions, labels, magazines, manufacturer's literature, newspapers, radio, television, friends and relatives as sources of information, but do not always implement the information available.<sup>32</sup>

Keith also cited a list of information sources established by home economics students: displays, radio, television, parents, own judgment, own experience, newspapers, magazines, advertisements, extension agents and publications, home economics classes and textbooks, and home service personnel.<sup>33</sup> The appliance dealer was reported as a source of information by 61.29 per cent of respondents in Burley's study.<sup>34</sup>

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<sup>29</sup>Ann Beddow Steiner, "Use of Range Features by Homemakers With and Without a Professional Demonstration" (Unpub. M. S. Thesis, Ohio State University, 1963).

<sup>30</sup>Marlene Devilbiss Averitte, "Consumer Relations Programs and Post-Purchase Communication to Dealers and Manufacturers of Selected Kitchen Appliances" (Unpub. M. S. Thesis, Cornell University, 1963).

<sup>31</sup>Ibid.

<sup>32</sup>Gwendolyn Grady Lightfoot, "A Study of Aspects of Consumer Information Concerning Selected Goods With Implications for Professional Home Economist" (Unpub. M. S. Thesis, University of Maryland, 1963).

<sup>33</sup>Keith.

<sup>34</sup>Burley.



### Summary

The following quote sums up the importance of the use and care manuals:

The desires of the consumer are not at all unreasonable. First, he wants a reliable product, one that is safe to use. Second, he wants clear instructions on how to get the best performance from that product. Third, if it should fail, he wants it to be put back into service with minimum cost and inconvenience. As the major link between manufacturer and consumer, instruction manuals can be key instruments in meeting these consumer desires.<sup>35</sup>

This chapter has contained a review of a number of studies related to consumer habits on use of instruction books and their satisfactions and suggestions concerning these books. From these studies ideas were gleaned to be included in the questionnaire that would be used in this study. The next chapter, Chapter III, will detail the method of procedure developed for this study.

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<sup>35</sup>Clarke, p. 38.

## CHAPTER III

### PROCEDURE

After deciding on the broad topic of the use and care book of household equipment, the writer began investigation into studies related to her topic. The writer, finding that research on this topic was minimal, decided to narrow her study to the utilization of the use and care book.

#### Selection of the Population

The counties of Lincoln and Pike in the state of Missouri were chosen for the location of this study. This location was chosen because few studies have been conducted in this area and the writer felt that those persons living in that area would be more open to filling out a questionnaire than a group in an area that is subject to frequent questionnaires.

Another reason for choosing this location was that it is "home territory" for the writer. The writer felt that this factor would also facilitate the gathering of data. A third reason is that this area is a rural community with farming, livestock and crops, as its main economic factor. The writer felt that a major portion of the population would be in the low-medium to medium income range and that a large percentage would own most of the household equipment that she was interested in studying.

### Selection of the Sample

Purposive sampling was used as the method of sampling. The sample was made up of married women of rural Lincoln and Pike Counties of the state of Missouri. The women were either members of Extension Homemakers Clubs or of church groups.

### Development of Questionnaire

A questionnaire was developed for the gathering of data concerning the use and care book of selected household equipment and its utilization. The selected pieces of equipment were divided into two main categories: small electrical equipment and large appliances. These two categories were then subdivided. The small electrical equipment was divided into: motor driven equipment--blender, can opener, food mixer, ice cream freezer, ice crusher, and knife; and heat element equipment--broiler/oven (portable), coffee maker, deep fat fryer, dutch oven, fondue pot, hand iron, popcorn popper, rotisserie, toaster, and skillet.

The large appliances were divided into: food storage and preparation--range, refrigerator, microwave oven, and food freezer; and cleanliness and sanitation--clothes washer, clothes dryer, dishwasher, and garbage disposer.

The questionnaire consisted of nine sections of fixed alternative questions:

Section I and II. In these sections the age and education of the homemaker were established. The age groupings were: under 25, 25-34, 35-44, 45-54, and 55 and over. The education categories were divided

into level of education attained by the respondents: grade school, high school, high school plus additional schooling, and four years of college or more.

Section III. The ownership and length of ownership of selected pieces of equipment was established in this section. The participants were instructed to disregard subsequent questions on a piece of equipment if they did not own it. Lengths of ownership were: less than six months, six to twelve months, one year to five years, and five years plus.

Section IV. The frequency of use of the equipment owned by the respondents was confirmed in this section. One to three times daily, one to six times weekly, twice monthly, several times a year, and once a year or less were alternatives.

Section V. After indicating ownership of the use and care book, the storage of the book was determined: with the equipment, in some other easy to locate place, or in a difficult to locate place. The participants were instructed to disregard subsequent questions on a piece of equipment if they did not have a use and care book for that piece of equipment.

Section VI. The frequency of the utilization of the use and care book was the next item. Never, sometimes, and everytime I use the equipment were used for frequency measures.

Section VII. The number of reasons for use of the use and care book were established next. Possible reasons listed were: recipes, care of equipment, terms of guarantee, and manufacturer's name and address. A fifth column, other, was included for additions by the participants.

Section VIII. Alternates on improvements, that could be made to increase the homemaker's use of the use and care book, were: pictures/-diagrams, standard size, more recipes, larger type, easier to read, easier to understand, sturdy cover, and detailed table of contents. A ninth alternative was other.

Section IX. Reasons that make use of the instruction manual unnecessary was the topic of this section. Use of a similar piece of equipment and thorough demonstration on use of equipment were possible reasons, with a third column to list other reasons.

Prior to giving the questionnaire to the sample, it was administered to a selected group of home economics majors at Oklahoma State University on February 11, 1974. This selected group was made up of eight students in Home Management 4243--Advanced Home Equipment. This group was a combination of junior, senior, part-time, and graduate students. Four of these students were married. Seven of the students either had their own homes or lived in off-campus housing, thereby either owning and/or renting a majority of the small equipment and large appliances listed in the questionnaire. The group was asked to follow the directions, fill out the questionnaires, and write down comments relating to improvements they felt could be made in the structure and/or content of the questionnaire. The comments were then evaluated and revisions made in the questionnaire.

#### Collection of Data

The revised questionnaire was distributed at meetings of six extension homemakers clubs and two church groups during March, 1974. Contact either by letter or a phone call requesting the group's

participation in the study was made previous to the meeting date. The writer attended three of the meetings when the questionnaires were distributed and completed. The completed questionnaires from the remaining five groups were mailed to the writer after the groups had their monthly meetings.

#### Treatment of Data

After receiving the completed questionnaires, the writer coded the answers for ease of tabulating data. After coding the questionnaires, the information from the questionnaires was keypunched. Frequencies and percentages were computed for all of the variables.

The gamma (G) measure of association was used to determine the degree of association between dependent and independent variables and to provide a basis for accepting or rejecting the null hypothesis.

. . . G is a coefficient of association between two sets of ordered observations based on their mutual predictability in terms of the relative number of agreements and inversions in the order of the rankings.<sup>1</sup>

The formula for computing G is

$$G = \frac{fa - fi}{fa + fi}$$

with fa = frequency of agreements and fi = frequency of inversions.<sup>2</sup>

Interpretation of the gamma was made according to the following criteria:

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<sup>1</sup>Linton C. Freeman, Elementary Applied Statistics: for Students in Behavioral Sciences (New York, 1965), p. 82.

<sup>2</sup>Ibid., p. 83.

Value of Gamma	Appropriate Phrase
± .70 or higher	a very strong association
± .50 to .69	a substantial association
± .30 to .49	a moderate association
± .10 to .29	a low association
± .01 to .09	a negligible association
.00	no association <sup>3</sup>

### Summary

Chapter III consisted of a description of the selection of the population and of the selection of the sample used in the study, explanation of the development of the questionnaire, and description of the collection of data and the treatment of data. Chapter IV will present the data analysis.

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<sup>3</sup>Robert Sokol, Laboratory Manual for Introductory Sociology (New York, 1970), p. 33.

## CHAPTER IV

### ANALYSIS OF DATA

The purpose of this study was to determine the relationship between one dependent variable--utilization of the use and care book-- and seven selected independent variables:

- (1) age of the homemaker,
- (2) education of the homemaker,
- (3) length of time of ownership of the equipment,
- (4) frequency of use of the equipment,
- (5) location of storage of the use and care book,
- (6) number of reasons for the use of the use and care book, and
- (7) ease of reading and understanding the use and care book.

A questionnaire was developed for the collection of data. Information from the completed questionnaires was coded and the computer was used to tabulate data to determine frequencies and percentages and to calculate the gamma coefficients of association.

#### The Sample

The sample of 112 women spanned an age range of sixty years--from the early twenties to the early eighties. The most frequently reported age grouping was 25 - 34; 55 and over was the second most frequently reported age grouping. Table I shows the frequency and percentage of each age group.



TABLE I  
AGE GROUPING OF SAMPLE

Age Grouping	Number	Percent
under 25	14	12.61
25 to 34	31	27.93
35 to 44	20	18.02
45 to 54	22	19.82
55 or over	24	21.62
other	1	
total	112	100.00

Fourteen (12.61%) of the homemakers reported being in the under 25 age group. The age group, 25 to 34, was reported by 31 (27.93%) of the respondents. The three age groups, 35 to 44, 45 to 54, and 55 or over, were reported by a similar number of respondents, 20, 22, and 24, respectively.

The educational levels of the homemakers are shown in Table II.

TABLE II  
EDUCATIONAL LEVELS OF SAMPLE

Level of Education	Number	Percent
grade school	8	7.41
high school	48	44.44
high school, plus additional schooling	28	25.93
four years of college or more	24	22.22
other	4	
total	112	100.00

The high school level was the most frequently (44.44%) reported level of education, with grade school being the least frequently (7.41%) reported. Due to the low number of respondents reporting grade school level of education, the categories of grade school and of high school were combined in the final analysis and listed as high school or less. The remaining two levels of education, high school plus additional school and four years of college or more, had a similar number of respondents, 28 and 24 respectively.

The procedure was to use the mean score of values of each subdivision of equipment--small motor driven equipment, small heat element equipment, large food storage and preparation equipment, and large cleanliness and sanitation equipment. The following crosstabs were then made for each of the subdivisions to determine the strength of association between the use of book and age, education, length of ownership, frequency of use of equipment, storage of use and care book, number of reasons for utilization of use and care book, and number of improvements needed for ease of reading and understanding.

When computation of crosstabs of the equipment subdivisions was completed, it was felt that the clarity of the data analysis was distorted due to the groupings of values. It was then decided to select one to three representative pieces of equipment from each subdivision and to compute the same crosstabs on each of the selected pieces of equipment. Those pieces of equipment owned by less than 25 per cent of the total sample were eliminated. The next consideration was to select those pieces of equipment that did not have a limited range of values, but rather those that had a more equal distribution of values. Those pieces of equipment chosen were can opener, food mixer,

ice cream freezer, deep fat fryer, popcorn popper, skillet, food freezer, clothes washer, and dishwasher. Where frequencies in some cells were quite small, the categories were collapsed before cross-tabulations were computed.

Since the utilization of the use and care book for the equipment was the dependent variable of this study, the writer was interested in only those respondents who possessed their equipment's manual. Table III shows the number and percent of the total sample that owned the selected piece of equipment and had the use and care book for that piece of equipment. Five of the nine pieces of selected equipment and their manuals were owned by over one half of the total sample. The remaining pieces, the ice cream freezer, deep fat fryer, popcorn popper, and dishwasher were owned by over 25 percent of the total sample.

TABLE III  
OWNERSHIP OF MANUAL AND EQUIPMENT

Selected Equipment	Number	Percent
can opener	68	60.71
food mixer	86	76.78
ice cream freezer	42	37.50
deep fat fryer	31	27.67
popcorn popper	44	39.28
skillet	80	71.42
food freezer	71	63.39
clothes washer	82	73.21
dishwasher	36	36.14

### Utilization of the Use and Care Book

After computations of frequencies and percentages, the gamma coefficients were computed for the dependent variable with each of the independent variables for each selected piece of equipment.

Since only a small percentage of respondents reported that they used their manuals everytime they used their equipment, the two categories, "sometimes" and "everytime I use the equipment", were collapsed to form one category. This collapsing left two categories under utilization of the use and care book--yes, I use the book and no, I do not use the book.

#### Age of the Homemaker as an Independent Variable

Table IV shows only those respondents that owned a selected piece of equipment and used the equipment's manual. The table includes the frequency and percentage for each age group in columns a through e. The gamma for the association between the use of the manual and the age of the homemaker for each piece of equipment is shown in column f. The positive gammas showed an association between the higher age groups and use of the manual while the negative gammas showed an association between the lower age groups and use of the manual.

The gamma for both the food mixer (0.03) and the dishwasher (0.06) showed a negligible association between the use of the manual and the age level of the homemaker. The gamma -0.06 showed a negligible association between the use of the popcorn popper's manual and the age level of the homemaker. The gammas for the can opener (0.12), ice cream freezer (0.20), deep fat fryer (0.22), and skillet (0.20) gave a

TABLE IV  
USE OF EQUIPMENT MANUAL BY AGE OF RESPONDENT

Selected Equipment	(a)		(b)		(c)		(d)		(e)		(f) Gamma
	under 25		25 to 34		35 to 44		45 to 54		55 or over		
	n	%	n	%	n	%	n	%	n	%	
can opener	2	2.9	4	5.9	3	4.4	3	4.4	5	7.4	0.12397
food mixer	6	7.1	13	15.3	6	7.1	14	16.5	11	12.9	0.02956
ice cream freezer	2	4.8	11	26.1	10	23.8	7	16.7	7	16.7	0.19518
deep fat fryer	1	3.3	5	16.7	7	23.3	5	16.7	4	13.3	0.22388
popcorn popper	3	7.0	4	9.3	8	18.6	4	9.3	1	2.3	-0.06301
skillet	7	8.9	15	19.0	9	11.4	8	10.1	13	16.5	0.19644
food freezer	0	0.0	11	15.7	11	15.7	16	22.9	10	14.3	0.33649
clothes washer	5	6.2	15	18.5	13	16.0	16	19.8	7	8.6	-0.11594
dishwasher	0	0.0	11	30.6	7	19.4	9	25.0	3	8.3	0.06294

low positive association between the use of the manual and the age level of the homemaker, while the gamma of the clothes washer,  $-0.12$ , shows a low negative association between the use of the manual and the age level of the homemaker. The only gamma showing a moderate positive association ( $0.34$ ) is that of the food freezer, which shows an association between the use of the manual and the age level of the homemaker.

This moderate association might be attributed to the fact that the younger homemakers have had freezers in their homes during their formative years and feel that there is no need to consult the use and care book. The older homemaker, however, did not always have a food freezer. They were not familiar with the use and care of this new piece of equipment and felt they needed information on its use and care.

These minimal degrees of association resulted in the acceptance of the null hypothesis that there is no significant association between the age of the homemaker and the utilization of the use and care books.

#### Education of the Homemaker as an Independent Variable

Table V shows the educational level attained by those respondents that owned a selected piece of equipment and used the equipment's manual. Frequency and percentage for each educational level is given in columns a through c. The gamma for the association between the use of the manual and the educational level of the homemaker is shown in column d. An association between higher education level and use of the manual is shown by a positive gamma and an association between lower educational level and use of the manual is shown by a negative gamma.

TABLE V  
USE OF EQUIPMENT MANUAL BY EDUCATION OF RESPONDENT

Selected Equipment	(a)		(b)		(c)		(d) Gamma
	high school or less		high school plus addi- tional schooling		four years of college or more		
	n	%	n	%	n	%	
can opener	7	10.8	6	9.2	3	4.6	0.25000
food mixer	27	31.8	14	16.5	8	9.4	-0.05882
ice cream freezer	22	55.0	7	17.5	6	15.0	-0.07173
deep fat fryer	16	51.6	5	16.1	2	6.5	-0.58333
popcorn popper	15	34.1	4	9.1	1	2.3	-0.38776
skillet	24	31.2	13	16.9	12	15.6	0.26061
food freezer	31	46.3	12	17.9	3	4.5	-0.32143
clothes washer	29	36.7	16	20.3	9	11.4	0.19004
dishwasher	13	39.4	9	27.3	6	18.2	0.67089

A negligible association was shown between the use of the manual and the educational level for the food mixer (-0.06) and ice cream freezer (-0.07). The gamma for the can opener (0.25), the skillet (0.26), and the clothes washer (0.19) gave a low positive association between the use of the manual and the educational level of the homemaker. A moderate negative association was shown between the dependent variable and the educational level for the popcorn popper (-0.39) and the food freezer (-0.32). The strongest association shown between the use of the manual and the educational level of the homemaker was shown with the deep fat fryer and the dishwasher.

The gamma of -0.58 gave a substantial negative association between the use of the deep fat fryer's manual and the educational level of the homemaker. The gamma, 0.67, gave a substantial positive association between the use of the dishwasher's manual and the educational level of the homemaker. Since the associations between the use of the manual and the educational level of the homemaker are not consistent for these selected pieces of equipment, the null hypothesis that there is no relationship between these two variables was accepted.

#### Length of Ownership of Equipment as an Independent Variable

The length of ownership of the selected pieces of equipment by respondents who used the equipment's manual is given in Table VI. A small percentage of the respondents reported having owned their equipment for less than six months; therefore, the two categories, "less than six months" and "six to twelve months" were collapsed to form a new category--less than one year. Frequencies and percentages for



TABLE VI

## USE OF EQUIPMENT MANUAL BY LENGTH OF OWNERSHIP OF EQUIPMENT

Selected Equipment	(a)		(b)		(c)		(d) Gamma
	less than 1 year		1 to 5 years		5 years or more		
	n	%	n	%	n	%	
can opener	3	4.4	9	13.2	5	7.4	-0.40035
food mixer	4	4.7	13	15.1	33	38.4	-0.04994
ice cream freezer	5	11.9	9	21.4	2	4.8	-0.31195
deep fat fryer	3	9.7	6	19.4	14	45.2	-0.36364
popcorn popper	7	15.9	7	15.9	6	13.6	-0.63190
skillet	5	6.3	13	16.3	33	41.3	-0.14952
food freezer	1	1.4	16	22.5	32	45.1	-0.15275
clothes washer	8	9.8	18	22.0	31	37.8	-0.41430
dishwasher	5	13.9	12	33.3	13	36.1	-0.31532

each time length are given in columns a through c. Column d contains the gamma for the association between the use of the manual and the length of ownership of the equipment.

The hand mixer gave the only negligible association (-0.05) between the use of the manual and the length of ownership. A low negative association between the use of the manual and the length of ownership was shown for both the skillet (-0.15) and the food freezer (-0.15). Five pieces of equipment, can opener, ice cream freezer, deep fat fryer, clothes washer, and dishwasher, have shown gammas of moderate negative association, -.31 to .41, between the use of the manual and the length of ownership. A substantial negative association between the use of the manual and the length of ownership was shown for the popcorn popper, -0.63.

All of the selected pieces showed some degree of negative association between the use of the manual and the length of ownership of the equipment. This association may be due to the homemaker's need to familiarize herself with the use and care of the equipment during the initial period of using the equipment. After owning and using the equipment over a length of time, the homemaker feels confident in using and carrying tor the equipment without referral to the instruction manual.

Since two-thirds of the equipment showed a moderate or substantial negative association between the use of the manual and the length of ownership of the equipment, the null hypothesis that there was no association was rejected.

Frequency of the Use of Equipment  
as an Independent Variable

Table VII shows how frequently the equipment was used by those respondents using both the equipment and its accompanying instruction manual. Frequencies and percentages of each time element are given in columns a through e. Those columns without values either had no respondents or had such a small reported frequency that they were collapsed into the adjacent category. The gamma for the association between the use of the manual and the frequency of use of the equipment is given in column f.

The only negligible association shown, (0.02), was that between the use of the manual and the use of the skillet. The popcorn popper and deep fat fryer gave gammas of 0.25 and 0.21 showing a low positive association between the use of the manual and the use of the equipment. A moderate positive association was shown between the use of the manual and the use of the can opener.

Negative associations between the use of the manual and the use of the equipment were shown for the food mixer, ice cream freezer, food freezer, clothes washer, and dishwasher. This association was low, (-0.22), for the dishwasher. The food freezer (-0.39) and food mixer (-0.40) gave moderate negative associations. A substantial negative association, -0.51, and a very strong negative association, -0.75, were shown for the clothes washer and ice cream freezer, respectively. These associations between the use of the manual and the less frequent use of the equipment might be attributed to the homemaker's need to refresh her memory on the use and care of the equipment when she does use it.

TABLE VII

## USE OF EQUIPMENT MANUAL BY FREQUENCY OF USE OF EQUIPMENT

Selected Equipment	(a)		(b)		(c)		(d)		(e)		(f) Gamma
	1 to 3 x daily		1 to 6 x weekly		twice monthly		several x a year		once a year or less		
	n	%	n	%	n	%	n	%	n	%	
can opener	11	16.2	6	8.8	-	-	-	-	-	-	0.36000
food mixer	5	6.0	30	35.7	14	16.7	-	-	-	-	-0.39683
ice cream freezer	-	-	-	-	1	2.5	29	72.5	5	12.5	-0.75000
deep fat fryer	-	-	4	12.9	7	22.6	9	29.0	3	9.7	0.21127
popcorn popper	-	-	3	6.8	10	22.7	7	15.9	-	-	0.25301
skillet	8	10.0	15	18.8	20	25.0	9	11.3	-	-	0.02457
food freezer	32	45.7	17	24.3	-	-	-	-	-	-	-0.39192
clothes washer	12	14.8	40	49.4	5	6.2	-	-	-	-	-0.51163
dishwasher	21	58.3	8	22.2	1	2.8	-	-	-	-	-0.21622

Since four of the gammas indicated some degree of positive association between the use of the manual and use of the equipment and five of the gammas showed some degree of negative association between the use of the manual and use of the equipment, the null hypothesis that there is no significant association was accepted.

Storage of the Use and Care Book  
as an Independent Variable

The location of the storage of the manual owned by the respondents using the manual is given in Table VIII. A small percentage of the respondents reported storing their manuals with the equipment; therefore, the responses listed in this category were combined with the category "easy to locate place." Frequencies and percentages for each storage location are given in columns a and b. Column c contains the gamma for the association between the use of the manual and the storage location of the manual.

Eight of the nine gammas showed a negative association between the use of the manual and the place the manual was stored. The gamma for the can opener (0.12) is the only one showing a positive association between the use of the manual and difficult to locate storage. This may be due to the fact that a low percentage (25%) of the total sample having a manual for the can opener ever use the manual.

A negligible association between the use of the manual and the storage location of manual was shown by the gammas of the skillet, -0.02, and the food freezer, -0.04. The gamma, -0.20, was shown for the negative association between the use of the manual and easy to locate storage place for the popcorn popper manual, while a moderate

negative association between these two variables was shown for the clothes washer. A substantial negative association between the use of the manual and easy to locate storage of the manuals for the food mixer, ice cream freezer, and deep fat fryer was shown with the following gammas, -0.51, -0.67, and -0.60. The gamma -0.75 gave a very strong negative association between these two variables for the dishwasher.

TABLE VIII  
USE OF EQUIPMENT MANUAL BY LOCATION  
OF STORAGE OF THE MANUAL

Selected Equipment	(a) Easy to Locate		(b) Difficult to Locate		(c) Gamma
	n	%	n	%	
can opener	13	19.7	3	4.5	0.11806
food mixer	45	52.3	5	5.8	-0.50704
ice cream freezer	16	38.0	0	0.0	-0.67164
deep fat fryer	21	67.7	2	6.5	-0.60000
popcorn popper	19	44.2	0	0.0	-0.20446
skillet	47	58.8	5	6.3	-0.01648
food freezer	44	62.9	4	5.7	-0.04094
clothes washer	55	67.1	2	2.4	-0.48649
dishwasher	28	77.8	2	5.6	-0.75000

These associations between the use of the manual and ease of location of the manual can be attributed to the fact that if the homemaker has to interrupt her work to search out a manual, she will become frustrated and not use the manual. If, however, she can easily locate the manual, the homemaker will be more likely to refer to the manual.

Since eight of the nine pieces of equipment show a negative association between the use of the manual and the ease of locating the manual and since five of these eight show a moderate or stronger negative association, the null hypothesis was rejected. The alternative hypothesis that there is a relationship between the use of the manual and storage of the manual was accepted.

#### Number of Reasons for Use of the Manual as an Independent Variable

Of the respondents who owned the nine selected pieces of equipment there were 202 who reported using the manual for the care information, 154 for recipes, 51 to consult terms of the guarantee, 32 to learn the name and address of the manufacturer, and 5 respondents gave other reasons. Table IX shows the number of responses for each reason for each piece of equipment.

Table X shows the number of reasons for the use of the manual reported by respondents that used the manual of the selected pieces of equipment. Frequencies and percentages for each number of reasons are given in columns a through c. The gamma for the association between the use of the manual and the number of reasons reported for using the manual is given in column d.

TABLE IX  
FREQUENCY OF REASONS FOR USE OF MANUAL

Selected Equipment	Recipes	Care Infor- mation	Terms of Guarantee	Mgf. Name and Address	Other	Total
can opener	0	22	6	1	1	30
food mixer	33	18	7	7	2	67
ice cream freezer	32	12	2	1	0	47
deep fat fryer	19	9	1	0	0	29
popcorn popper	10	14	2	2	0	28
skillet	48	19	5	3	0	75
food freezer	12	32	10	7	0	61
clothes washer	0	49	14	8	1	72
dishwasher	0	27	4	3	1	35
total	154	202	51	32	5	444

All of the gammas, except that for the ice cream freezer, show a very strong positive association between the use of the manual and the number of reasons for the use of the manual. This high association is due to the fact that when the homemaker has several reasons to refer to the instruction manual, then she will use it. Due to these very strong associations and one moderate association, the null hypothesis that there was no association between these variables was rejected.



TABLE X

## USE OF EQUIPMENT MANUAL BY NUMBER OF REASONS FOR USE

Selected Equipment	(a)		(b)		(c)		Gamma
	0		1		2 or more		
	n	%	n	%	n	%	
can opener	2	2.9	15	22.1	-	-	0.93798
food mixer	3	3.5	34	40.0	13	15.3	0.97987
ice cream freezer	1	2.4	26	61.9	10	23.8	0.32530
deep fat fryer	-	-	20	64.5	3	9.7	0.77901
popcorn popper	1	2.3	14	31.8	5	11.4	0.98561
skillet	2	2.5	36	45.0	14	17.5	0.93178
food freezer	3	4.2	38	53.5	8	11.3	0.85233
clothes washer	-	-	46	56.1	11	13.4	1.00000
dishwasher	2	5.6	24	66.7	4	11.1	0.93548

Readability and Understandability of the  
Manual as an Independent Variable

The number of improvements to help increase the readability and understandability of the use and care book as given by the owners and users of the selected equipment and the equipment's manual are given in Table XI. Frequencies and percentages for number of improvements for each piece of equipment are given in columns a through d. Column e contains the gamma for the association between the use of the manual and the number of improvements desired to increase readability and understandability of the use and care book.

Four of the nine pieces of equipment: can opener, food mixer, deep fat fryer and food freezer showed a low negative association, -0.13 to 0.14, between the use of the manual and the number of improvements desired. There were, however, the same number of pieces of equipment that showed a positive association between the use of the manual and the number of improvements desired.

This association was moderate for the clothes washer, 0.36, and the dishwasher, 0.32, and was negligible for the popcorn popper, 0.07, and the skillet, 0.07. No association was shown between the use of the manual of the ice cream freezer and the number of improvements desired. These low degrees of association may be due to the homemaker's general attitude that the literature the manufacturers make available to the consumer is difficult to interpret.

Since there was such a variation of degrees and directions of association between the use of the manual and the number of improvements desired to help increase the readability and understandability of the manual, the null hypothesis was accepted.

TABLE XI

## USE OF EQUIPMENT BY NUMBER OF IMPROVEMENTS DESIRED

Selected Equipment	(a)		(b)		(c)		(d)		(d) Gamma
	D		1		2		3 or more		
	n	%	n	%	n	%	n	%	
can opener	6	8.8	4	5.9	2	2.9	5	7.3	-0.13859
food mixer	9	10.5	20	23.3	13	15.1	8	9.3	-0.13627
ice cream freezer	7	16.7	12	28.6	12	28.6	6	14.4	0.0
deep fat fryer	3	9.7	8	25.8	8	25.8	4	12.9	-0.14094
popcorn popper	6	13.6	4	9.1	4	9.1	6	13.6	0.06527
skillet	10	12.5	18	22.5	12	15.0	12	15.0	-0.06956
food freezer	7	9.9	21	29.6	15	21.1	6	8.5	0.13164
clothes washer	5	6.1	21	25.6	17	20.7	14	17.1	0.35624
dishwasher	4	11.1	11	30.6	10	27.8	5	13.9	0.31707

### Reasons for not Using the Manual

The writer was also interested in obtaining reasons why homemakers did not use the manuals. Seventy-eight (69.64%) of the total sample reported that they had used a similar piece of equipment and did not feel they needed to refer to the instruction manual for all pieces of equipment. Twenty-four (21.43%) had been given a thorough demonstration on the use and care of some of their equipment and felt that this information was sufficient.

### Summary

Of the 24 pieces of equipment listed in the questionnaire, nine pieces that were owned by 25 percent or more of the sample and had a good distribution of values were selected for the analysis of data. The gamma was used to measure the association between the dependent variable and each of the independent variables for each piece of selected equipment. It was on the basis of the gamma that the null hypothesis was to be rejected or accepted. Reasons for not using the instruction manuals were also reported by the homemakers.

Chapter V contains the implications of this study.

## CHAPTER V

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

One of the purposes of this study was to determine if the main means of manufacturer-consumer communication, the use and care book, was being used by the owners of household equipment. A second purpose was to investigate factors that the writer thought might influence the use of this method of communication.

The null hypotheses to be tested for rejection or acceptance were: There will be no significant association between the utilization of the use and care book and the following:

- (1) age of the homemaker,
- (2) education of the homemaker,
- (3) length of time of ownership of equipment,
- (4) frequency of use of equipment,
- (5) location of storage of the use and care book,
- (6) number of reasons for the use of the use and care book, and
- (7) ease of reading and understanding of the use and care book.

#### Summary

The instrument used to collect data was a questionnaire containing fixed alternative items. Each of the variables in the hypotheses, both dependent and independent, was the subject of each section of the questionnaire. The population selected for the study was composed of

homemakers of Lincoln and Pike Counties in the state of Missouri. Members of home extension clubs and church groups were used as the sample. One-hundred twelve of the sample returned the completed questionnaires.

After coding the completed questionnaires, the data were key-punched for computer use. Frequencies and percentages and the gamma measure of association were used in the analysis of data.

The sample was distributed through all of the age groupings. The fourteen homemakers in the under 25 age group were the smallest percentage (12.61%) reported, with the largest percentage (27.93%) in the 25 to 34 age group. The other age groups, 35 to 44, 45 to 54, and 55 or over, reported similar percentages of respondents.

The different educational levels did not give as good a distribution as the age groupings. Only 7.41 percent of the sample reported having a grade school education or less. Because of this small number, the category "grade school or less" was combined with "high school education." This left three categories for education: high school or less; high school, plus additional schooling; and four years of college or more. The breakdown of percentages of respondents for these categories were roughly 50, 25, and 25, respectively.

In the final analysis, nine pieces of equipment were chosen to test the seven null hypotheses. These nine pieces were: can opener, food mixer, ice cream freezer, deep fat fryer, popcorn popper, skillet, food freezer, clothes washer, and dishwasher. Each piece of equipment and its manual was owned by over 25 percent of the sample.

## Conclusions

Sokol's rating scale of the value of gamma indicated a minimal association between the dependent variable, the utilization of the use and care book, and the independent variables: age of the homemaker, education of the homemaker, frequency of use of the equipment, and readability and understandability of the manual.

Three of the null hypotheses were rejected. A negative association was found between use of the manual and length of ownership of the equipment. The homemakers who used the manual were those who had owned the equipment for a shorter period of time.

A negative association also existed between the use of the manual and storage of the manual. This association showed that those homemakers who stored their manuals in an easy to locate place were the respondents that used their manuals.

The third alternate hypothesis to be accepted was that there was a positive association between the use of the manual and number of reasons for using the manual. The homemakers who reported using the manual also reported more reasons for the manual's use.

While studies that were reviewed by the writer dealt with the utilization of the use and care book and possible influencing factors were of a minimum, Burley did conclude that consumers' perceptions of the manual of the automatic clothes washer were independent of the consumers' age and education. In Tilden's study concerning analysis and use of instruction booklets the null hypothesis, "little or no relationship was implied between booklet placement and actual use", was accepted. Tilden's findings was the reverse of this study's findings.

## Recommendations

A study, similar to this one, might be conducted to determine if there is any relationship between the use of the manual and whether or not the homemaker had taken any home economics classes in high school. A study of this nature should be limited to those homemakers who had been out of high school for five years or less. The findings of such a study would be valuable to teachers of home economics on the secondary level in curriculum planning to see if a need for extended equipment instruction was shown to be present.

Extension home economists would also find this type of study valuable in planning programs for home extension clubs. Home economists in extension might also judge valuable the findings of a study made to determine the amount of money and time that could be saved by the homemaker if she consulted the manual before calling the repair man. These findings could be incorporated in an equipment program.

A survey of household equipment manufacturers might be made to determine the personnel who write the use and care books and to discover if the authorship of the books has any effect on ease of reading and understanding by the consumer. A study dealing with what the manufacturers are doing to increase the use of their instruction manuals might also be made. The results of these studies could prove valuable to manufacturers to improve their communication with the consumer.



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APPENDIX A

USE AND CARE BOOKS SURVEYED

FOR CONTENTS

General Electric Deluxe Toast-R-Oven - General Electric

Hoover Fondue Set - The Hoover Company

Hoover Spray/Steam Dry Iron - The Hoover Company

Kitchenaid - The Special Dishwasher for Special People - The Hobart  
Manufacturing Company

Maytag - Operating Instructions for Porta Washer - The Maytag Company

Osterizer Spin Cookery - John Oster Manufacturing Company

Sears Coldspot Owner's Manual - Sears, Roebuck, and Company

Sunbeam Automatic Cooker and Deep Fryer - Sunbeam Corporation

Sunbeam Automatic Mixmaster Mixer - Sunbeam Corporation

Sunbeam Multi-Cooker Frypan - Sunbeam Corporation

Westinghouse Electric Range Care and Use Guidebook - Westinghouse  
Electric Corporation.

APPENDIX B

QUESTIONNAIRE USED TO COLLECT DATA

Please fill in all information completely and as accurately as possible. If you check the No column under ownership for any piece of equipment, disregard other columns regarding that piece of equipment.

Card  
No.1 (1) (2) (3) (4) (5)

I. AGE  under 25,  25-34,  35-44,  45-54,  55 and over

II. EDUCATION- check highest level completed:

grade school,  high school,  high school, plus additional schooling,  four years of college or more

SMALL ELECTRICAL EQUIPMENT	III. DO YOU OWN THIS PIECE OF EQUIPMENT? IF SO, HOW LONG HAVE YOU OWNED IT?					IV. HOW FREQUENTLY DO YOU USE THIS PIECE OF EQUIPMENT?					V. DO YOU HAVE A USE & CARE BOOK FOR THIS PIECE OF EQUIPMENT? IF SO, WHERE DO YOU STORE THE BOOK?			
	No	Yes: less than 6 months	6-12 mons	1 yr- 5 yrs	5 yrs plus	1-3 times daily	1-6 times weekly	twice monthly	several times a year	1/yr or less	No	Yes, with equip.	Yes, in some other easy to locate place	Yes, in a difficult to locate place
<u>Motor Driven Equipment:</u>														
1.Blender					1					1				
2.Can Opener					2					2				
3.Food Mixer					3					3				
4.Ice Cream Freezer					4					4				
5.Ice Crusher					5					5				
6.Knife					6					6				
<u>Heat Element Equipment:</u>														
1.Broiler/Oven (portable)					1					1				
2.Coffee Maker					2					2				
3.Deep Fat Fryer					3					3				
4.Dutch Oven					4					4				
5.Fondue Pot					5					5				
6.Hand Iron					6					6				
7.Popcorn Popper					7					7				
8.Rotisserie					8					8				
9.Toaster					9					9				
0.Skillet					0					0				

LARGE APPLIANCES	III. DO YOU OWN THIS PIECE OF EQUIPMENT? IF SO, HOW LONG HAVE YOU OWNED IT?					IV. HOW FREQUENTLY DO YOU USE THIS PIECE OF EQUIPMENT?					V. DO YOU HAVE A USE & CARE BOOK FOR THIS PIECE OF EQUIPMENT? IF SO, WHERE DO YOU STORE THE BOOK?			
	No	Yes: less than 6 months	6-12 mons	1 yr- 5 yrs	5 yrs plus	1-3 times daily	1-6 times weekly	twice monthly	several times a year	1/yr or less	No	Yes, with equip.	Yes, in some other easy to locate place	Yes, in a difficult to locate place
<u>Food Storage and Preparation:</u>														
1. Range						1					1			
2. Refrigerator						2					2			
3. Microwave Oven						3					3			
4. Food Freezer						4					4			
<u>Cleanliness and Sanitation:</u>														
1. Clothes Washer						1					1			
2. Clothes Dryer						2					2			
3. Dishwasher						3					3			
4. Garbage Disposer						4					4			



Now let us consider the use and care books that accompany household equipment. Please answer Section VI and VII only for those items that you checked as having their use and care book in Section V.

USE AND CARE BOOK FOR:	VI. HOW OFTEN DO YOU USE THE USE AND CARE BOOK FOR THIS PIECE OF EQUIPMENT?			VII. FOR WHAT REASON OR REASONS DO YOU USE THE USE AND CARE BOOK FOR THIS PIECE OF EQUIPMENT?				
	Never	Sometimes	Everytime I use the equipment	Recipes	Care of Equipment	Terms of Guarantee	Manufacturer's Name & Address	Other(specify):
<u>Motor Driven Equipment:</u>								
1.Blender				1				
2.Can Opener				2				
3.Food Mixer				3				
4.Ice Cream Freezer				4				
5.Ice Crusher				5				
6.Knife				6				
<u>Heat Element Equipment:</u>								
1.Broiler/Oven (portable)				1				
2.Coffee Maker				2				
3.Deep Fat Fryer				3				
4.Dutch Oven				4				
5.Fondue Pot				5				
6.Hand Iron				6				
7.Popcorn Popper				7				
8.Rotisserie				8				
9.Toaster				9				
0.Skillet				0				

USE AND CARE BOOK FOR:	VI. HOW OFTEN DO YOU USE THE USE AND CARE BOOK FOR THIS PIECE OF EQUIPMENT?			VII. FOR WHAT REASON OR REASONS DO YOU USE THE USE AND CARE BOOK FOR THIS PIECE OF EQUIPMENT?				
	Never	Sometimes	Everytime I use the equipment	Recipes	Care of Equipment	Terms of Guarantee	Manufacturer's Name & Address	Other(specify):
<u>Food Storage and Preparation:</u>								
1. Range				1				
2. Refrigerator				2				
3. Microwave Oven				3				
4. Food Freezer				4				
<u>Cleanliness and Sanitation:</u>								
1. Clothes Washer				1				
2. Clothes Dryer				2				
3. Dishwasher				3				
4. Garbage Disposer				4				

VIII. Check the improvements you think could be made to increase your usage of the use and care books of household equipment:

<u>Pictures/Diagrams</u>	<u>Larger Type</u>	<u>Sturdy Cover</u>
<u>Standard Size</u>	<u>Easier to Read</u>	<u>Detailed Table of Contents</u>
<u>More Recipes</u>	<u>Easier to Understand</u>	<u>Other(specify):</u>

IX. Check the reasons that make the use of the use and care books unnecessary for you:

<u>Had used a similar piece of equipment</u>	<u>The equipment was thoroughly demonstrated to me</u>
<u>Other(specify):</u>	

Thank you for the time and thought you have given this questionnaire. I hope to tell you about the outcome of this study in the near future.

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VITA

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