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Purposes of the study were to determine the frequency of use, to identify kinds of uses, satisfactions and dissatisfactions with use, and to evaluate factors possibly related to frequency and/or variety of use of the blender. Data collection was by questionnaire administered to blender owners among members of twenty-four Extension Homemakers Clubs in Guilford County, North Carolina.

Ninety per cent of the respondents were thirty-five years of age or older and the two-member family was modal. Two-thirds of the blenders were acquired as gifts; those owned for four years or less were more frequently acquired in this manner than were others ($> .05$). The reason most frequently stated for wanting a blender was its basic function - accomplishment of a task another appliance owned did not perform.

Frequency of use, number of food types processed, and number of preparation types used varied from low to moderate. Blenders were not used to a high degree for any purpose. Seventy-five per cent of the respondents were low frequency users. Homemakers fifty-five years or younger and families with three or more members tended to use the blender with moderate frequency.

Food types processed most frequently follow in descending order: beverages; crumbs, nuts, etc.; salads; and vegetables. Four-fifths of the homemakers citing blender uses reported using the appliance for mixing, blending, and beating. Only fifteen per cent acknowledged using the blender for preparation of food for entertainment purposes.

The homemaker was the primary blender user; use by other persons was limited to twenty per cent of the families. Homemakers fifty-five years of age and younger used the blender more frequently, processed more food types, and used it for more preparation processes than did older homemakers.

Over one-half of all respondents listed one to three problems of use. Operational problems were identified almost three times as frequently as any other problem-types.

Two-thirds of the homemakers who were low frequency blender users, processed few food types and used few types of preparations indicated necessity to move the blender from its place of storage to place of use.

In spite of limited use currently, more than fifty per cent of the homemakers in a projected situation, indicated they would purchase another blender, and over one-fourth revealed uncertainty.

Implications of the study are that (1) more conscious and responsible choices when purchasing a blender either for ones own use or as a gift should be stimulated, and (2) educational programs and materials encouraging optimal and creative use by all family members and provision of storage for convenient use of the blender are needed, if use of the blender is to increase.

APPROVAL PAGE

This Thesis has been approved by the following committee
of the Faculty of the Graduate School at the University of

North Carolina
FACTORS RELATED TO OWNERSHIP AND USE OF ELECTRIC BLENDERS

By

Joyce Oliver Rasdall

A Thesis Submitted to
the Faculty of the Graduate School at
the University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
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Approved by

Jane H. Crow
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APPROVAL SHEET

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To members of the twenty-four Extension Homemakers Clubs in Guilford County, North Carolina; and

To L. D. Rasdall, Jr., husband of the writer.

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CHAPTER I

INTRODUCTION AND PURPOSE

Within the past two decades both the variety and the number of features of small electrical appliances on the market have expanded. The electrical housewares industry now itemizes several dozen small appliances; approximately one-half of these are for food preparation. Among these, consumers are offered choices in features ranging from non-stick cooking surfaces to automatic timer and cut-off device.

The electric blender, which was developed prior to World War II¹ but marketed in quantity after that era, has followed the trend of added innovations. Many blenders feature multi-speed controls, two-piece lids, interchangeable containers, pouring spouts, and timed blending. Blender blades are now removable; and some models are constructed with an electrical heating element to promote versatility of use. It has been questioned whether these features were being utilized by current owners of blenders and if there were related problems.

Annual sales volume for electric blenders has steadily increased, to a greater extent than several other small appliances. Blender sales have not been as erratic as the sales volumes of other food preparation appliances, which probably reflects both economic conditions and introduction of new features. Sales promotion in more recent years has

¹Electrical Merchandising, Vol. 89 (January, 1957), p. 186, cited by Helen Ann Dawson, "Use of Portable Electric Appliances by Homemakers in Varying Age Groups" (Master's thesis, College of Agriculture and Home Economics, The Ohio State University, 1960), p. 18.

developed along the theme of gift giving. Many times the blender has been advertised as a versatile, multi-use appliance. Perhaps then, the blender is purchased for its multi-purpose value and resulting satisfactions.

Several studies completed since 1950 indicated relatively low frequency of use, and fairly little variety of use of small electrical appliances. Research regarding reactions to the blender and its added features is meager.

Purposes

Purposes of the study were fourfold: (1) to determine the frequency of use made of the blender, (2) to identify the kinds of uses made of the blender, (3) to identify satisfactions and dissatisfactions of use, and (4) to evaluate factors possibly related to frequency and/or variety of use.

Hypotheses

Hypotheses formulated prior to the study included: (1) frequency of use of the electric blender does not vary among owners; (2) variety of use does not differ among owners; (3) family members using the appliance do not vary within the population; and (4) variety of use is not related to identifiable factors.

CHAPTER II

REVIEW OF LITERATURE

A review of the literature relative to small electrical appliances for food preparation revealed a limited amount of research on the blender. Research reported may be categorized as blender merchandising and sales volume, consumer information, and consumer satisfaction studies.

Literature cited here includes several studies dealing with groups of small electrical appliances as well as specific ones.

Blender Merchandising and Sales Volume

Reports on volume of annual sales appearing in Merchandising Week indicated that among the nine small appliances for food preparation marketed since 1954, the blender was subject to least erratic changes from year to year. During the years 1954-1965, blender sales increased fourfold.² There is no indication of a sales peak and subsequent decline, which is true of several other food preparation appliances.³ However, the January, 1966 saturation index of the blender fell below that of electrical appliances in general.⁴

²"Manufacturer Sales and Retail Value: The Ten-Year Picture," Merchandising Week, Vol. 98 (January 31, 1966), pp. 22-23.

³"Manufacturers' Sales and Retail Value," Merchandising Week, Vol. 96 (January 20, 1964), pp. 68-69.

⁴"Saturation Index as of January 1, 1966," Merchandising Week, Vol. 98 (January 31, 1966), p. 25.

Advertisements have indicated a change in approach to blender sales motivation in recent years. No longer is the blender promoted as a special purpose item;⁵ it is now considered a multi-purpose appliance. More recently advertising has stressed the variety of processes it can accomplish (ranging from liquifying solid vegetables to mixing beverages and batters) and its special features. Listings of these features include the following:

- a) Multiple-speed push button control.
- b) Heat-resistant, shatter-proof container featuring pouring lip, handle, and measurement markings.
- c) Interchangeable containers of varying capacities.
- d) Two-piece lid construction with measuring cup cap.
- e) Disappearing cord storage.
- f) Removable cutting blade assembly.
- g) Timed blending with automatic cut-off.
- h) Neoprene clutch to allow removal and replacement of container during motor operation.
- i) Heating unit for limited cooking.
- j) Can opener and knife sharpener features.
- k) Ice crusher, coffee grinder and juicer attachments.
- l) Blender hood or cover.
- m) Solid-state speed-controls.
- n) Five-year guarantee and Underwriters' Laboratory Seal.

⁵"Christmas Momentum Will Carry the National Housewares Manufacturers Association Show," Merchandising Week, Vol. 98 (January 3, 1966), p. 18.

Consumer Information

Consumer Union tests of blenders have indicated several inadequacies of construction and design characteristics, and of performance. It was suggested that most satisfactory results may be obtained with the blender through practice and experimentation.⁶

In a November 1960 test report, Consumer Union recognized the merits of the blender's versatility of use. However, it was recommended that acquisition be considered in light of family needs and particular functions provided in the particular model.⁷ Consumer Research has urged the potential purchaser to evaluate features for their convenience.⁸ As a result of a small informal survey, Consumer Union, in a 1957 report, stated that many blender owners utilized their appliance only to a limited number of its potential capabilities.⁹

A survey of use and care booklets provided by manufacturers indicated that their content varies as to inclusion of the following types of information: (1) construction and features, (2) operation and control, (3) maintenance and care, and (4) service policies.

⁶"Kitchen Blenders," Consumer Reports, Vol. 30 (November, 1965), pp. 542-547.

⁷"Electric Blenders," Consumer Reports, Vol. 25 (November, 1960), pp. 580-583.

⁸"Blenders," Consumer Bulletin, Vol. 49 (January, 1966), pp. 26-29.

⁹"Electric Food Blenders," Consumer Reports, Vol. 22 (November, 1957), pp. 535-538.

Empirical Consumer Studies

Dawson, in 1960, pointed out that although the blender was considered a specialty appliance at that time, consumers should be enlightened beyond the well-known use of mixing beverages. It was found that only fifty-eight per cent of the homemakers surveyed thought the recipe booklet helpful in the use of their portable appliances. Appliances were generally used in a limited way. About two-thirds of the appliances owned were acquired as gifts. As years of marriage and age increased, the accumulation of appliances also increased. Appliances owned by younger homemakers were more likely to be gifts. Blenders were owned more often by persons thirty years and older than by younger homemakers. However, few blenders were owned within the group surveyed. The homemaker was the most frequent user of the portable appliances. One exception, the toaster, was found to be used by all family members.¹⁰

Dawson stated that:

While industry makes rapid strides in product development actual consumer needs may be neglected. The consumer is led into purchases which fail to give satisfaction anticipated. There is need for research which reveals her problems and needs in the area of small household appliances.¹¹

Anderson's study of six appliances supplementing the range revealed that most homemakers (20% sample of Guilford County, North Carolina Home Demonstration Club members) were satisfied with their

¹⁰Helen Ann Dawson, "Use of Portable Electrical Appliances by Homemakers in Varying Age Groups" (Master's thesis, College of Agriculture and Home Economics, The Ohio State University, 1960).

¹¹Ibid., p. 3.

small appliances. Among factors possibly related to use, it was reported that homemakers married a shorter number of years used the frypan more frequently than did those married longer. This was the only significant relationship (5% level) as to length of marriage and frequency of use.¹²

Anderson stated that uses of small appliances have been limited so that the versatility of use has yet to be realized as an advantage of ownership.

That some . . . small appliances are purchased as a status symbol is shown by the number who use them only for guests. The homemaker perhaps, needs to realize the full potentialities of the appliance and what it can do for her in daily food preparation tasks.¹³

A 1960 survey by Frey revealed a ratio of less than one to ten blender owners to nonowners among the one-hundred Pennsylvania homemakers studied. Among these owners one-half reported three to five uses; one-fourth listed no uses at all. Chopping vegetables and preparing milk shakes were the most frequent uses. One-half of the owners reported using their appliance frequently. Convenience was the most often mentioned satisfaction and there were no common dissatisfactions. One-half of the blender owners stated they would replace it and approximately one-third stated the blender was an important appliance in the household. In a composite ranking of appliances as to usefulness (based on six weighted factors) the blender appeared to be of moderate usefulness to the homemakers. Ranking above it were the mixer and

¹²Elma Frances Anderson, "The Use of Small Electrical Appliances that Supplement the Range" (unpublished Master's thesis, School of Home Economics, The Woman's College, University of North Carolina, 1960).

¹³Ibid., p. 53.

toaster. When posed with a hypothetical situation involving priority selection the frypan, coffee-maker, blender, roaster, and broiler-rotisserie were listed as first or second choices in one-fourth to one-half of the cases. Concerning appliances in general, findings indicated (1) younger homemakers, under thirty-five years, tended to own few small electrical food preparation appliances (one to five), with an average of 3.8 appliances; (2) those thirty-five years and over in age averaged 4.5 items of ownership; (3) owners had neither chosen nor requested forty-five per cent of the appliances studied; (4) the smallest families more often than families of other sizes, tended to judge their appliances as important; (5) homemakers fifty-five years and older tended to believe that their food preparation appliances were more useful than did younger homemakers.

¹¹Doris W. Frey, "The Usefulness to the Homemaker of Small Electrical Appliances for Food Preparation" (Master's thesis, Department of Home Management, Housing, and Home Art, The Graduate School, The Pennsylvania State University, 1960).

CHAPTER III

PROCEDURE

A questionnaire was developed and pretested with four faculty members of the School of Home Economics, The University of North Carolina at Greensboro and five Home Management Residence students, all of whom were electric blender owners or users. Revisions were made and a final form printed (Appendix A). Ideas incorporated in the questionnaire were suggested by use and care manuals, recipe booklets and books, advertisement and promotional materials, various questionnaires utilized in research on other household appliances, and selected textbooks on household equipment.

Home Economics Extension Agents and Presidents of Extension Homemakers Clubs in Guilford County, North Carolina, were contacted to secure cooperation for data collection. The researcher attended a regular monthly meeting of twenty-four clubs during a seven-week period between May 11 and June 27, 1966. Following an introduction and explanation of the study, questionnaires were distributed to the groups. Respondents had the opportunity to have clarified any questions they did not understand. After blender owners had completed the questionnaires, they were immediately collected.

A letter acknowledging members' cooperation was mailed to each club following data collection and when the study was completed a summary of results was sent to each club.

Definitions

Operational definitions for this study were developed as follows:

Adults. Twenty years and older.

Children. Under twenty years of age and living at home.

All-Adult Family. All persons living in the household twenty years of age or over.

Mixed Family. One or more adults and at least one child under twenty years of age living at home.

Frequency of Use. Refers to blenders and to persons using blender during the two weeks prior to responding to questionnaire.

Low. Fewer than four uses.

Moderate. Four to nine uses.

High. Ten or more uses.

Other Popular Uses of the Blender. Uses popular within the household but not cited during the preceding two-week period.

Uses of Other Appliances. Includes use of all small food preparation appliances other than the blender, subjectively evaluated by respondents.

Never

Occasionally

Often

Number of Food Types Processed. Refers to food types processed during the preceding two-week period. Classification of food types appears in Appendix B.

Low. Zero to three food types.

Moderate. Three to seven food types.

High. Eight or more.

Number of Preparation Processes. Classification of preparation processes appears in Appendix C.

Low. Zero or one preparation process.

Moderate. Two or three preparation processes.

High. Four or more preparation processes.

Problems of Use.

None. No problems reported.

Few. One or two problems.

Many. Three or more.

Analysis of Data

Foods prepared with the blender and the processes utilized were each synthesized into several types for subsequent tabulation and analysis. (Appendixes B and C). In order to facilitate analysis of the data collected, problems and dissatisfactions were classified into seven types: safety, care, operation, design and control, materials, information and instructions, and others (Appendix D).

Recorded data were coded and transferred to IBM cards for sorting. Total frequencies were tabulated and percentages computed. Factors previously hypothesized to be unrelated were tested for association by utilization of the chi-square test for significance. Results from each contingency table were tested for significance at the five and one per cent levels.

CHAPTER IV

RESULTS AND FINDINGS

Approximately 330 members were present at the scheduled Extension Homemakers Club meetings attended by the researcher. Eighteen per cent, fifty-nine in number, owned electric blenders and participated in this study.

DESCRIPTION OF RESPONDENTS AND THEIR FAMILIES

Age of Homemakers

Of the fifty-nine respondents over one-half were between thirty-six and fifty-five years of age, and almost forty per cent were fifty-five years or older. Few were as young as thirty-five (Table 1).

Family Composition

The two-member family was the most frequently occurring family size. Seventy-five per cent of the participating group were members of two-, three-, or four-member households. A few indicated they lived alone. Three-fourths of the families had two adults in them. Over one-half of the respondents reported no children under twenty years of age at home. Families with two children occurred two times as frequently as families with either one, three, or four children (Table 1).

TABLE 1

CHARACTERISTICS OF RESPONDENTS AND THEIR FAMILIES
(59 respondents)

Characteristics of Respondents	Respondents	
	No.	%
Age of Homemaker		
Young (35 or less)	5	8
Middle (36-55)	31	53
Older (56 or over)	23	39
Family Composition		
Number in Family		
1	5	8
2	23	39
3	10	17
4	12	20
5	4	7
6	4	7
7	0	0
8	1	2
Number of Adults		
1	6	10
2	4	7
3	6	10
4	2	3
5	0	0
6	1	2
Number of Children at Home		
0	35	59
1	5	8
2	11	19
3	4	7
4	4	7
Income		
Low (less than \$5,000)	15	25
Medium (\$5,000-\$9,999)	34	58
High (\$10,000 and over)	8	14
No response	2	3
Employment Status of Homemaker		
Not employed	51	87
Employed	6	10
No response	2	3

Annual Family Income and Homemaker's Employment Status

A majority of the owners reported a medium annual family income (within a \$5,000-\$9,999 bracket). One-fourth estimated a low annual family income of less than \$5,000; relatively few of the homemakers valued the family income as high as or higher than \$10,000 (Table 1).

Most of the respondents (87%) indicated that they were not employed (Table 1).

Family Meals and Entertaining at Home

Most respondents regularly prepared meals for the total number in their households. The highest incidence (39%) was for two persons. About three-fourths usually prepared meals for two, three, or four members; one-tenth cooked for one person. A few families prepared meals regularly for six or eight persons (Table 2).

TABLE 2

NUMBER OF FAMILY MEMBERS FOR WHOM
MEALS WERE REGULARLY PREPARED

Number of Family Members	Frequency	%
0	1*	2
1	6	10
2	23	39
3	10	17
4	10	17
5	5	8
6	3	5
7	0	0
8	1	2
Total	59	100

*Respondent who travels frequently.

Respondents revealed that meals were the most popular form of entertainment. Slightly over 40% indicated occasional entertaining at meals; about one-third reported frequent entertaining in this form. Adult parties and snacks as a means of entertainment were utilized more often than were teen-age snacks and parties (Table 3).

TABLE 3
FREQUENCY OF ENTERTAINING AT HOME

	Entertainment Type					
	Meals		Teen-age Snacks, Parties		Adult Snacks, Parties	
	No.	%	No.	%	No.	%
Often	19	32	5	8	10	17
Occasionally	24	41	13	22	12	20
Never	7	12	18	31	14	24
No response	9	15	23	39	23	39
Total	59	100	59	100	59	100

Foods Processed by Blender for Entertainment Purposes

Only fifteen per cent of the respondents acknowledged use of blender-processed foods for entertainment purposes. The most frequently reported food types processed for this purpose were beverages and crumbs, nuts, and coconut. Mixing, blending, and beating were processes most frequently utilized in processing these foods. In general, utilization of blender products for entertainment purposes was limited (Appendix E).

Ownership of Small Electric, Kitchen Appliances

Information pertaining to ownership of all 465 small electric appliances (including the fifty-nine blenders) for food preparation revealed a range of three to sixteen items owned. Six was modal; both the median and average number of appliances owned were seven. Frequencies were:

Number of Appliances Owned	Frequency
3	2
4	2
5	7
6	10
7	4
8	7
9	9
10	6
11	3
12	4
13	2
14	2
16	1

About three-fourths of the homemakers owned five to ten small food preparation appliances.

The Blenders

Acquisition and Related Factors

Means of Acquisition

Over two-thirds of the blender owners indicated they had received their appliance as a gift. One respondent commented that she had received three blenders as gifts. One-fourth had purchased the

blender; one homemaker reported utilizing trading stamps for purchases. Other methods of acquisition included borrowing, swapping, and obtaining as a bonus with purchase of a major appliance (Table 4).

TABLE 4

MEANS OF ACQUISITION

Acquisition	No.	%
Gift	41	70
Purchase	15	25
Other	3	5
Total	59	100

Acquisition by gift was indicated by over three-fourths of the respondents in the youngest (under thirty-five years of age) and the oldest age groups (fifty-six years and over). Almost two-thirds of the homemakers thirty-five to fifty-five years of age had obtained their blender as a gift (Table 5).

Reasons for Wanting a Blender

Reasons for wanting a blender varied (Table 5). However, three-fourths of the homemakers indicated either or both the reasons to accomplish a task that another appliance does not perform and to prepare baby foods or soft diets. Almost two-thirds specified either or both saving time or making work easier as choice factors. One-fifth of the homemakers stated no reason for wanting the blender; this constituted almost one-fourth of the gift recipients and one-sixth of the

TABLE 5

BLENDER ACQUISITION AND RELATED FACTORS

	Total (59 res- pondents)		Means of Acquisition			
			Gift (41 res- pondents)		Purchase/Other (18 respondents)	
	No.	%	No.	%	No.	%
Age of Homemaker						
Young (less than 35 yrs.)	5	9	4	7	1	2
Middle (35-55 yrs.)	31	52	19	32	12	20
Older (56 yrs. and older)	23	39	18	31	5	8
Reasons for Wanting*						
To accomplish task another appliance doesn't perform	27	46	17	29	10	17
To make work easier	18	31	17	29	1	2
To save time	18	31	14	24	4	7
To prepare baby food and soft diet	16	28	8	14	8	14
None stated	12	20	9	15	3	5
Knowledge at Acquisition*						
Features, capacity, speeds, U. L. Seal	46	78	35	59	11	19
Many possibilities of use	28	48	17	29	11	19
Procedures of use and cleaning	27	46	20	34	7	12
None stated	19	32	13	22	6	10
Length of Ownership						
Less than 1 year	13	22	9	15	4	7
1-4 years	25	43	21	36	4	7
4-8 years	14	23	9	15	5	8
Over 8 years	7	12	2	4	5	8

*A multiple response item.

purchasers. All blender owners acquiring the appliance other than as a gift gave as reasons for wanting the blender either to accomplish a task that another appliance does not perform and/or to prepare baby foods

or soft diets. The need of performing a task and the hope of easier work were cited with an equal frequency by owners acquiring the blender as a gift. The time saving element was cited by one-third of the gift recipient group.

Knowledge about Blender when Acquired

Analysis of information known at the time of acquisition revealed that over three-fourths of all owners were cognizant of features, capacity, speeds, and/or the Underwriter's Laboratory Seal. One-fourth of all owners stated an awareness, at acquisition, of many use possibilities and use and cleaning procedures. Almost one-third revealed having no knowledge of the appliance at acquisition. Two-thirds of these had obtained the blender as a gift (Table 5).

A larger proportion of the owners receiving the blender as a gift than those purchasing it, named the information relating to features, capacity, speeds, Underwriters' Laboratory Seal, and procedures of use and cleaning. However, a larger percentage of those purchasing the blender than the gift recipients mentioned knowledge of possibilities of use.

Length of Ownership

Approximately two-thirds of the homemakers had possessed their blender four years or less. Few blenders had been in possession for over eight years; almost three-fourths of those were purchased (Table 5).

The relationship of length of ownership and methods of acquisition was significant at the 5 per cent level (Table 6).

TABLE 6
2 X 2 CONTINGENCY TABLE
MEANS OF ACQUISITION BY LENGTH OF OWNERSHIP*

Acquisition	Length of Ownership		Total
	4 Yrs. or Less	Over 4 Yrs.	
	No.	No.	
Gift	30	11	41
Purchases/other	8	10	18
Total	38	21	59

*Significant at 0.05 level.

$$\chi^2 = 4.502$$

Degrees of freedom = 1

.05 level of significance = 3.841

.01 level of significance = 6.635

Purchase Influences

About one-half of the fifteen homemakers who had purchased their blender checked as an influence the recommendation by an acquaintance who had satisfactorily used a blender. All other sources of information were nominally utilized. A frequency listing follows.

Influences on Purchase (Multiple Response Item)	No.
Recommendation by blender user	7
Individual search for information	3
Magazines	2
Observed blender in use	2
Catalog, salesman, tv (no. = 1 each)	3
No response	2

Use of the Blender

Frequency of Use

None of the respondents utilized their blender often enough to be classified as high frequency users. Three-fourths of the blender owners were classified as low frequency users. Examples of comments pertaining to lack of use were: "have used only once," "did not use in last six months," and "used very seldom." Others specifying no uses within a two-week period remarked that the blender had never been used, that it had only been tried out, and that there had been no need to use it for a year or more (Table 7).

TABLE 7
NUMBER OF USES BY FREQUENCY OF USE
(Two-Week Period)

Number of Uses	Frequency of Use*	
	Low	Moderate
0	21	0
1	7	0
2	9	0
3	7	0
4	0	3
5	0	8
6	0	1
7	0	1
8	0	1
9	0	1
Total	44 (75%)	15 (25%)

*There were no high frequency users.

Only 7 per cent of the fifty-nine respondents reported more than five uses of the blender within the previous two-weeks. Over one-third of the respondents indicated they had processed no foods in the blender during the previous two-weeks; whereas, another one-third indicated utilization one, two, or three times.

Practically all (97%) of the blenders were classified as being in good working order; therefore, poor working order was not a factor influencing frequency of use.

A majority of the other small food preparation appliances owned were utilized often; almost one-third were utilized occasionally and 7 per cent were not currently being used (Table 8 and Appendix F).

TABLE 8

USE OF OTHER SMALL FOOD PREPARATION APPLIANCES

Frequency of Use	No.	%
Often	262	62
Occasionally	130	31
Never	34	7
Total	426	100

Thirty-three per cent of the homemakers age fifty-five years or less used their blenders with a moderate frequency. Only 13 per cent of the homemakers fifty-five years or over were moderate frequency users (Table 9).

There was a slight tendency toward more frequent use among larger families. Sixty per cent of the moderately used blenders were

TABLE 9
 FREQUENCY OF BLENDER USE AND RELATED DATA

	Total No.	Frequency of Use			
		Low (44 Resp.)		Moderate (15 Resp.)	
		No.	%	No.	%
Age of Homemaker					
Young (35 yrs. or less)	5	2	40	3	60
Middle (36-55 yrs.)	31	22	71	9	29
Older (56 yrs. or over)	23	20	87	3	13
Family Size					
Small (1 or 2)	28	22	79	6	21
Medium (3 or 4)	22	15	68	7	32
Large (5 or over)	9	7	78	2	22
Family Composition					
All-Adult	35	27	77	8	23
Mixed	24	17	71	7	29
Means of Acquisition					
Gift	41	29	71	12	29
Purchase/other	18	15	88	3	12
Reasons for Wanting*					
To accomplish task another appliance does not perform	27	15	56	12	44
To make work easier	18	13	72	5	28
To save time	18	10	56	8	44
To prepare baby food/soft diets	16	13	81	3	19
None stated	12	9	75	3	25
Knowledge at Acquisition*					
Features, capacity, speeds, U.L.Seal	46	25	54	21	46
Many possibilities of use	28	19	68	9	32
Procedures of use and cleaning	27	15	56	12	44
None stated	19	15	79	4	21
Purchase Influences* (17 purchasers)					
Recommendation by acquaintance	7	4	57	3	43
Information from individual search, observed blender use, magazines	7	5	71	2	29
Catalog, salesman, tv	3	2	67	1	33
None stated	2	2	100	0	0

*A multiple response item.

possessed by families of three or more persons. The low-use blenders were owned by an equal number of small and medium to large families. Almost two-thirds of the little used appliances and one-half of the moderate-use blenders were owned by all-adult families.

Homemakers who received the blenders as a gift tended to use it more frequently than did those who purchased it. Twenty-nine per cent of the blenders acquired as gifts and twelve per cent of those purchased were used with moderate frequency (Table 9).

A higher percentage of the moderate-frequency users than the low-frequency users cited reasons for wanting a blender. Among the moderate-use group, 80 per cent recognized the blender's basic function--the task that it accomplishes as a reason for owning the appliance; approximately one-half listed time economy; one-third cited easier work, and one-fifth mentioned baby foods-soft diet preparation. Among the low frequency users 34 per cent mentioned the accomplishment of a task that another appliance does not perform. Facilitation of work and soft diet/baby food preparation ranked second and in equal frequency, closely followed by time economy (Table 9). Twenty per cent of the owners in both the low and moderate frequency use groups did not state reasons for wishing to own the appliance.

Respondents who utilized their blenders more frequently cited more items of information known at acquisition than did the low frequency users. A larger percentage of respondents naming no items of information known at the time of acquisition appeared in the low-frequency use category. Low frequency users included the nine who had itemized

popular uses but who reported no uses during the preceding two weeks (Table 9).

No important differences were revealed when purchase influences were analyzed by frequency of use (Table 9).

Number of Food Types Processed within Two-Week Period

Thirty-eight respondents had utilized their blender within the two-weeks prior to participating in this study. Over one-half of all respondents indicated they had used the blender to process either one or two food types during the preceding two-week period. Over one-fourth named either three or four food types. Range of food types processed within the two-week period was one to seven, with an average of 2.4 per family (Table 10).

TABLE 10
NUMBER OF FOOD TYPES PROCESSED
(38 Respondents)

Number of Food Types	Frequency	%
1	10	26
2	12	32
3	5	13
4	6	16
5	3	7
6	1	3
7	1	3
Total	38	100

Beverages was the food type most frequently processed in the blender. Fifty-eight per cent of the respondents utilizing their

blender within the two-week period prior to the survey indicated preparation of a beverage. Next in descending frequency were uses for crumbing, chopping, and grating foods such as nuts, cocoanut, and cheese; vegetables; salads. The blender was used by relatively few respondents for processing fruits and peels; eggs; light batters; mayonnaise and similar products; and spreads, sauces, dips, and sandwich fillings. All other uses cited were utilized by only one or two homemakers (Table 11). Popular uses of the blender cited by homemakers not using their appliance in the two-week period followed in sequence the uses of the other respondents (Appendix G).

Quality of Products

To secure an average of quality ratings of the various food products for which the blender was used, a four point numerical scale, from 1.000 (poor) to 4.000 (excellent) was utilized. All but two of the food type products were ranked as either good (3.000) or excellent (4.000). Products considered not as satisfactory as others were pies and frostings; these were processed by only a few of the respondents (Table 11).

Blender Users

The homemaker in the family utilized the blender for 80 per cent of all uses within a two-week period. Beverages were prepared by an equal number of homemakers and other family members. Only four food types other than beverages were processed by persons other than the homemaker (Table 11).

TABLE 11
 FOOD TYPES PROCESSED BY THIRTY-EIGHT HOMEMAKERS
 (Based on Two-Week Users)

Food Type	Homemakers Mentioning		Average Quality Rating	Person Preparing	
	No.	%		Mother	Others
Beverages	22	58	3.852	15	15
Crumbs, Nuts, etc.	15	39	3.850	19	1
Salads	11	29	3.357	12	0
Vegetables	9	24	3.467	9	3
Fruits and Peels	7	18	3.333	9	1
Eggs	7	18	3.625	8	0
Light Batters	6	16	3.889	6	3
Mayonnaise	6	16	4.000	7	0
Spreads, Dips, & Fillings	4	10	3.750	4	0
Soups	2	5	4.000	2	0
Ice Cream & Sherbets	2	5	4.000	2	0
Pies	2	5	2.500	2	0
Other Desserts	1	3	3.500	2	0
Other Breads	1	3	4.000	1	0
Frostings	1	3	1.000	1	0
Meats	1	3	3.000	1	0
Jams, Jellies, etc.	1	3	4.000	1	0

Food Types and Related Factors

Two-thirds of the gift recipient group processed two or fewer food types; whereas, over four-fifths of the purchase-other group processed two or fewer food types. Five times as many low variety users as moderate variety users failed to state reasons for desiring blender acquisition (Table 12). The low-variety users constituted 80 per cent of the group listing soft-diet/baby food preparation reasons for acquisition and two-thirds of the easier work reasons.

TABLE 12

NUMBER OF FOOD TYPES PROCESSED BY ACQUISITION FACTORS
AND FAMILY CHARACTERISTICS

Factors & Family Characteristics	Total No.	No. of Food Types			
		Low (0-2) 42 Resp.		Moderate (3-7) 17 Resp.	
		No.	%	No.	%
Means of Acquisition					
Gift	41	27	66	14	34
Purchase/other	18	15	83	3	17
Reasons for Wanting Blender*					
To accomplish task another appliance does not perform	27	14	52	13	48
To make work easier	18	10	67	6	33
To save time	18	12	56	8	44
To prepare baby food/soft diet	16	13	81	3	19
None stated (nonrespondents)	12	10	83	2	17
Knowledge at Acquisition*					
Features, capacity, speeds, U.L. Seal	46	25	54	21	46
Many possibilities of use	28	19	68	9	32
Procedures of use & cleaning	27	15	56	12	44
None stated	19	14	74	5	26
Age of Homemaker					
Young (35 yrs. or less)	5	2	40	3	60
Middle (36-55 yrs.)	31	21	68	10	32
Older (56 yrs. and over)	23	19	83	4	17
Size of Family					
Small (1 or 2)	28	19	68	9	32
Medium (3 or 4)	22	16	73	6	27
Large (5 or over)	9	6	66	3	33
Family Composition					
All-adult	35	26	74	9	26
Mixed	24	16	67	8	33

*A multiple response item.

Respondents with moderate food variety uses averaged over three items of information at acquisition of blender; whereas, low variety respondents averaged two items. Respondents who had processed two or fewer food types constituted three-fourths of the group which stated no particular knowledge about a blender at time of acquisition (Table 12). Purchase influences seemed unrelated to number of food types processed in the blender (Appendix H).

Homemakers fifty-five years and younger tended to utilize a wider variety of food types than did older homemakers. No apparent tendencies were revealed when number of food types processed was tabulated with family size and family composition (Table 12).

Number of Preparation Process Types Utilized

Of thirty-eight homemakers reporting two-week uses of the blender, no one utilized more than three types of preparation processes. A mean of 1.8 preparation types resulted (Table 13).

TABLE 13

NUMBER OF PREPARATION PROCESS TYPES UTILIZED

No. of Process Types	No. Respondents	%	Total Utilized
1	13	34	13
2	19	50	38
3	6	16	18
Total (Mean = 1.8)	38	100	69

Incidence of types of preparation processings, from highest to lowest, follows: mixing, blending, and beating; chopping, grating, and shredding; liquifying, puree-ing, and mashing; and crumbling and grinding. The blender was not utilized for any other preparation processes (Table 14). Products from all preparation types were rated good or excellent in quality. The homemaker utilized the blender far more than did other persons in the household. This applied to each specific preparation process as well as the total usage (Table 14).

TABLE 14

PREPARATION PROCESS TYPES UTILIZED BY THIRTY-EIGHT RESPONDENTS
(Based on Two-Week Uses)

Preparation Process Type	Frequency	Homemakers Mentioning		Average Quality Rating	Person Preparing	
		No.	%		Mother	Others
Mixing, blending, beating	64	31	82	3.750	49	18
Chopping, shredding, grating	40	20	53	3.475	32	3
Liquifying, mashing, puree-ing	19	13	34	3.579	15	2
Crumbling	4	4	10	4.000	4	0
Grinding	1	1	3	4.000	1	0

Approximately two-thirds of both low and moderate variety of types of preparation processors had received the blender as a gift. Lack of reasons for acquisition occurred twice as frequently among users of low variety preparation type users as among moderate variety users. Respondents naming no or one preparation type named all reasons with almost equal frequency (Table 15).

TABLE 15

NUMBER OF PREPARATION TYPES UTILIZED BY ACQUISITION FACTORS
AND FAMILY CHARACTERISTICS

Factors & Family Characteristics (59 Homemakers)	Total No.	No. of Preparation Types			
		Low (0 or 1) 31 Resp.		Moderate (2 or 3) 28 Resp.	
		No.	%	No.	%
Means of Acquisition					
Gift	41	21	51	20	49
Purchase/other	18	10	56	8	44
Reasons for Wanting Blender*					
To accomplish task another appliance does not perform	27	11	41	16	59
To make work easier	18	10	56	8	44
To save time	18	8	44	10	56
To prepare baby food/soft diets	16	11	69	5	31
None stated (nonrespondents)	12	8	67	4	33
Knowledge at Acquisition*					
Features, capacity, speeds, U.L. Seal	46	21	46	25	54
Many possibilities of use	28	12	43	16	57
Procedures of use & cleaning	27	13	48	14	52
None stated	19	10	53	9	47
Age of Homemaker					
Young (35 yrs. or less)	5	1	20	4	80
Middle (36-55 yrs.)	31	15	48	16	52
Older (56 yrs. and over)	23	15	65	8	35
Size of Family					
Small (1 or 2)	28	14	50	14	50
Medium (3 or 4)	22	14	64	8	36
Large (5 or over)	9	3	33	6	66
Family Composition					
All-adult	35	20	57	15	43
Mixed	24	11	46	13	54

*A multiple response item.

Respondents citing two or three processings selected most often as a reason for wanting the blender the accomplishment of a task another appliance does not perform. Both low and moderate variety of preparation type users recognized information known at acquisition relating to features, speeds, capacity, and the Underwriters' Laboratory Seal more frequently than other items of information.

A tendency of homemakers fifty-five years or younger toward using the blender for a wider variety of preparation processes was revealed as over one-half of each group utilized two or three process types. Only one-third of the older age group utilized two or three process types. A larger proportion of families of five members or more utilized more preparation types than did the small- and medium-size families. Proportionately more mixed families recorded a moderate number of preparation types than did all-adult families (Table 15).

Use for Special Interest Foods

When asked to identify special interest uses of the blender, one-fourth of all homemakers responded with uses including processing quantities of seasonal foods such as apples and berries, processing onions for shortened and easier chopping, preparation of special diets, and preparation of spaghetti sauce (Appendix I).

Problems of Use

Over one-half of all respondents listed one, two, or three problems of use. One-fifth cited from four to nine problems. One-fourth indicated no problems of use (Table 16).

TABLE 16
PROBLEMS OF USE*

No. of Problems	Respondents	%	Problem Types	Frequency	%
0	14	24	Operation	40	44
1	9	15	Design & control	15	16
2	15	25	Information & instruction	13	14
3	9	15	Care	9	10
4	5	9	Materials	4	4
5	3	5	Safety	4	4
6	0	0	Miscellaneous	7	8
7	2	3			
8	1	2			
9	1	2	Total	92	100
Total	59	100			

*A multiple response item.

The most frequently mentioned problem was operation. Problems of design and control and information and instruction followed with a much lower frequency. Problems seldom mentioned involved materials and safety. All problems listed according to frequency of incidence appear in Table 16.

Owners identifying use problems knew of features and the Underwriters' Laboratories Seal more often than other information. Homemakers who indicated three to nine problems were less familiar with procedures and information on use and cleaning than those with fewer problems. Almost one-half of the homemakers citing no items of information had recognized three to nine problems (Table 17).

Respondents citing three to nine problems recognized a majority of the purchase influences (Appendix H).

TABLE 17
NUMBER OF PROBLEMS BY INFORMATION AND USE FACTORS

Information* and Use Factors	Total No.	No. of Problems*					
		None (0)		Few (1-2)		Many (3-9)	
		No.	%	No.	%	No.	%
Item of Information*							
Features, capacity, speeds, & Underwriters' Laboratory Seal	46	5	11	26	56	15	33
Possibilities of use	28	6	22	11	39	11	39
Procedures of use and cleaning	27	5	18	16	60	6	22
None stated (nonrespondents)	19	5	26	6	32	8	42
Frequency of Use							
Low (0-4)	44	10	22	17	39	17	39
Moderate (5-9 two-week uses)	15	4	27	7	46	4	27
Number of Food Types Processed							
Low (0-2)	42	10	24	16	38	16	38
Moderate (3-7)	17	4	24	8	47	5	29
Number of Process Types Utilized							
Low (0-1)	31	9	29	12	39	10	32
Moderate (2-3)	28	5	18	12	43	11	39

*A multiple response item.

A frequency distribution of problems and other use factors revealed that respondents citing three to nine problems tended to process few food types. There was no indication of clustering of problem responses when analyzed according to process types utilized (Table 17).

Location in Storage and Use

When questioned about storage area-work area relationship, over one-half disclosed the blender was moved to a work area for food processing. Forty per cent indicated storage and work space was one and the same (Table 18).

TABLE 18

RELOCATING FOR USE BY USE FACTORS

	Total No.	Relocating for Use			
		Yes Sometimes		No	
		No.	%	No.	%
Frequency of Use					
Low (0-4)	44	27	61	17	39
Moderate (5-9)	15	8	53	7	47
No. of Food Types					
Low (0-2)	42	27	64	15	36
Moderate (3-7)	17	8	47	9	53
No. of Processes					
Low (0-1)	31	20	65	11	35
Moderate (2-3)	28	15	54	13	46

The need for relocation of the blender for usage was cited by almost two-thirds of the homemakers in each of the following classifications: low frequency of use, few food types processed, and few preparation types utilized. Storage at the point of use was indicated by approximately one-half of each group: moderate frequency of use, moderate number of food types processed, and moderate number of process types utilized (Table 18).

Changes in Use

Almost two-thirds of all owners reported one or more changes in blender usage after acquisition. The greatest number of changes were in processing a greater variety of foods and more frequent use of the blender (Table 19). These changes were cited more frequently by moderate users according to frequency of use, number of food types, number of preparation processes, and by respondents citing no problems in blender use (Table 19).

TABLE 19
CHANGE IN USE BY USE FACTORS
(37 Respondents)

	Change in Use*							
	More Frequently		Less Frequently		More Food Varieties		Fewer Food Varieties	
	No.	%	No.	%	No.	%	No.	%
Frequency of Use								
Low	6	21	10	34	9	31	4	14
Moderate	8	50	1	6	7	44	0	0
No. of Food Types Processed								
Low (0-2)	6	22	11	39	7	25	4	14
Moderate (3-7)	8	47	0	0	9	53	0	0
No. of Process Types Utilized								
Low (0-1)	2	12	7	44	3	19	4	25
Moderate (2-3)	12	41	4	14	13	45	0	0
Problems of Use								
None (0)	3	43	1	14	3	43	0	0
Few (1-2)	6	28	6	28	5	24	4	20
Many (3-9)	5	29	4	24	8	47	0	0

*A multiple response item.

Only one-third of the thirty-seven citing changes in use listed reasons for the changes (Appendix J).

Projected Future Purchase

When homemakers were presented a hypothetical situation concerning blender replacement, more than one-half projected they would purchase a new blender; over one-fourth revealed uncertainty; and almost one-fifth stated they would not select another blender. One-half of the low frequency users and two-thirds of the moderate frequency users responded positively. Owners specifying "perhaps" or "nonreplacement" were more often low frequency users. Those stating they would replace the blender most frequently indicated changes of more frequent use and processing a wider variety of foods. One-half of the use changes itemized by both "perhaps" respondents and the "no" respondents included less frequent use of blender since its acquisition (Table 20).

The most often recorded reason for the "no" and "perhaps" respondents was that the blender was not in use often enough (seldom or never). Reasons for choosing a replacement were few (Appendix L).

From a possibility of twenty or more blender features almost one-third of all owners did not identify any feature on the presently owned model. Sixty per cent cited one to eight features with two-thirds of these naming one to four features. About one-half of those projecting positively or with uncertainty lacked accompanying specification of features desired. Almost two-thirds of those responding listed two to four feature items (Appendix M).

TABLE 20
PROJECTED FUTURE PURCHASE BY USE FACTORS

	Total No.	Projected Future Purchase					
		Yes		Perhaps		No	
		No.	%	No.	%	No.	%
Frequency of Use							
Low (0-4 in 2-wks.)	44	22	50	13	30	9	20
Moderate (5-9)	15	10	67	4	26	1	7
Changes in Use*							
More frequent use	14	12	86	1	7	1	7
Less frequent use	11	2	18	6	55	3	27
More food varieties	16	13	81	3	19	0	0
Fewer food varieties	4	2	50	1	25	1	25
No changes	22	8	36	8	36	6	28

*A multiple response item.

CHAPTER V

SUMMARY AND INTERPRETATIONS

The electric blender, one of a rapidly expanding line of small electric appliances, has followed a trend of added features. Sales promotions have emphasized the gift giving theme and versatility of use. Annual sales volume has steadily risen, unlike the erratically rising or declining sales volumes of other small electric appliances for food preparation.

Consumer information has stressed critical selection based on family needs and experimentation with blenders. Empirical consumer studies indicated unfamiliarity of advantages relating to use and versatility of the blender and other small food preparation appliances. Three empirical consumer studies completed during or prior to 1960 revealed that the majority of small food preparation appliances owned were gifts. Analogously, recipe booklets were considered as lacking in helpfulness. Owners married fewer years and homemakers of the family were the most frequent blender users. In general, there was a lack of frequent use.

The researcher finding blender research meager, purposed (1) to determine the frequency of use made of the blender, (2) to identify the kinds of uses made of this blender, (3) to identify satisfactions and dissatisfactions of use, and (4) to evaluate factors possibly related to frequency and/or variety of use. It was hypothesized that

(1) frequency of use of the electric blender does not vary among owners, (2) variety of use does not differ among owners, (3) family members using the appliance do not vary within the population and (4) variety of use is not related to identifiable factors.

After a questionnaire was developed the final form was administered between May 11 and June 27, 1966 to fifty-nine blender owners who were members of twenty-four Extension Homemakers Clubs in Guilford County, North Carolina. Recorded data were coded and transferred to IBM cards; cards were sorted, frequencies were tabulated, and percentages were computed prior to the utilization of the chi-square statistic as a test of association of factors previously hypothesized as unrelated.

Summary of Findings

Results revealed 90% of the blender owners were thirty-five years of age or older. The two-member family was the most frequently occurring family size. A majority reported each of the following: an income of \$5,000-\$8,999, nonemployment outside the home, and entertainment in the form of meals. Utilization of the blender to prepare food for entertainment purposes was limited as only 15% acknowledged entertainment uses. Homemakers owned an average of seven small appliances for food preparation, including the blender; the range was three to sixteen appliances. Storage provision at convenient locations thus becomes a concern.

Two-thirds of all respondents had received the blender as a gift. Two-thirds had possessed the blender for four years or less.

Blenders owned for four years or less were more frequently acquired as gifts (statistically significant at the .05 level).

The most frequently itemized reason for wanting the blender, was its basic function--accomplishment of a task another appliance does not perform. However, this was cited by less than one-half of the respondents. At acquisition three-fourths of all owners were cognizant of knowledge relative to features, capacity, speeds, and/or the Underwriters' Laboratory Seal. The proportion of respondents citing awareness of other information dropped sharply with one-third of all owners indicating no knowledge of the appliance at acquisition.

Frequency of use varied from low to moderate amounts. Therefore, the null hypothesis that frequency of use of the electric blender does not vary is rejected. One-fourth of the respondents were moderate frequency users. Seventy-five per cent had utilized the blender for fewer than four uses within a two-week period; 20% reported no uses.

Poor working order was not a factor influencing use since 97% of the blenders were reported in good working order. Homemakers fifty-five years or younger, families with three or more members, and the gift recipient group tended to utilize the blender with moderate frequency. Moderate-frequency users recognized more items of information at acquisition than did others.

Number of food types processed by respondents two weeks prior to interview varied from one to seven. In this light the null hypothesis, variety of use does not differ among owners, can be rejected.

However, average variety in food types processed by a single homemaker did not exceed 14% of the maximum potential use of the blender.

Food types named most frequently follow in descending order: beverages; crumbs, nuts, etc.; salads; and vegetables. The blender was used by few respondents for processing fruits and peels; eggs; light batters; mayonnaise and dressings; and spreads, sauces, dips, and fillings. All products except pies and frostings were quality ranked as either good or excellent.

No respondent utilized more than three preparation processes. A mean of 1.8 preparation process types was utilized by the thirty-eight homemakers reporting blender use, indicating limited variety of use. Four-fifths of the homemakers citing blender uses within the two-week period reported utilizing mixing, blending, and beating processes. Creaming, crushing, and whipping were not utilized.

The homemaker in the family utilized the blender for 80% of all uses within the two-week period. Since 20% of blender use was by persons other than the homemaker, the null hypothesis that family members using the blender does not vary within the population was rejected.

The null hypothesis--variety of use is unrelated to identifiable factors--is rejected. No statistically significant relationships were revealed. However, tendencies were apparent in several frequency distributions: homemakers fifty-five years and younger tended to utilize the blender more frequently and to process more food types than older homemakers. Age of homemaker and number of preparation types utilized followed a similar pattern. Tendencies concerning relationship of other

use factors and family characteristics to food and preparation types were not clear.

Over one-half of all homemakers listed one, two, or three problems of use. Operation problems were identified almost three times as frequently as any other problem type. Design-control and information-instruction problems followed in frequency; almost one-third noted one of these difficulties.

Although there was no statistically significant relationship, the null hypothesis that number of problems of use was not related to the three use factors (frequency, number of food types, and number of preparation types) cannot be completely accepted since there were no high frequency users or high variety users.

Over one-half of all fifty-nine respondents disclosed that the blender was moved to a work area for food processing. Need for relocation for usage was recorded by almost two-thirds of the respondents in each of the following classifications: low frequency of use, low number of food types processed, and low number of preparation types utilized.

When homemakers were presented a hypothetical situation concerning blender replacement, more than 50% projected that they would purchase another blender, over one-fourth of the respondents revealed uncertainty, and almost one-fifth specified nonreplacement. One-half of the low frequency users and two-thirds of the moderate frequency users responded positively.

Identification of changes in blender use revealed no apparent tendencies, except that over four-fifths of the owners stating that they would replace the blender (hypothetical situation) indicated previous changes of more frequent use and processing a wider variety of foods.

Interpretations and Implementation of Findings

Although blender sales volume has steadily risen, findings in this study indicate owners did not use their blenders frequently. Apparently, the blender was utilized for few types of foods rather than a variety. This seems incongruous since quality of products produced were evaluated as good to excellent. The fact that younger homemakers indicated greater use of their blender than did those who were older, was understandable because they were at the stage of the family life cycle when convenience was of utmost worth.

Home economists working through an educational program may stimulate more conscious and responsible choices when purchasing a blender either for ones own use or as a gift. Consumers could be challenged to critically weigh values and resources and to assay future usage based on family needs.

To realize the often publicized advantages of blender versatility, home economists in teaching, extension, utility and other business fields could exert more effort toward encouraging creative use of this appliance among all family members. Teen-agers might be responsible for their own snacks as well as parts of family meals.

Kitchen planning specialists are challenged to include storage at convenient locations for the inventory of small food preparation appliances and to eliminate the need of their relocation for use.

Manufacturer-consumer communications may lack in effectiveness. There may be a need to provide information that will motivate blender owners to more optimal utilization of this appliance. Electrical power use groups should consider the factor that increased sales volumes may not be a true indication of concomitant electrical power consumption.

Recommendations for Further Study

Further study among younger age groups was recommended since young homemakers in this study were few in number and indicated highest use frequency of the blender. Home management personnel could utilize additional information concerning usage and storage locations. Home economists, consumers and manufacturers of electrical appliances and their sales personnel should be challenged. Each group finds its interpretations of research findings useful for certain individual purposes. More diligent searching is necessitated: "When the facts are gathered or discovered, when they are disentangled and identified, when they are sifted and verified, when they are counted and measured, the real task . . . is not ended--it is not even begun . . ." ¹⁶

¹⁶ MacIver, cited by Frederick E. Croxton and Dudley J. Cowden, Applied General Statistics (New York, New York: Prentice-Hall, Inc., 1953), p. ii.

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APPENDIX

EXHIBIT A
IN RE: ...

The School of Law Center
University of North Carolina
Chapel Hill, North Carolina

1. If you have any other information regarding the ...

2. If you have any other information regarding the ...

APPENDIXES

3. If you have any other information regarding the ...

4. If you have any other information regarding the ...

5. If you have any other information regarding the ...

APPENDIX A

SATISFACTIONS AND PROBLEMS
IN USING THE
ELECTRIC BLENDER

The School of Home Economics
University of North Carolina at Greensboro
Greensboro, North Carolina

PLEASE CHECK THE APPROPRIATE RESPONSE: Give more than one response if applicable.

1. How did you acquire the blender?
 gift
 cash or credit
 trading stamps
 other, please specify: _____
2. What were the main reasons for wishing to own a blender?
 to save time
 to make work easier
 to accomplish a task another appliance does not do
 attachments available
 to prepare baby foods
 to prepare soft diets
 others, list _____
3. When you got the blender, did you know the following information?
 many possibilities of use
 procedures of use
 how to clean it
 convenience features on it
 capacity of the container
 number of speeds
 U.L. Seal (Underwriters' Laboratory)
 others, please list: _____
4. If purchased do you recall what influenced your decision to buy?
 recommendation by an acquaintance who has satisfactorily used a
blender
sales promotion, via
 radio
 television
 magazines
 catalog

- miscellaneous printed ads
 observed blender in use
 an advertised sale on blenders
 salesman
 information gained from individual search
 others, specify: _____

5. Has there been considerable change in use since the time of acquisition? If so, do you use it

more frequently for a greater variety of foods
 less frequently for a fewer variety of foods

Why? _____

6. How long have you owned the blender?

less than 1 year 4 to 8 years
 1 to 4 years over 8 years

7. Check the frequency of types of entertainment in your home.

	NEVER	OCCASIONALLY	OFTEN
Meals.....			
Snacks or Parties			
Teen-age.....			
Adult.....			
Other.....			

8. Check how often you use the small electrical kitchen appliances that you own.

APPLIANCE	NEVER	OCCASIONALLY	OFTEN
Bean pot.....			
Can opener.....			
Casserole.....			
Coffee-maker.....			
Coffee grinder.....			
Deep-fat fryer.....			
Dutch oven.....			
Food tray (bun warmer).....			
Griddle.....			
Knife (carving).....			
Knife sharpener.....			
Mixer.....			
Popcorn popper.....			
Roaster.....			
Rotisserie.....			
Saucepan.....			
Skillet.....			
Toaster.....			
Waffle baker.....			
Other, list: _____			

9. If your blender became inoperable beyond reasonable repair and you had enough money, would you purchase another?
 yes no perhaps
10. If answered "no" or "perhaps," give reason(s).

11. If answered "yes," check your reason(s).
 to save time
 to make work easier
 to accomplish a task that another appliance does not do
 to prepare soft diets
 pleasure of using it
 several attachments available
 to prepare baby foods
 other, please list: _____

12. Is your blender in good working order now?
 yes no
13. Please check the following features of blenders according to:
 (A) features of blender you now own.
 (B) features you desire if you replace it.
- | | (A)
Now own | (B)
Future |
|--|----------------|---------------|
| Multiple-speed control..... | _____ | _____ |
| Number of speeds available..... | _____ | _____ |
| Removable blades..... | _____ | _____ |
| Container: with handle..... | _____ | _____ |
| with pouring spout..... | _____ | _____ |
| with measurement markings..... | _____ | _____ |
| heat resistant..... | _____ | _____ |
| shatter proof..... | _____ | _____ |
| several containers with different capacities | _____ | _____ |
| blender hood or cover..... | _____ | _____ |
| two-piece lid construction..... | _____ | _____ |
| measuring cup cap in lid..... | _____ | _____ |
| timed blending: automatic cut-off..... | _____ | _____ |
| juicer attachment..... | _____ | _____ |
| knife sharpener attachment..... | _____ | _____ |
| ice crusher attachment..... | _____ | _____ |
| can opener attachment..... | _____ | _____ |
| coffee grinder attachment..... | _____ | _____ |
| disappearing cord storage..... | _____ | _____ |

14. Do you consider any of these to be problems?

- control switch difficult to operate
- selection of correct speed
- danger of getting cut by blades
- getting a product of desired consistency
- lubrication
- assembling blender parts
- disassembling blender parts
- cleaning of container
- cleaning of base
- cleaning of lid
- objectionable odor of lid
- lid is loose fitting
- lid is too tight for easy removal
- capacity too small
- container larger than needed
- container is difficult to remove from base
- removing food from container
- top opening too small
- may crack or break
- measurement markings not clear
- poorly shaped handle
- spills easily during operation
- often need to push food away from sides
- can't add ingredients while operating
- base vibrates and rocks
- blades clog easily
- blades difficult to remove
- sequence of inserting ingredients
- discoloration and corrosion
- too tall for easy storage
- electrical shock hazard
- overloaded electrical circuits
- lack of electrical outlets
- location of electrical outlets
- motor overheats
- excessive noise
- time-consuming to use
- little information on uses
- vague, unclear instructions
- no time guide for mixing or cutting
- other, list: _____

15. How many persons including yourself, do you regularly prepare meals for?

persons

16. Do you move the blender from its place of storage in order to use it?

yes

no

sometimes

17. HOW DID YOU USE YOUR BLENDER IN THE LAST TWO WEEKS?

We're interested in the particular products the blender is used for, the quality of products, the frequency of use, and who uses it. Please enter information in the appropriate columns.

1. In the FOOD PREPARED column write the name of the food or beverage prepared.
2. Check according to the quality of product.
3. Check person who prepared the food.
4. Check if product was used when entertaining.

1. FOOD PREPARED in your blender	2. QUALITY OF PRODUCT				3. PERSON PREPARING THE FOOD				4. FOOD USED FOR ENTER- TAINING
	excellent	good	fair	poor	Father	Mother	Child	Other	
1.									
2.									
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									

Other Uses:

If not used in the last two weeks, please indicate your most popular uses.

- 1.
- 2.
- 3.

Perhaps you have found some uses to be of special interest. If so, please indicate below. Tell us why this is so.

ONLY A FEW MORE QUESTIONS TO GO. Turn the page and you'll find a few items on a card.

End of Page 3 of questionnaire.

The following was printed on a 4" x 6" card and attached as the fourth page of the questionnaire.

Please check any that apply, supplying the number where needed.

1. Composition of household (in your home)
 ___ number of adults, including children 20 and under
 ___ number of children at home under 20
2. Age of homemaker
 ___ 35 or under
 ___ 36-55
 ___ 56 or over
3. Are you employed outside the home?
 ___ yes
 ___ no
4. Average annual family income
 ___ less than \$5,000
 ___ \$5,000-\$9,999
 ___ \$10,000 and over
5. Would you like to know the results of this study?
 ___ yes
 ___ no

Please check to be sure all questions are answered.
Thank you for your time, considerations, and thoughts.

APPENDIX B

CLASSIFICATION OF FOOD TYPES PROCESSED*

1. Beverages: milk shakes, vegetable and fruit drinks, and cocktails.
2. Crumbs, nuts, etc.: cheese, powdered sugar, and crumb crusts.
3. Vegetables: corn, green beans, potatoes, etc.
4. Salads.
5. Fruits and peels.
6. Light batters: cakes, pancakes, waffles, gingerbread, and pound cake.
7. Eggs: whites and yolks
8. Mayonnaise and dressings.
9. Spreads, dips, and fillings.
10. Soups.
11. Ice cream and sherbets.
12. Pies.
13. Other desserts.
14. Other breads.
15. Frostings.
16. Meats.
17. Jams, jellies, etc.

* Adapted from outline of foods listed by Mabel Stegner, Electric Blender Recipes (New York, New York: M. Barrows and Co., 1952).

APPENDIX C

CLASSIFICATION OF FOOD PREPARATION PROCESSES UTILIZED

1. Mixing, blending, and beating: milk shakes, floats, malts, sodas, frozen juices, alcoholic drinks, punch, lemonade, fruit drinks, vegetable drinks, egg nog, eggs, omelets, dry milk with water, pancakes, waffles, breads (yeast, quick-rise, fruit, nut, coffee-cake, hush puppies, and muffins), popover, brownies, cookies, doughnuts, cheese cake, cake batter, puddings, custards, pie fillings, icings, sauces, dips, spreads, sandwich fillings, catsup, relishes, marmalades, salad dressings, mayonnaise, aspic, syrups, soups, ice cream toppings, ice cream, sherbet, and ices.
2. Chopping, grating, and shredding: nuts, coconut, chocolate, dried fruit, fruits (fresh, frozen, and packaged cranberries, apples, cherries, oranges, lemons, etc), vegetables (cucumbers, onion, green peppers, beets, potato, celery, cabbage, sweet potatoes, spinach, asparagus, corn, beans, etc.), meats (salmon, shrimp, liver, chicken, tuna, beef, turkey, ham, etc.), mushrooms, slaw, cheese, and hard-cooked eggs.
3. Liquifying, puree-ing, mashing: vegetables, fruits, fruit whip, and applesauce.
4. Crumbling: graham crackers, soda crackers, cookies, toast, dry cereals, and bread.
5. Grinding: coffee, ice cubes, and granulated sugar.
6. Creaming: shortening, nut butter, and honey butter.
7. Crushing: peppermint candy, peanut brittle, and other candies.
8. Whipping: egg whites, cream, and cooked potatoes.

APPENDIX D

CLASSIFICATION OF PROBLEMS OF USE INTO TYPES

1. Safety

- A. Danger of getting cut by blades.
- B. Electrical shock hazard.
- C. Overloaded electrical circuits.

2. Care

- A. Lubrication
- B. Cleaning of container
- C. Cleaning of base
- D. Cleaning of lid

3. Operation

- A. Selection of correct speed
- B. Getting a product of desired consistency.
- C. Assembling blender parts
- D. Disassembling blender parts
- E. Removing food from container
- F. Often need to push food away from sides
- G. Cannot add ingredients while operating
- H. Base vibrates and rocks
- I. Blades clog easily
- J. Blades difficult to remove
- K. Sequence of inserting ingredients
- L. Motor overheats
- M. Excessive noise
- N. Time consuming to use

4. Design and control

- A. Control switch difficult to operate
- B. Lid is loose fitting
- C. Lid is too tight for easy removal
- D. Capacity too small
- E. Container larger than needed
- F. Container is difficult to remove from base
- G. Top opening too small
- H. Measurement markings not clear
- I. Poorly shaped handle
- J. Spills easily during operation
- K. Too tall for easy storage

APPENDIX D - - Continued

5. Materials
 - A. Objectionable odor of lid
 - B. May break or crack
 - C. Discoloration and corrosion
6. Information and instructions
 - A. Little information on uses
 - B. Vague, unclear instructions
 - C. No time guide for mixing or cutting
7. Miscellaneous
 - A. Lack of electrical outlets
 - B. Location of electrical outlets
 - C. Other

APPENDIX E

BLENDER USE FOR ENTERTAINMENT PURPOSES
(9 Respondents)

Food Types	No.	Preparation Types	No.
Beverages	7	Mixing, blending, and beating	10
Crumbs, nuts, etc.	5		
Salads	3	Chopping, grating, and shredding	6
Fruits and peels	1		
Spreads, dips, & fillings	1		
Ice cream & sherbets	2	Liquifying, puree-ing, and mashing	3
Other desserts	1	Crumbling	1

APPENDIX F

OWNERSHIP OF OTHER SMALL FOOD PREPARATION APPLIANCES

No. of Items of Ownership (Excluding Blender)	Frequency of Use		
	Often	Occasionally	Never
0	1	14	43
1	3	11	12
2	10	9	1
3	11	9	1
4	9	11	0
5	7	3	0
6	6	1	0
7	6	0	0
8	2	0	1
9	2	1	1
10	1	0	0
11	0	0	0
12	0	0	0
13	1	0	0
Total	262	130	34

APPENDIX G

FOOD TYPES PROCESSED AS OTHER POPULAR USES

Food Types	No.
Beverages	4
Crumbs, nuts, etc.	3
Salads	3
Vegetables	2
Fruits and peels	2
Spreads, dips, & fillings	1
Total	15
No. of respondents	9

APPENDIX H

PURCHASE INFLUENCES BY NUMBER OF FOOD TYPES AND PROBLEMS

Purchase Influence (Multiple Response Item) (15 Purchasers)	Food Types		No. of Problems		
	Low (0-2)	Med. (3-5)	Low (0)	Med. (1-2)	High (3-9)
	No.	No.	No.	No.	No.
Recommendation by an acquaintance	4	3	0	1	6
Information gained from individual search, observed blender use, magazines	5	2	2	0	5
Catalog, salesman, television	2	1	1	1	1
Total respondents	10	3	2	2	9
Nonrespondents	2	0	0	2	0

APPENDIX I

SPECIAL INTEREST FOODS
(15 respondents)

Food	Frequency	Food	Frequency
Onions	3	Chicken salad	1
Special diet	2	Nuts	1
Spaghetti sauce	2	Oatmeal	1
Apples	2	Pumpkin pie filling	1
Berries	1	Sweet potato custard	1
Mayonnaise	1	Foods for entertaining	1
Chili	1		

APPENDIX J

REASONS FOR CHANGE IN USE

Reason*	Change in Use*			
	More Often	Less Often	More Food Varieties	Fewer Food Varieties
	No.	No.	No.	No.
Awareness of new uses	2	0	6	0
Children are older	1	3	1	1
Lack of time, need, & practice	0	3	0	1
Total	3	6	7	2
No response	11	5	9	2

*A multiple response item.

APPENDIX K

REASONS FOR PROJECTED FUTURE PURCHASE

Projected Purchase	Frequency	Reason
No (10 Owners)	4	Not in use often (seldom or never)
	3	Too much trouble, impractical
	1	Does not do work it should
	1	Enjoy mixing foods by hand
	1	Small family
Perhaps (17 Owners)	6	Not in use often (seldom or never)
	2	Not important, can do without blender
	1	Need to know more uses
	1	If need existed, for its use
Yes (32 Owners)	1	Accomplish task another appliance does not do
	1	Pleasure of using it
	1	Use for preparing more healthful foods
	1	Use for milk shake preparation

APPENDIX L

BLENDER FEATURES: PRESENT AND PROJECTED

No. of Features	Present		Projected			
			Yes		Perhaps	
	No.	%	No.	%	No.	%
0	18	31	14	44	10	59
1	4	7	1	3	1	6
2	3	5	5	16	0	0
3	6	10	3	9	2	11
4	11	18	2	6	0	0
5	2	3	0	0	0	0
6	1	2	1	3	1	6
7	3	5	0	0	0	0
8	6	10	0	0	0	0
9	2	3	0	0	0	0
10	1	2	0	0	0	0
11	1	2	1	3	1	6
12	0	0	0	0	0	0
13	0	0	1	3	1	6
14	0	0	0	0	0	0
15	0	0	1	3	1	6
16	1	2	0	0	0	0
Total	59	100	32	100	17	100