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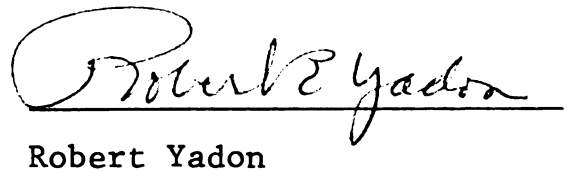

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ABSTRACT

ENERGY AWARENESS AND MEDIA CREDIBILITY: AN ANALYSIS

By

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Since there has been no research known to have linked energy awareness and media credibility in one study, this research concentrates on whether people perceive an energy problem, how much they know about energy use, how they receive information about the energy problem, what degree of credibility they attach to the various means of communicating information, and the best media for reaching these people.

The methodology involved the use of telephone interviews, and the sample consisted of young families drawn from the 1977-78 Grand Rapids directory. Data was treated with Pearson's correlation, chi-square, t-tests, and analyses of variance.

In general, the results indicate that people do perceive an energy problem, perceive paying more for energy but use less, are not knowledgeable of energy consumption, do not necessarily use the sources of information they believe to be the most credible, and contradict themselves in reference to media credibility and truthfulness.

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Any errors are my own, of course.

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CHAPTER I

INTRODUCTION

This study was conducted to determine the present level of energy awareness and what are perceived to be the most credible media. This chapter discusses the social significance of the subject under consideration, the purposes of this study, the scope of the study, and the organization.

The Social Significance

For the past few years, this country has been faced with an energy problem. The United States has approximately six percent of the world's population and land area but consumes nearly 40 percent of the energy the world uses. Additionally, the country's population has increased more than 33 percent since 1950, but energy consumption has increased 100 percent.[1] In that time, the United States has become an importer rather than an exporter of energy, importing 15 percent of its total energy and 35 percent of all petroleum in 1975. While the use of gas and oil increased markedly, coal consumption decreased 36 percent between 1947 and 1962. Rising costs of labor and

more strict mine safety requirements and air pollution standards have further retarded the use of coal. The progress of nuclear power has also been plagued with technical difficulties, economic efficiencies, public antipathy, and a growing concern for safety. When the United States backed Israel in the 1973 Middle East War, the Persian states shut off U. S. oil imports. The emergency ended in March 1974, and domestic inventories were restored by that summer, but the crisis left serious doubt in the minds of many officials whether similar incidents in the future could seriously criple everyday activities and industry.[2]

Purposes of this Study

There have been numerous studies, articles, broadcasts, reports, books, and speeches about energy for the past three decades. Since it has only been considered a major problem since the Arab Oil Embargo of 1973, most of these studies appear to lack depth and a breadth of understanding of the energy problem and interrelated factors. They are surveys conducted by various organizations, such as the oil industry, to prove a point or substantiate a claim. A Michigan State University study attempted to connect media use with energy knowledge, but it did not attempt to ascertain what credibility the public attaches to the various information sources.[3]

The purposes of this study were, then, to determine: 1) if the people perceive an energy problem; 2) the target

audience's knowledge of energy use; 3) how the people receive information about the energy problem; 4) what degree of credibility people attach to various communication media (inter-personal, print, broadcasting, etc.); and 5) the best media for reaching these people. The results will hopefully help advertising experts to formulate a strategy and a media package.

Study Method

In brief, questionnaires were used to determine what the public knows about the energy problem, where it gets its information and how it feels about the credibility of various media. Telephone interviews were conducted by trained interviewers from a systematically-drawn sample out of the Grand Rapids Telephone Directory. A pretest of the questionnaire was conducted in the Lansing, Michigan, area to determine if adjustments were necessary. Analysis consisted of correlations, chi-square, difference-of-means tests, and analysis of variance.

Scope

Specific limitations were faced in the execution of this study. Since there was an economic funding problem in the conduct of this study, it was necessary to use assests available through Michigan State University. Special direct (WATS) telephone lines were used at the Department of Telecommunication.

Thus, only three areas in Michigan outside of the Lansing area (which is constantly the subject of investigation) were usable in this study. Detroit is too metropolitan as is the Ann Arbor area. The latter is also under a constant barrage of studies originating at the University of Michigan. Grand Rapids is the only area in which there is both a metropolitan and agricultural cross-section. Most ethnic groups are represented as well. However, it must be remembered that this is merely one city not necessarily typical of the rest of the state. This application and inferences should not be used to predict the situation in other Michigan communities. This does not mean, however, that the design of this research cannot be applied effectively to other communities.

Second, half of the findings of other studies are based on secondary analysis of other researchers and journal articles which have been abridged, thus eliminating the raw data for personal, first-hand analysis. It is believed, however, that the previous studies tend to support one another over time.

Third, age demographics were asked initially since only 18- to 40-year-old respondents were desired for reasons explained later. This could have caused two negative results: 1) respondents may have refused to divulge their age for personal reasons, and 2) they may have lied about age in order to avoid the interview, thus voiding that particular case as a refusal.

Fourth, the use of telephone interviews did, of course, limit follow-up, in-depth questioning to ascertain the reason for discrepancies or contradictions in their answers.

It is hoped that this study revealed what the population knows about energy and will give us enough information about how it perceives the different modes of communicating information, whether it be through friends, through print, and/or through broadcasting. It is also hoped that the results of this study will contribute to the overall energy effort.

Definition of Terms

Energy: that energy which is released from coal, natural gas, or nuclear power. It is used to provide fuels and electricity.[4]

Energy Awareness: individual recognition of the energy situation, related problems, and knowledge of energy use.

Energy Crisis: the culmination of a series of adverse events which occurred in the early-1970s climaxing in October 1973 with the complete Arab Oil Embargo. (NOTE: The crisis is not to be confused with the energy problem.)

Energy Knowledge: the fact or condition of knowing (perceived directly) about energy with familiarity gained through experience or association; the range of a respondent's information or understanding of energy as demonstrated by successful answering of empirically verifiable energy use questions.

Energy Problem: the unsettled, continuing energy shortage; this is not to be confused with the "energy crisis" which was a specific incident. (NOTE: Not one source investigated has defined what is or is not an energy problem. Researchers and reporters dealing with energy use the terms "energy problem" and "energy crisis" loosely and interchangeably. All of the definitions above are based on the implied definition in the majority of cases and Webster's Seventh New Collegiate Dictionary.)

Reliability: the quality of being worthy of belief.

Truthfulness: the state of being the case; telling or disposed to tell the truth.

Young Families (the population): 18- to 40-year-old single persons or couples who may or may not be married, may or may not have children, and make more than $8000 (household) a year.[5]

Thesis Organization

Aside from the social significance, purposes, methodology, and scope already discussed, a history of previous studies and hypotheses will be outlined in Chapter II. Chapter III will describe the methodology in detail, Chapter IV the results, and Chapter V the conclusions and recommendations.

FOOTNOTES

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CHAPTER II

BACKGROUND LITERATURE, HYPOTHESES, AND RATIONALE

This study involved two major areas, media credibility and energy awareness. Since there is an almost endless amount of literature on the subject of energy and what to do about it, the information from these sources has been grouped so as to give some logical pattern for discussion: 1) awareness of an energy problem; 2) responsibility for the energy problem; 3) energy consumption habits; 4) where people receive energy information; and 5) information source credibility.

Energy Problem Awareness

Before a problem can be effectively solved, it must be recognized. Research indicates that energy usually takes a backseat to other issues although it is now beginning to achieve majority status. Attitudes about energy first arose in relation to environmental concerns in the early 1970s. Prior to that, there was little interest.[1] In a 1972 Gallup poll, 83 percent surveyed perceived an energy crisis; however, its importance in relation to other issues was almost insignificant.[2] After one month, energy began appearing in

Gallup and CBS public opinion polls although the issue was at the bottom of the list (four percent of the people perceived it as a problem). In fact, it was not until the height of the energy crisis (1973-74) that energy was deemed a major problem by more than 10 percent of the Gallup samples.[3] A study conducted early in 1973 reflected the need for an actual crisis in order to get people to believe that there is an energy problem.[4]

A study of both the news media and oil industry between 1971 and 1973 revealed that the oil industry had issued warnings before 1971. The news media carried little editorial content on energy problems, and those beginning in 1972 questioned the believability of energy shortages.[5] A nationwide survey taken in July 1975 revealed that providing enough electrical power for the future is the third most important problem communities face; however, opinions had changed from 24 percent in 1971 to 39 percent in 1975.[6] A Harris survey conducted during the same time revealed that the majority of Americans perceive an energy problem, but leaders perceive the problem to be more acute than does the general public. This suggests that higher levels of knowledge about energy result in stronger attitudes.[7] Another 1975 study resulted in respondents ranking energy shortages (26%) behind the economy and unemployment,[8] a drastic improvement. Although these studies indicate a trend toward crisis recognition, a 1976 study shows a decline. Roper reflected a decrease in energy as a national problem from 27 to 22 percent, ranking seventh among 11

problems; 52 percent believe the oil shortage was and continues to be a contrivance.[9]

Demographically, there are several points that are pertinent to the issue of the energy problem. In a study conducted in 1974, females were more likely than males in almost all circumstances to believe that the 1974 situation was real and not a maneuver.[10] The 1976 Roper study reported that when it comes to favoring either environmental or energy needs, sex makes little difference.[11] The relationship between income level and belief in the crisis also varied by sex; i.e., low-income males were not convinced of the reality while middle-income females were more skeptical than low- and high-income respondents.[12] Roper also found that all income levels view the crisis with equal seriousness for their community while those with high incomes were more personally bothered by the crisis and viewed it as more real.[13] Another 1976 study of family values, household practices, and contextural values resulted in the conclusion that no difference among intrafamilial patterns of self-esteem, familism, and social responsiveness were found in the adoption of energy conservation practices; however, family economic consciousness was found to be a predictor in adopting energy conservation practices. This eco-consciousness appears to be related to higher levels of education and family income.[14] Education-wise, the more education a respondent has, the more likely the response that the crisis was real. A strong correlation also exists between education and the level of energy

awareness.[15] The Roper study found that college educated persons tend to favor environmental needs first. These were stronger among younger persons and liberals.[16] Another private study by Farace in 1976 found that younger, more educated, higher income, urban cosmopolitan individuals provide most of the concerned population.[17]

Responsibility for the Energy Problem

Blame for the energy crisis, according to Roper, is generally given to the oil companies (57%) although there has been some shift toward other segments: Arab countries (37%), electric power companies (29%), the Administration (28%), Congress (26%), the consumer (18%), Israel (13%), and environmentalists (9%).[18] In contrast, Warren concluded that the energy crisis was perceived as a failure of the American society and institutions rather than foreign country action. The crisis was experienced in terms of middle class phenomena.[19] Farace tends to agree with the former analysis, saying utility and oil companies, governmental agencies, and mid-Eastern countries all share the blame equally for the current energy problem. Relatively few persons perceive that their own behavior is a part of the problem.[20]

Energy Consumption Habits

It was discovered in 1973 that an information campaign designed to manipulate behavior did not influence electricity consumption. The energy crisis, likewise, did not influence

consumption; however, it did have a major impact on attitudes toward the desirability for conservation. Apparently, the lack of immediately perceived rewards (economical or social) is responsible for this discrepancy between behavior and attitudes.[21] In contrast, General Publics Utilities of Pennsylvania and New Jersey have achieved some minor load shifting through time-of-day incentive rates to large users and "it pays to wait until eight" advertising campaigns. Some of the direct controlled load management systems have been operating for several years, and the impact of their operation can be readily observed; however, results of these programs using rate incentives will require several years of operating experience.[22] A similar study was conducted in 1975 to investigate procedures to encourage reduction of energy use by residential consumers. One group that received an economic incentive in addition to a conservation manual averaged a 15-percent reduction for the first two weeks; however, the reduction was linked directly to weather conditions, not to the independent variable. It was also found that feedback to consumers may be a significant variable in energy conservation programs.[23]

A 1973-74 study reflected that households with a lower social status perceived the shortage in terms of its personal impacts and as a "real problem"; whereas, higher status households became less supportive of severe restrictions on energy use as the situation progressed. This suggests that the experienced shortage did not match warnings or that people became disillusioned with economy of energy.[24]

The more persons in a household, the more frequently adjustments have been made. (The fact that single-member households seldom make adjustments is probably due to a high proportion of the elderly and younger households having a smaller inventory of appliances.)[25]

Almost 80 percent of owner-occupied households have made adjustments while only two-thirds of the renters have made adjustments. Renters making indirect payments for energy are not likely to be as aware of how much energy they are using or the cost.[26]

Income-wise, a 1974 study found that lower-class income groups had the least flexibility and the upper-income groups the most.[27] Two years later, Morrison and Gladhart noted that income is the best predictor of energy consumption.[28] These findings are supported by Smith who found that higher income households are more likely to have made adjustments and will continue to do so; however, they normally have more adjustment alternatives (more appliances and larger homes).[29] Hogan found that individuals with higher incomes and higher educational levels apparently are more aware of energy problems, but conservation practices are usually limited to in-home conservation, not transportation conservation.[30]

Smith supported Hogan, reporting that as the level of education increases, the more energy-reducing adjustments are made or might be made.[31] Warren discovered results which conflict with Smith's. In dealing with actual amounts of savings, he found that persons with the highest education levels

reported the greatest amount of energy consumption.[32] A strong correlation also exists between education and the level of energy awareness. The greater the energy awareness of the respondent, the more likely he accepts specific energy policies, such as tax deductions and rationing. It is uncertain whether educational programs will transform public values and goals in the area of energy consumption, but increased environmental and energy efforts in the schools, continuing education programs, and information messages in the mass media could lead to a greater awareness of the issues and alternative responses.[33] As the infusion of mass media information increases into a social system, those persons with higher socio-economic status tend to acquire this information at a faster rate than lower-status segments so that the "gap" in knowledge between these segments tends to increase rather than decrease.[34]

This knowledge gap widens with increasing levels of media input because of several factors. Formal education results in higher reading and comprehension abilities necessary to acquire knowledge. Those who are better informed are more prepared to understand new information in the mass media.[35] Personal interest is also an important factor in learning. Readibility correlates highly with enjoyment of the article. Content does not affect enjoyment.[36] The University of Michigan suggests that interest in science depends primarily on the direct impact the information has on a person's personal life.[37] Publics who are most likely to respond to mass

media information have a prior interest in the subject; however, the media are relatively powerless in effecting changes in attitudes of consequence because of much resistence in being moved away from their comfortable indifference to many public issues.[38]

In dealing with age as a determining factor, Smith discovered that most adjustments are made by the lower-middle age group and least by the elderly,[39] probably due to the latter's more inflexible, fixed income.

Women generally have higher scores on the energy awareness scale and are more likely to believe in the reality of the energy crisis than men.[40]

Energy Information Sources

A secondary analysis of national sample surveys between 1952 and 1964 revealed that newspapers account for 41 percent of primary science information, followed by magazines (28%), television (26%), and radio (2%). Respondents with at least some college and higher incomes use magazines more than lower status persons. Television is the primary source for those with a high school or less education.[41] This finding was supported in 1970 by Tichenor, Donohue, and Olien who noted that most science and public affairs, with the exception of crisis events, are carried in print. Both are more heavily used by higher-status persons; science news lacks the constant repetition which facilitates learning and familiarity among low-status persons.[42] A spring 1975 study revealed that the

science consumer of information is more likely to be male in areas of non-medical science and female in areas of medical news. The males tend to consume newspapers, magazines, radio, and television and likely to be under 50 years of age, were exposed to science in school, are probably suburbanites or middle-sized city-dwellers, have above-average income and education, and see science as beneficial personally and to the world in general. Women do not show a consistent set of characteristics.[43]

A 1974 study found that mass media is given credit as the major sources of information about energy. TV commentators ranked first (83%), newspapers and TV specials second (79%), followed by magazines (67%), radio (65%), friends (non-neighbors) (45%), relatives (44%), friends (neighbors) (41%), co-workers (39%), unions (36%), utility companies (36%), and organizations to which the respondent belongs (30%). Unemployed persons turn to informal neighborhood networks of social support.[44] A year later, it was noted that 56 percent of the respondents from the Chicago area make use of tips in newspapers and bill enclosures (NOTE: this survey was neither significant nor reliable, but its findings are similar to other studies).[45] More current studies reflect that television has caught up to newspapers and are ranked about equal.[46]

A 1976 Michigan State University study was conducted to ascertain the ideal entertainment source. It was found that persons who do not subscribe to cablevision in the Lansing, Michigan, area do not perceive subscription cablevision as the

ideal entertainment source; subscribers do relate paying for cable with the ideal source. Non-subscribers use the local newspaper as an information source for restaurants and movies. Subscribers do not link these together. As a source in learning about cable, 42 percent of the subscribers learned about cable through a friend, 21 percent through mail flyers, and 16 percent through newspapers. Of interest, 75 percent of the non-subscribers were contacted by mail. These findings indicate the word-of-mouth (interpersonal) is a more powerful information source. Cable origination channels also enjoy high use: 72 percent of the subscribers favor local programming on cable; 60 percent watch the all-night movie channel (not to be confused with pay TV movie channels) either daily, weekly, or monthly; and, on a daily basis, 30 percent watch the weather, sports, and world news channels while 27 percent watch the Michigan news channel and eight percent the business news channel.[47]

Another study conducted in 1971 by Baldwin and Gluck on the adaptive behaviors of the new cable television subscriber resulted in 14 percent of the respondents indicating that they had changed, either reducing newspaper reading time or stopping altogether. Nine percent believed that cable television had changed (reduced or stopped) magazine reading habits. Sixty-eight percent read magazines, an average of three for each respondent. Since subscribing to cable television, 46 percent of the respondents admitted more television viewing time while 43 percent less. In addition to the three networks, almost

two-thirds used the independent channel. Only 12 percent used the public channels regularly. Nearly one-quarter of the respondents had viewed one or more of the local origination channels. Of interest, there seemed to be either an economic trade-off (substitution for the daily newspaper cost) or a displacement (taking time formerly devoted to magazines). It was also noted that over half of the respondents appreciated the greater "variety" (wider choice of the same old thing, not new types of programming).[48]

Information Source Credibility

Mass media and activists organizations are perceived to be the most credible sources of energy information.[49] This finding is supported by a 1976 Michigan State University study which noted that 43 percent of the respondents regard television to be more believable than newspapers in presenting local news.[50] Drawing less confidence is the oil and gas industry, decreasing from 25 to 13 percent (a decrease of 48 percent).[51] There is also a rapid decline in the credibility of business and industry as a source of information.[52] Part of the problem lies with the belief that the energy industries often place their own economic interests before that of the country's.[53] Although universities may have greater credibility than the energy industries, potential problems in energy information credibility exist, regardless of the source.[54]

In public service circles, confidence in Congress has

decreased from 37 percent in 1975 to 20 percent in 1976. (Based on a poll taken of Maryland voters and high school students in 1976.)[55] While a great majority of individuals appear to recognize the need or desirability for energy conservation, a significant number appear to be skeptical about the credibility of government information on energy, at least that which is related to shortages.[56] On the other extreme, environmentalists are believed to overstate the hazards of various energy technologies such that doubts are raised about the credibility of the group's efforts.[57]

Research Hypotheses

H_1: The public does not perceive there to be an energy problem (shortage of energy).

H_2: Females are more likely than males to believe that there is an energy problem.

H_3: Persons with higher incomes are more likely to perceive an energy problem than lower-income persons.

H_4: The higher the level of education, the more people perceive an energy problem.

H_5: Blame for the energy crisis lies with the oil companies followed by the Arab oil countries, utility companies, and government.

H_6: People perceive using more energy now than they did four years ago (before the energy crisis).

H_7: The larger the household, the more consumption conservation adjustments have been made.

H_8: High-income households are more likely to have made adjustments than low-income households.

H_9: As the level of education increases, the more energy-reducing adjustments are made.

H_{10}: Females know more about energy use than do males.

H_{11}: Persons with higher education know more about energy use than those with less education.

H_{12}: High-income households know more about energy conservation than low-income households.

H_{13}: Television is the main source of energy information.

H_{14}: Males' main source of information is newspapers.

H_{15}: Females' main source of information is television.

H_{16}: Lower-income households tend to use television as their main source of energy information more than upper-income households.

H_{17}: Persons with low education levels tend to use television as their main source for energy information more than upper education levels do.

H_{18}: Television is more credible than other information sources.

H_{19}: Information from the oil industry is less credible than information from consumer groups.

H_{20}: Persons with low income tend to perceive television as the most credible information source more than high-income respondents do.

H_{21}: Persons with high education levels tend to perceive

information from consumer groups as the most credible information source.

H_0: There is no difference in the way demographic variables perceive the energy problem, know about energy consumption, receive their information about energy, or perceive the credibility of information sources.

FOOTNOTES

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CHAPTER III

METHODOLOGY

In general, the methodology involved the use of questionnaires to determine what the public knows about energy, where it gets its information, and how it perceives the credibility of various communications media. Telephone interviews were conducted between 6:30 and 9:45 p.m., March 7-30, 1977, by trained interviewers from a systematically drawn sample from the Grand Rapids Telephone Directory. The population, as defined in Chapter I, is young families. The independent variables consist of demographics: education levels, household size, income levels, ethnic origin (race), and sex. The dependent variables consist of the scores/answers assigned/given by the respondents to each question.

The Population

The population, as defined in Chapter I, includes all young families. According to the Impact Committee, Extension Staff Services, Michigan State University, the reasons for this particular definition are: young families are starting to establish habits, are more likely to change their attitudes

and have the ability to make such adjustments but do not. Those households that make less than $8000 a year are forced to make such adjustments to conserve energy because of their poverty-level income (established by the federal government).

Selection of Respondents

Telephone questionnaires were used to ascertain responses. Once again, the sample of respondents was drawn from the 1977-78 Grand Rapids Telephone Directory using a systematic design. Only private, non-commercial, non-government telephone listings were eligible.

Since only 18- to 40-year-old persons are of interest, a funnel-type question was asked initially. Based on Grand Rapids age demographics, a particularly large sample (852) was drawn from a population of approximately 149,950 residential telephone numbers. It was expected that approximately 25 percent (213) of the sample would be non-responses (actually, their were fewer non-responses (183 total (21.5%) including 68 refusals, 59 disconnects, and 59 not-at-homes or no answer)) while approximately 50 percent of those remaining (319) would not qualify because of age (303 did not qualify in reality); therefore, it was expected that 320 responses would complete the questionnaire (366 were actually completed).

The procedure used to select the respondents was a systematic sample. The number of blank pages (16 government and business) were subtracted from the total number of pages (584) from the population. At random, six columns were selected in

the directory from which the number of residential, non-commercial, non-government telephone listings were counted, added, then divided by six to ascertain the average number of listings per column. That figure was then multiplied by four (the number of columns per page) to compute the population (149,950). Since the sample to be drawn represents 0.21 percent of the population being studied, no finite correction factor was necessary.

Since the frame is approximately 264 usable listings per page, it was determined that respondents would be selected by picking one on the first page, two on the second, one on the third, two on the fourth, etc., etc. Using a table of random numbers, the telephone listing positions were plotted on a clear acetate overlay; thus, the same random order (129 on the first page and 237 and 192 on the second page) would apply throughout.

The procedure for dealing with blanks was to alternate going to the first private number below the systematic position then to the first one above the position.

In order for a page to be considered usable, at least one-half of the page had to contain residential, non-commercial, non-government numbers. The random positions marked on the overlay were based on the number of printed lines on a full page.

If a respondent gave more than one answer for any particular question, a coin was flipped to determine which answer would be used.

Since special direct (WATS) lines were used at Michigan State University for the telephone interviews, a check was made to see if all numbers in the telephone book could be called; all exchanges did coincide. Since inferences are to be made about the entire city, it was important to reach a proportionate cross-section of all ethnic groups in the city. It was also desired to obtain data with both a cosmopolitan and agricultural flavor. Detroit is too cosmopolitan while Ann Arbor is already heavily used for surveying by a major university located there. Lansing, too, has the problem of being heavily surveyed.

Sample Characteristics

More than half of the usable cases (n=366) was female (52.6%). This is consistent with Grand Rapids demographics (53.1% female and 46.9% male).[1] Race-wise, Grand Rapids characteristics fell short of the actual figures for that area; in that, only 5.7 percent of those surveyed were non-white as compared to 11.3 percent in listed Census figures.[2] In reference to education, Department of Commerce figures for the Grand Rapids area differed from the sample (Table 1). The average size household according to the 1976 Survey of Buying Power is 3.13 persons; whereas, the average household size of the sample was 3.62 persons.[3] The household income for those other than students, retirees, the unemployed, or the respondents who refused to divulge their income is at Table 2.

Table 1

COMPARATIVE EDUCATION FIGURES

Education Level	(%) Sample Figures	(%) Commerce[4] Figures
Less than high school	6.3	46.0
High school diploma	37.3	30.3
Some college	34.1	12.1
College degree	11.7	10.4
Graduate work	10.6	

(NOTE: the discrepancy at the less-than-high school diploma level may be attributed to Commerce figures reporting all current school children; whereas, only persons between 18 and 40 years of age were used in the sample. Additionally, Commerce figures are based on the 1970 Census which are now seven years old.)

Table 2

COMPARATIVE INCOME FIGURES

Income Level	(%) Sample Figures	(%) Buying Power[5] Figures
Less than $8000	11.2	24.8
$8000-$15,000	37.7	33.4
$15,000-$25,000	30.9	32.2
Above $25,000	15.3	9.6

(NOTE: since only persons 18 to 40 years of age were used in the sample, this may have caused a discrepancy in the differences of income for each bracket. There may also have been

those persons in the sample who lied about their income due to embarrassment (low figures).)

Under the most conservative conditions, the sample size of 366 could be expected to contain approximately a 2.6 percent error with a confidence level of 95 percent.

The Instrument

The instrument used for this survey has been previously demonstrated to have validity. Systematic sampling differs from simple random sampling; in that, it does not give all possible samples of size "n" from the population of size "N" an equal chance of selection. The selection of one sample member is dependent on the selection of a previous one. Systematic sampling produces a more even spread of the sample over the population list than does simple random sampling. This usually leads to greater precision, except when the list is randomly ordered (not the case for this survey).[6]

Systematic sampling is often used in social surveys because of its simplicity, especially when there is an extremely long list (e.g., a telephone survey). It also insures that representatives of certain ethnic groups (e.g., O'Brien) are selected.[7]

The Questionnaire

This questionnaire included an identification and status section followed by a brief introduction explaining the purpose of the survey and identifying who was conducting the interview. Telephone numbers of the persons in charge of the survey were also included in the event administrative problems arose. All instructions were upper-cased so that the interviewer would not confuse those portions with that which had to be relayed to the respondent. The questionnaire is at Appendix A.

Based on the findings of previous studies and the objectives of this study, the following justification explains why certain questions were asked.

After the funnel-type question had been asked on age to eliminate the non-population, the first question ascertained the respondent's perception of whether there is an energy problem or not. It was expected that much of the respondent's behavior and responses would probably be reflected by his perception of a problem. If the respondent does perceive a problem, then it is important to know who or what he or she believes is responsible for this problem. The question was open-ended to insure that the response was not biased.

The next portion determined whether the respondent uses more or less energy now than he or she did four years ago before the energy crisis of 1973-74. This should indicate whether conservation practices have been inspired by the

crisis. Both cost and quantitative amounts told us if they are spending more but using less. This, too, told us if they have knowledge of energy use, especially when consumption questions are asked. Next, it was determined if the respondent rents or owns his or her household quarters. If the respondent rents, it was then determined whether he or she pays for the utilities separate from the rent payment. This told us if the respondent is less aware of the energy consumed (if an indirect payment is made) and also the motive for other types of questions.

The respondent was then quizzed to determine his or her knowledge of energy consumption. The results qualified the answers to previous energy questions and upcoming information source questions and to compare respondents by demographics.

The next question asks the respondent where he or she gets most of his or her information on the energy situation and lays the groundwork for media credibility questions. This, too, is an open-ended question to prevent bias. These credibility questions began by asking the respondent if he or she received conflicting reports about the energy situation, which source would he or she believe most. It is a close-ended question. The respondent was then asked to rate the truthfulness of various information sources on a scale of zero to 100 percent. These results were used to rank these media and to see if the respondent's main source of information is perceived as his most credible source.

The next question asks the respondent if he or she has ever received a newsletter or pamphlet in the mail about the energy situation. This told us if printed literature is being distributed. A follow-up question told us how much of it is being read (if it is received) to determine its effectiveness.

The next line of questioning involved cable television as a potential source of energy information. After determining whether or not the respondent subscribes to cable television, those who do subscribe were quizzed about watching the cable origination channels (e.g., weather, sports, and news) and the all-night movie channel.

A question was then asked to determine whether the respondent has learned anything about the energy situation at the library. This should indicate if energy information is being distributed at one of the best points for learning.

The respondent was asked if he or she has learned anything from reading material while in a waiting room; if yes, he or she was asked if energy information is included in what he or she learned. Similar sets of questions are asked in reference to information posted on bulletin boards and on buses or trains. This told us if these sources are potential distribution points for energy information.

Questions about other potential methods of distribution (i.e., energy information sent home with children from school and through clubs and organizations) were asked of the respondent.

The final questions ascertained demographics. Since it was determined in several studies that income and education are key determinants of energy knowledge and consumption, levels of both were ascertained. The number of persons in the household is a determinant of energy consumption behavior. Sex and race were also ascertained to determine their significance in affecting energy attitudes and behavior.

The Pretest

A pretest was conducted in the Lansing, Michigan, area to check for flaws in the questionnaire. Approximately 30 respondents were selected from the Lansing Telephone Directory using the same technique used in the Grand Rapids survey. Trained interviewers were used in both instances and briefed with the same instructions used for the Grand Rapids study. They were debriefed for problem areas and recommendations.

Conduct of the Interviews

Interviewers were briefed both verbally and in writing about the procedures, objectives of the study, hypotheses, reporting times, dialing instructions, and interviewing instructions. Last-minute instructions as the survey proceeded were given orally.

The general instructions included the purpose of the survey, definitions, and objectives. The research hypotheses are those listed in Chapter II. Specific requirements

(i.e., where to report and expected work load) were followed by dialing instructions which specifically outlined the steps for using the WATS lines, the procedures for handling refusals, disconnects, no answers, not-at-homes, busy, and completed interviews. Interviewer instructions discussed courtesy, speech, the alternating of males and females to maintain a credible balance based on demographic characteristics of the Grand Rapids area, and the use of reinforcing comments.

Treatment of Data

The raw data obtained from the survey was analyzed using the Statistical Package for the Social Sciences (SPSS). Aside from standard frequencies, product-moment coefficients of correlation, chi-square, "t-tests" (difference of means), and analysis of variance (ANOVA) were used to determine the significance of the independent variables.

The statistical procedures of correlation are one-way to assess the degree to which two or more variables show inter-relationships in a given population. Correlation, however, will not give us the reason for a relationship, merely how much they vary together positively or negatively. This index of the degree of relationship is called a correlation coefficient (r). A t-test is used to check for significance. Given a value of "t," it is interpreted for an associated probability level by consulting a sampling distribution of "t."[8]

The calculation of "r" reflects a ratio between the

maximal amount of variability that two measures could have in common. The coefficient squared (r^2) is the actual proportion of variance that two measures have in common; it is useful when considering correlation with reference to predicting variables of one measurement from one or more other measurements. In contrast to r, the value of r^2 can be thought of in terms of proportions or percentages of relationship (when used for this purpose, r^2 is called a coefficient of determination).[9]

Product-moment coefficients of correlation were computed to describe the degree and direction of relationships between: 1) knowledge of energy consumption and actual consumption; 2) sources of energy information and the credibility of those sources; 3) renters paying for their utilities separately from rent payments and knowledge of energy consumption; 4) perception of an energy problem and actual consumption; and, 5) perception of an energy problem and knowledge of energy consumption. For purposes of this study, correlations are arbitrarily labeled: "negative" under $\pm$ .20, "low" between $\pm$ .20 and $\pm$ .40 (definite but small relationship), "moderate" between $\pm$ .40 and $\pm$ .70 (substantial relationship), "high" between $\pm$ .70 and $\pm$ .90 (marked relationship), and "very high" between $\pm$ .90 and $\pm$ 1.0 (very dependable).[10] The level of rejection of the null hypothesis is at $p < .05$.

Chi-square is a nonparametric test which is used in nominal scaling when we are interested in comparing categories among themselves or in contrasting how samples differ in

terms of assignment into the categories. It has widespread utility in communications research. In essence, chi-square is best thought of as a discrepancy statistic, meaning its calculation is based upon this discrepancy between the frequencies observed for a set of categories and some alternate theoretical set of frequencies.[11] Chi-square, then, is one of the simplest and most useful statistical tests. Statistical tests are meant to compare obtained results with those to be expected on the basis of chance. Chi-square is a measure of the departure of obtained frequencies from those expected by chance; however, like other statistics that indicate statistical significance, it tells us nothing about the magnitude of the relation.[12] It has a sampling distribution by which it will be possible to estimate the probability that a given value of chi-square will be expected under the terms of the null hypothesis. The level for rejection of the null hypothesis is $p < .05$.

The t-test is a statistical model used for testing the significance of difference between two population means, based upon the observed difference between two sample means and their distributions. It is a ratio between the sample mean difference and the standard error of that difference. It tests the null hypothesis against alternative research hypotheses. Values of t have a sampling distribution used as a basis for estimating the probability that a particular value of t would be expected under the terms of the null hypothesis, or in other words, the sampling distribution tells us what

sampling error to expect in values of t. Given a calculated value of t, this value is interpreted for its probability of occurrence in testing a null hypothesis.[13] Again, the level for significance is $p < .05$.

The ANOVA is a test similar to that of the t-test; i.e., it is actually an extension of the difference-of-means test. An ANOVA has the advantage of replacing several tests with a single test.[14] This model was used to test more than two groups of answers for statistical significance. It uses variances to study the relationship between the independent variables and error variance. The level for significance is $p < .05$.

Single-factor ANOVA is a statistical model used for testing the significance of difference among two or more means when these means reflect the consequences of different levels of a single independent (factor) variable. The statistical logic behind ANOVA is incorporated in the "F ratio," a ratio of between-group variance to within-group variance. Given a calculated value of F, this value is interpreted in a sampling distribution for its probability under the terms of the null hypothesis.[15]

Multiple-factor ANOVA is similar to single-factor ANOVA except it can accommodate more than one independent (factor) variable, and each of these variables can have two or more levels of their own. The multiple-factor model, then, provides methods for testing whether different subgroups, or various combinations of subgroups, represent different

populations in terms of what is being measured as the independent variable; in other words, it is a statistical model for testing the consequences of manipulating two or more independent variables in a single research design. Once again, the F ratio is the statistic used to conduct the appropriate hypothesis test. Significance tests among different levels of each factor are known as main effects. Whatever effects are due solely to the combination of factors are known as interaction effects.[16]

Summary

This chapter discussed the population, selection of respondents, the instrument, the questionnaire, the pretest, the conduct of the interviews, and the treatment of data. The final two chapters will discuss the findings and conclusions/recommendations.

FOOTNOTES

[1]Michigan Statistical Abstract, ed. David I. Verway (East Lansing, Mich.: Division of Research, Graduate School of Business and Administration, Michigan State University, 1976), p. 50.

[2]Registered Community Audit (Atlanta, Ga.: Industrial Development Research Council, 1975).

[3]Sales and Marketing Management, 1976 Survey of Buying Power, p. C-104.

[4]U. S. Department of Commerce, "Social and Economic Statistics Administration, 1970 (Washington, D. C.: Government Printing Office, 1970), p. 9.

[5]Sales and Marketing Management.

[6]C. A. Moser and G. Kalton, Survey Methods in Social Investigation (New York: Basic Books, Inc., Publishers, 1972), p. 83.

[7]Hubert M. Blalock, Jr., Social Statistics (New York: McGraw-Hill Book Co., 1972), pp. 514-15.

[8]Fred N. Kerlinger, Foundations of Behavioral Research (New York: Holt, Rinehart, and Winston, Inc., 1973), p. 149.

[9]Ibid.

[10]Frederick Williams, Reasoning with Statistics (New York: Holt, Rinehart, and Winston, Inc., 1968), pp. 127-40.

[11]Ibid., p. 112.

[12]Kerlinger, pp. 166-71.

[13]Williams, pp. 75-81.

[14]Blalock, pp. 328-29.

[15]Williams, pp. 83-93.

[16]Ibid., pp. 95-111.

CHAPTER IV

RESULTS

In general, this chapter discusses the results of this study in terms of the characteristics of the respondents. Specifically, energy problem awareness, responsibility for the energy problem, energy consumption habits, knowledge of energy consumption, energy information sources, credibility of those information sources, and finally a comparative look at source believability, and source truthfulness will be discussed in terms of income, education, household size, sex, and race. In some instances, the demographic independent variables were analyzed in various combinations to determine their joint significance, if any.

Energy Problem Awareness

Since it has been noted that problems cannot be solved until they are recognized, the degree of energy problem awareness was determined in terms of independent demographic variables, both collectively and individually, using a variety of significant tests.

Of the 366 cases in the sample, 84.7 percent perceive an energy problem, 9.3 percent do not perceive one, and 6 percent do not know or have no opinion. A standard error of .028 suggests that the public does perceive an energy problem, and therefore, the first hypothesis (H_1) is rejected.

A Pearson's correlation procedure was used to determine the degree of relationship between the perception of an energy problem and actual consumption (using more quantities of energy now than four years ago) and between perception of the energy problem and knowledge of energy consumption. In the first situation, a coefficient of -.0268 was found to be insignificant (.305); however, in the second case a coefficient of -.1135 was found to be significant (.015). Other correlations were also computed (Appendix B).

Males (88.9%) tend to perceive an energy problem more than do females (80.6%). A t-test indicated this difference is significant at the .05 level. Thus, the second hypothesis (H_2) is rejected.

There is little difference in the perception of an energy problem based on income levels; in that, percentages range from 83.2 to 87.8. The chi-square of 3.963 is not significant at the .05 level; thus, the third hypothesis (H_3) is rejected. Similarly, it was found through analyses of variance on 1) income, 2) education and income, and 3) income and sex that there is no significant difference at the .05 level; however, an ANOVA on household size and income (2.386) resulted in a significant difference (.017).

As the level of education increases, the more respondents perceive a problem. A chi-square test for significance resulted in a chi-square value of 15.587 significant at the .05 level; thus, the fourth hypothesis (H_4) is accepted.

While it was found that more whites (85.5%) perceive an energy problem than do non-whites (64.7%), a t-test of energy problem awareness analysis and race was conducted and no significant difference noted at the .05 level. Three times as many non-whites (23.5%) than whites (8.7%) do not believe there is a problem.

It was discovered that knowledge of energy consumption is not a significant factor in perceiving an energy problem when an ANOVA was used to check for significance. No significant difference exists at the .05 level.

Responsibility for the Energy Problem

In order to identify what demographic characteristics are significant in determining who is responsible for the energy crisis, it was necessary to treat the data using a Pearson correlation procedure as well as an ANOVA and a chi-square test.

Of the 310 cases who perceive an energy problem, 26.4 percent blame everyone, 25.1 percent blame consumers, 10.6 percent blame government, 7.7 percent blame the oil industry, 3.5 percent attribute it to scarcity of fuels, and 2.9 percent blame the utility companies; 11.6 percent have no opinion or do not know; thus, the fifth hypothesis (H_5)

specifying that the oil companies and the Arab Oil countries are primarily deemed responsible for the energy crisis, is rejected.

When a Pearson's correlation procedure was applied, it was found that the degree of relationship between education and responsibility for the energy problem is -.1142, significant at .014 (Appendix B). The amount of energy used now as compared to four years ago before the energy crisis of 1973-74 is minimally tied to responsibility (-.1016) and is significant at .025 while sex is similarly correlated with responsibility (-.0921) significant at .039. Race is not significant at the .05 level (.06).

As the level of education increases, less blame is placed on the oil industry while more is aimed at consumers. An ANOVA supports this finding, as education was found to be significantly different at .001 (Table 3). Except for graduate students/degree holders, there is an increase in the degree of blame attributed to government as the level of education increases. Persons with less than a high school diploma either have no idea of who is responsible or place the blame on everyone; 41 percent of the persons with a baccalaureate also attach the blame to everyone.

An ANOVA was applied to income and responsibility, and it was found that the level of income is not significant at the .05 level. When income was analyzed with the size of household, there was a significant difference for income at .046. Similarly, when income and education were analyzed jointly, there

was a significant difference for education at .001. Such is not true with income and sex (Table 3).

Race-wise, caucasians split the blame between everyone and consumers (26% each) followed by government (10.5%), the oil companies (7.8%), and big factories/businesses (5.4%). Blacks (n=11) place equal blame on government and everyone (18.2% each) then on consumers, the utility companies, and the scarcity of fuels (9.1% each). A chi-square test was applied to the variable of race, finding it significant at the .05 level.

Energy Consumption Habits

In determining the degree of energy use now as compared with four years ago (before the energy crisis), respondents' perceived consumption habits were determined and any differences checked for significance at the .05 level.

Cost-wise, 67 percent of the respondents believe thay are spending more for energy now than they were four years ago while 6.3 percent report spending the same, 13.1 percent less, and 2.4 percent don't know. As expected, 46.4 percent of the respondents report using less amounts of energy now than they were four years ago; 16 percent report using the same amount, 25.2 percent more, and 1.2 percent don't know. A standard error of .047 suggests that the public does perceive using less energy now, and therefore, the sixth hypothesis (H_6) is accepted. Both the amount being spent on energy

Table 3

ANOVA OF ENERGY PROBLEM RESPONSIBILITY

Independent Variable(s)	F	Significance
Energy knowledge (Quiz)	.136	.938
Education	5.549	.001*
Household size	.509	.769
Income	1.378	.250
Income and sex:		
Main effects	1.031	.391
Income	1.356	.257
Sex	.246	.621
2-way interactions	2.087	.102
Household size and income:		
Main effects	1.409	.192
Household size	1.157	.331
Income	2.697	.046*
2-way interactions	.911	.552
Education and income:		
Main effects	3.449	.001*
Education	4.970	.001*
Income	.458	.712
2-way interactions	1.560	.066

n=366

*Significant at .05 level.

and the quantities used now versus four years ago show a degree of relationship with consumption habits ($p \leq .001$) (Appendix B). There is also a weak link (-.1016) between the amount of energy used and responsibility for the energy problem (.026).

The size of the household does not affect the amount of money spent on energy. Except for one household that has nine members, all other sizes of households have at least two-thirds recalling spending more for energy. An ANOVA of household size was not significant at the .05 level. A similar application was made to the quantities of energy used, and it was determined that the results lack significance (.306). A majority (52.2%) of the respondents report using less energy except for households of six persons (40%); 19 percent report using the same and 28.4 percent more. The above facts suggest that smaller households tend to use less energy; therefore, the seventh hypothesis (H_7) is rejected.

All income levels think they are paying more for energy now than thay were before the 1973-74 energy crisis. As the level of income increases, the more persons recall spending and the more they report using. Of those who earn at least $8000 (n=37), 54 percent report using less energy and 28 percent more. An ANOVA of cost suggests that the level of income is significant (.032); however, the results applying to amounts are not (.689). Thus, the eighth hypothesis (H_8) is rejected (Table 4).

Based on education, a majority of respondents (52.2%)

are using less quantities of energy now than before the energy crisis. An ANOVA procedure conducted on education level means revealed a lack of significance at the .05 level (Table 4) in reference to both cost and amounts of energy used, thus suggesting that the level of education does not have any effect on the perceived amount of energy consumed; therefore, the ninth hypothesis (H_9) is rejected. When education and income were combined in a multiple-factor ANOVA, only income was found to be significant (.026), cost-wise; however, both were significant when dealing with quantities used on a two-way interactions (Table 4).

Both white (75.9%) and non-white (58.8%) respondents think they are spending more for energy now. Whites (53.6%) report using less amounts of energy; whereas, non-whites (45%) report using more. A t-test resulted in a significant difference at the .05 level for quantities of energy used while a lack of significance when dealing with the cost of energy.

In reference to sex, a t-test ended with no significant difference between males and females for either cost or quantities used.

Two-thirds of the respondents own the quarters in which they now live while 21.6 percent rent. Of those who rent, 86.4 percent pay for their utilities separately from the rent payment. There is a high correlation (-.8799) between renting or owning a home and paying for utilities ($p \leq .001$). As the size of a household increases, the more the tendency to

Table 4

ANOVA OF ENERGY CONSUMPTION HABITS

Independent Variable(s)	F	Significance
Education:		
Cost	.535	.710
Amounts	.385	.819
Household size:		
Cost	1.893	.095
Amounts	1.207	.306
Income:		
Cost	2.969	.032*
Amounts	.491	.689
Income and sex:		
Main effects (cost)	2.175	.072
Income	2.703	.046*
Sex	.300	.584
Main effects (amounts)	.735	.569
Income	.389	.761
Sex	1.709	.192
2-way interactions:		
Cost	1.397	.244
Amounts	3.720	.012*
Household size and income:		
Main effects (cost)	1.870	.065
Household size	1.384	.230
Income	2.198	.089
Main effects (amounts)	.880	.533
Household size	1.040	.394
Income	.348	.790
2-way interactions:		
Cost	.765	.716
Amounts	.599	.875
Education and income:		
Main effects (cost)	1.689	.111
Education	.672	.612
Income	3.123	.026*
Main effects (amounts)	.533	.810
Education	.552	.697
Income	.823	.482
2-way interactions:		
Cost	1.740	.058
Amounts	1.921	.032*

*Significant at .05 level. n=366

own the quarters in which a person lives. Households of one or two persons tend to rent (56% and 50%, respectively). There is a low correlation (-.2758) between household size and making utility payments ($p \leq .001$). An ANOVA was conducted for significance of household size means. There was no significant difference at the .05 level. As the level of income increases, the more the tendency to own a home. Of those making more than $8000 a year, 78.5 percent own their own home while those making less than $8000 own 56.1 percent of the time. When analyses of variance were conducted on 1) household size and income, 2) income and sex, and 3) education and income, there were no significant differences at the .05 level.

In reference to utility payments, a t-test was applied to both sex and race, and it was found that there are no significant differences at the .05 level.

Energy Knowledge

Depending on the scale of measurement, significance tests were used to determine the range of a respondent's information or understanding of energy consumption as determined by successfully answering five empirically verifiable energy use questions. Demographic independent variables were both individually and jointly analyzed.

In general, respondents faired poorly with the energy knowledge quiz, missing three of five questions on the average. When asked whether a refrigerator, color TV, air

conditioner, or gas heater uses the most energy, a plurality of 44 percent incorrectly responded air conditioner. The second most selected answer, the gas heater (26%), was actually the correct answer. When asked which type of transportation uses the least energy per person for long-distance trips, a plurality of respondents incorrectly said the train instead of the bus, the correct answer. Only three of 10 respondents correctly said that the ceiling is where most heat is lost; a plurality of 44 percent incorrectly said the windows. When asked which requires the most energy for most families, 69.9 percent of the respondents correctly said heating a house. A plurality also correctly answered the last question asking which type of housing of the same size and insulation requires least energy to heat; 49.6 percent said the apartment.

Sex-wise, both a plurality of males (35.3%) and females (38.4%) answered an average of two questions out of five correctly. A t-test to determine significance was applied in this case, and it was found that there was a significant difference only in the case of question two (.033) at the .05 level. A chi-square treatment was applied to the quiz collectively, and it too indicated that females do not necessarily know more about energy use than do males, and therefore, the tenth hypothesis (H_{10}) is rejected.

Similarly, a plurality of people with all levels of education averaged only two questions correct although there is a steady increase in the percentage of persons who answered

three questions correctly as the level of education increases. No one with less than a high school diploma got four or five questions right. There is a correlation between education and energy knowledge (.1485) significant at .002; however, an ANOVA treatment of all five questions collectively resulted in no significant difference at the .05 level, suggesting that persons with higher income do not necessarily know more about energy consumption; therefore, the eleventh hypothesis (H_{11}) is rejected.

An ANOVA treatment applied to income and energy knowledge (as determined by empirical quiz) resulted in no significant difference at the .05 level. When education and income were jointly applied to energy knowledge, there was no significant difference at the .05 level (.08). This suggests that high-income households do not necessarily know more about energy consumption than low-income households, and therefore, the twelfth hypothesis (H_{12}) is rejected.

Households with one to six persons answered, in general, only two questions correctly. There were not enough cases in households with seven to nine persons to make any inferences. No household of one or two persons answered all of the questions correctly although two-person households correctly answered four questions more than did any other size household by a two-to-one ratio. When a Pearson's correlation procedure was used on household size (.0787), it was found there is no significant difference at the .05 level (.066). Similarly, there is no significant difference at

the .05 level when a multiple-factor ANOVA of household size and income are combined in one treatment.

In reference to race, a chi-square treatment resulted in no significant difference at the .05 level.

The majority of respondents, regardless of the number of questions answered correctly, blame consumers and everyone in general for the energy problem.

A chi-square test was conducted on energy knowledge and several pertinent independent variables (i.e., those who perceive an energy problem versus those who do not perceive such a problem, renters versus owners, high users of energy versus those who have made positive adjustments, sources of energy information, and those who pay for utilities separately from their rent payment versus those who have utilities included as a part of their rent), and in all cases, there is no significant difference at the .05 level.

Energy Information Sources

The main sources of energy information are the newspaper (39.3%), followed by television (30.7%) and remotely by magazines (8.9%), friends (4.4%), and radio (4.2%), suggesting that television is not perceived as the main source of energy information; therefore, the thirteenth hypothesis (H_{13}) is rejected. Less than half (42.6%) of the people surveyed recall having seen a newsletter or pamphlet in the mail about the situation; 52.2 percent answered "no." Of those who had read a newsletter or pamphlet (n=65), 41.4 percent reported

having read all of it, 29.9 percent most of it, 22.9 percent some of it, and 5.7 percent none of it.

Only 11.0 percent of the respondents subscribe to cable television in the Grand Rapids area, due mainly to the limited amount of construction completed thus far. Many areas still are not wired for cable service. Of those who do subscribe, 89.7 percent have watched the cable weather, news, or sports channels at least once in the past; whereas, only 27.5 percent of the cable subscribers have watched the all-night movie channel at least once. Since there are so few persons (n=40) involved in the cable sample, inferences must be viewed with caution.

Eighty-six percent of the respondents have not learned anything about the energy situation at the library. A majority (56.1%) have, however, learned something (about any subject) from reading materials distributed in waiting rooms (e.g., a physician's office). Of those who have learned something, 84.5 percent (n=174) recall having learned about the situation regarding the energy problem. The success of bulletin boards is not as good, as only 40 percent of the respondents have learned something (any subject) from information posted on bulletin boards. Of those, 70.7 percent (n=104) recall having learned something about energy. Only 21 percent of the respondents have learned something (any subject) from information on signs on buses or trains. Of those that have, 57.7 percent (n=45) recall having learned something about the energy situation.

In reference to learning about energy from information sent home with children from school, 39.1 percent (n=93) of those with school-aged children have learned something about energy through their offspring. Approximately the same success (34.6%) has been achieved with information distributed through clubs and community organizations (n=127).

Sex

A plurality of both men (40.5%) and women (38.1%) choose the newspapers as their main source for energy information followed by television (26.8% and 34.4%, respectively) then magazines (13.1% and 5.3%, respectively). This suggests that males' main sources of information is the newspaper; therefore, the fourteenth hypothesis (H_{14}) is accepted. Likewise, the findings suggest that women also use the newspaper rather than the television as their main source of energy information; therefore, the fifteenth hypothesis (H_{15}) is rejected.

Additional t-tests were conducted to determine the difference of means based on sex. A lack of significance was noted with all other sources of energy information (i.e., newsletters or pamphlets, cable subscription, watching cable news or all-night movie channels, library, waiting rooms, bulletin boards, signs on buses or trains, literature sent home with children from school, and clubs or community organizations). Less than a majority of both men and women recall having received a newsletter or pamphlet in the mail about the energy situation. Of those who do receive such items in the mail,

73.4 percent of the males and 68.4 percent of the women recall having read them all or most of the them. Almost 91 percent of the 22 female and 87.5 percent of the 16 male subscribers recall having watched the cable weather, news, or sports channels. Only 37.5 percent of the males and 18.2 percent of the females watch the all-night movie channel.

Men and women both have learned about energy at the library at about the same rate (14.0% and 13.1%, respectively); however, this statistic was surprisingly low. The results for learning about energy from printed materials distributed in waiting rooms were more promising, as 59.1 percent of the men and 52.9 percent of the women recall having learned something (any subject). Of those who have learned something, 89 percent of the men and 79.4 percent of the women have learned something about energy from that material. Sixty-four percent of the women and 56 percent of the men recall having learned something (any subject) from bulletin boards. Of those who have learned something, 72.1 percent of the females and 70.7 percent of the males have learned about energy. The percentage is low (24% of the men and 18.3% of the women) for those who have learned anything at all from signs on buses or trains. Two-thirds of the females and 51 percent of the males have learned about energy from these signs. Of those who have school-aged children, 42.9 percent of the females recall having learned something about energy from information sent home with their children from school while 35.2 percent of the males have learned. Nearly

two-thirds of the females and 64.3 percent of the males have learned something about energy through clubs or community organizations.

Income

Those persons making more than $8000 a year select the newspaper (42.3%) as their main source of energy information followed by television (29.8%); those making less than $8000 rely more on television (41%) than newspapers (17.9%); therefore, the sixteenth hypothesis (H_{16}) is accepted.

The number of persons who recall having received a newsletter or pamphlet in the mail is much less for those making under $8000 (29.3%) than those above $8000 (45%). There is no significant trend for levels above $8000 as determined by an ANOVA for both the main source of energy and the receipt of newsletters or pamphlets in the mail.

As the level of income increases, there is a decrease in cable subscription rates although there is little difference between those making less than $8000 (14.6%) and the $8000-$15,000 (15.2%) income levels. One hundred percent of all income levels watch the cable news, weather, and/or sports channels except the $8000-$15,000 level which has an 80-percent viewership. As the level of income increases, there is an increase in those who watch the all-night movie channel (n=10). The correlation coefficients determining the degree of relationship between cable subscription, cable news,

and the movie channel with income are significant at the .05 level.

A Pearson correlation procedure resulted in no significant correlations between income and learning about energy at the library, in waiting rooms, from bulletin boards, from signs on buses or trains, from information sent home with children from school, or from clubs or community organizations (Appendix B). There are no trends that are significant based on income levels with regards to learning about energy at the library. Of the 23 respondents making under $8000 a year and who learn something in waiting rooms (56.1%), 87 percent recall learning about energy; of the 172 persons making more than $8000 who have learned something (any subject), 84.9 percent learn about energy. A higher percentage (86.7%) of those making less than $8000 recall learning about the energy situation from bulletin boards than those above $8000 (68%). Those above $25,000 recall learning about energy at 80 percent from these signs. There is no significant difference for households bringing in less than $8000 a year versus those above $8000 when it comes to learning about energy through information on signs on buses or trains or information sent home with children from school. The $8000-$25,000 income brackets have learned less about energy from clubs or community organizations than those in the below-$8000 and above-$25,000 brackets.

An ANOVA treatment of education level and information source is not significant at the .05 level, suggesting that

persons with low education levels do not necessarily use television as their main source for energy information more than upper education levels; therefore, the seventeenth hypothesis (H_{17}) is rejected.

The correlations between receiving newsletters or pamphlets and education levels and between reading these printed items and education are significant at the .05 level.

There is no significant trend for the various education levels and watching cable channels.

Those persons with at least some college have learned more at the library than those with a high school diploma or less. There is a significant but low correlation (-.1457) between education levels and learning about energy at the library, but no such significance is attached to learning about energy from printed material while in waiting rooms. Only those persons having done graduate work have a majority which learn from bulletin boards. Here again, there is a definite but small relationship (.2402) significant at the .001 level. Such is not the case with signs on buses or trains; there is no significance with the relationship between learning about energy from information sent home with children from school and education; the correlation coefficient is negative. When learning about energy from clubs or community organizations, the level of education increases the more respondents report having learned something about energy. This has a definite but small relationship (-.2035) at the .05 level (.001).

Education and Income, Household Size and Income, and Income and Sex

A multiple-factor ANOVA was applied to 1) education and income, 2) household size and income, and 3) income and sex to ascertain the significance of dual factors. In each case, there were no significant variable or combinations of variables at the .05 level.

Race

A plurality of whites (40.5%) get most of its information from newspapers and secondly from television (30.8%); whereas, non-whites get most of their information from television (31.6%) then newspapers (15.8%). A chi-square treatment resulted in a chi-square value of 177.391, significant at the .05 level.

A t-test was first administered to determine the difference of means between white and non-whites who have received a newsletter or pamphlet in the mail then the degree to which it has been read. In both instances, there was no significant difference at the .05 level.

There is a higher rate of cable subscription for whites (90.7%) than non-whites (40.9%); however, a majority of blacks (52.9%) do subscribe. A t-test was applied and found to be significant (.000) (Table 5). Another t-test, however, revealed no significant differences between whites and non-whites in viewing either cable news, sports, or weather channels or the all-night movie channel. A t-test was used once

Table 5

T-TEST OF ENERGY INFORMATION SOURCES

	Sex			Race		
Dependent Variable	df	One-tailed Probability	T-Value	df	One-tailed Probability	T-Value
Energy information source	358	.426	.19	362	.009	-2.38
Library	360	.406	- .24	364	.070	1.48
Waiting rooms	200	.024*	-2.00	203	.055	-1.61
Bulletin boards	141	.362	- .35	144	.179	.92
Signs on buses or trains	73	.207	.82	75	.150	-1.04
Information sent home with children from school	360	.121	1.17	364	.274	.60
Clubs or community organizations	360	.298	- .53	364	.197	.85
Newsletters/pamhlets via mail	360	.127	-1.14	364	.205	.21
Read newsletters/pamphlets	153	.136	-1.10	154	.102	-1.28
Cable subscription	359	.370	.33	363	.000*	4.92
Watch cable news channels	36	.372	.33	37	.354	- .38
Watch all-night movie channel (cable)	36	.070	-1.51	37	.373	.33

*Significant at .05 level

again and no significant difference was detected at the .05 level for learning about energy at the library, in waiting rooms, on bulletin boards, from signs on buses or trains, from information sent home with children from school, or from clubs or community organizations (Table 5).

Information Sources Credibility

In an effort to rank order energy information sources credibility-wise, it was necessary to first determine which source respondents would believe most if there was conflicting information then ascertain the percentage of truthfulness each source is perceived to have. Results were analyzed using all of the tests for significance previously mentioned.

When conflicting information is received, respondents tend to believe information originating from consumer groups first (61,8%) followed by government information (10.6%), the television (8.7%), utility company information (6.2%), newspapers (4.6%), the oil companies (2.4%). Going further, credibility was extended into a series of six questions requiring respondents to rate the truthfulness of various information sources based on a scale of zero to 100 percent. Consumer groups received a mean score of 76.5 percent followed by local television (66.5%), the local newspaper (64.9%), government pamphlets (62.9%), utility company information (53.6%), and the oil companies (44%), thus suggesting that the eighteenth hypothesis (H_{18}) be rejected and the nineteenth hypothesis (H_{19}) accepted (Appendix B).

Income

All income levels perceive consumer group information as the most credible. As the level of income increases above $8000, the more respondents believe in consumer groups and less in government information although government information is the second choice for those making up to $25,000; those above $25,000 believe utility company information (8.9%) after consumer group information (66.1%). Also, as the level of income increases above $8000, the less credibility is attached to television and more attached to the oil companies.

On the truthfulness scale, there is no significant trend with regard to consumer groups (Table 6). The same applies to television. This suggests that income level has no significant effect on truthfulness perception of various information sources; therefore, the twentieth hypothesis (H_{20}) is rejected (Table 7).

Likewise, there is no significant difference between the means of income levels with regard to newspaper credibility. However, in reference to government information, it is significant that 58 percent of the persons making $8000-$15,000 perceive this information less truthful than do other income levels, the highest at 66.7 percent for those making $15,000-$25,000. In contrast, persons with low incomes (less than $8000) rate the oil companies as being 52.1 percent truthful. This is much higher than what the other levels rate the oil industry (range: 36.96% to 46.80%). An ANOVA procedure indicated that these findings are significant at the .05 level.

Table 6

MEAN SCORES OF INCOME ENERGY INFORMATION CREDIBILITY

Independent Variable	TV	News-paper	Gov't	Oil Co.	Utility Co.	Consumer Group
Under $8000	66.63	65.49	65.37	52.07	51.34	77.85
$8000-$15,000	66.90	64.49	57.84	36.96	52.99	76.10
$15,000-$25,000	65.88	65.00	66.68	46.80	53.26	77.19
$25,000 Up	67.45	63.21	62.00	45.73	55.45	76.34
Income Mean	66.61	64.93	62.92	43.96	53.57	76.53

Table 7

ANOVA OF ENERGY INFORMATION SOURCE CREDIBILITY

Independent Variable	TV	News-Paper	Gov't	Oil Co.	Utility Co.	Consumer Group
Income	.22	.30	8.88*	21.16*	.80	.32
Education	1.21	.83	1.42	1.43	1.67	2.70*
Household Size	.26	1.24	.52	.44	1.05	1.08

*Significant at .05 level

Education

All levels of education selected consumer groups as the most believable sources of energy information, and with the exception of those who have done graduate work, government information second. Those who have done graduate work believe newspapers more. However, an ANOVA resulted in no significant difference at the .05 level (.057); thus, persons with high education levels tend to perceive information from consumer

groups as the most credible information source. Therefore, the twenty-first hypothesis (H_{21}) is rejected.

An ANOVA of consumer group credibility (Table 7) indicates that the level of education does have an effect on the perceived truthfulness of that source (p .05). With television, newspapers, government pamphlets, oil company information, and utility company information, there is no significant trend with regards to education levels (Table 8).

Table 8

MEAN SCORES OF EDUCATION ENERGY INFORMATION CREDIBILITY

Independent Variable	TV	News-paper	Gov't	Oil Co.	Utility Co.	Consumer Group
Less than high school diploma	68.04	65.23	68.64	49.78	59.78	76.14
High school diploma	64.72	63.25	60.57	40.53	52.68	74.27
Some college	65.68	65.30	47.01	44.76	51.71	78.71
College degree	71.79	63.60	66.55	46.55	58.60	75.47
Graduate work	69.62	70.90	70.53	47.31	53.33	78.46
Education mean	66.61	64.93	62.92	43.96	53.57	76.53

Race

Both whites (63.2%) and non-whites (40.0%) believe consumer group information first. Whites believe government information next (10.7%) while non-whites believe the utility companies next (17.6%). A t-test treatment to ascertain a difference between whites and non-whites resulted in a lack of significance at the .05 level.

Similarly, a t-test treatment indicated there is no significant difference between whites and non-whites perceived truthfulness; similarly, there is no significant difference (.066) with television, newspapers, and government information (Table 9).

Table 9

MEAN SCORES OF RACE ENERGY INFORMATION CREDIBILITY

Independent Variable	TV	News-paper	Gov't	Oil Co.	Utility Co.	Consumer Group
White	67.05	65.37	62.84	44.04	53.94	76.59
Non-white	62.29	59.44	53.53	45.06	51.18	76.25
Race mean	66.61	64.93	62.92	43.96	53.57	76.53

Sex

Once again, a t-test treatment resulted in no significant difference at the .05 level between males and females and the perceived believability of information sources. Both men and women believe consumer group information more than information from other sources (62% and 61.8%, respectively). A distant second source for both is the government (11.5% of the men and 9.9% of the women).

There is no significant difference in the means of men and women in regards to the perceived truthfulness of consumer groups and utility companies (Table 10). A t-test treatment resulted in a lack of significance at the .05 level.

Table 10

MEAN SCORES OF SEX ENERGY INFORMATION CREDIBILITY

Independent Variable	TV	News-paper	Gov't	Oil Co.	Utility Co.	Consumer Group
Male	65.74	63.83	62.32	49.98	53.09	75.95
Female	67.20	65.67	63.29	41.89	53.42	76.99
Sex mean	66.61	64.93	62.92	43.96	53.57	76.53

Household Size

No significant trends exist in regards to household size. An ANOVA resulted in no significant difference at the .05 level for either believability or truthfulness (Table 7).

Education and Income, Household Size and Income, and Income and Sex

Additional multiple-factor ANOVA procedures were used to determine the significance of various combinations of independent variables.

When dealing with the education and income, it was found that the main effects on conflicting information (main source believability) are not significant at the .05 level, but the main effects of education separately are significant at .032. The two-way interactions of education and income are significant at .007. The main effects of these same two variables on government truthfulness are significant at .046. Further, the main effects of income separately fall within the .05 level of significance.

While there are no significant findings when household size and income are jointly analyzed, such is not the case when income and sex are combined. With the latter, the main effects of income are significant at .033 when analyzing government truthfulness.

Believability and Truthfulness Compared

In comparing demographic trends of the above credibility section, there are some discrepancies. While both non-whites and whites agree on consumer group information being the most credible and oil company information least credible, the similarities end there. Where whites select the television second on truthfulness, television is rated third behind government information when there is conflicting information. Whites place the newspaper third on truthfulness but fifth on conflicting information, place government fourth and utilities fifth on truthfulness, but utilities fourth and the newspaper fifth when information conflicts. Blacks, when there is conflicting information, rank utilities second, the newspaper and government third, and television fifth; however, when asked to rank the sources' truthfulness, respondents pick television second, the newspaper third, government fourth, and utilities fifth.

Income-wise, respondents consistently place consumer group information highest, government second, and television third on the conflicting information aspect; however, when dealing with truthfulness, utility companies are second,

government is third, the newspaper is fourth, and television is fifth.

Other than the unanimous agreement for consumer group information being the most credible, education levels conflict on credibility. While government information is generally the second choice when dealing with conflicting information, is generally second on truthfulness; utility company information which is usually fourth on believability is fifth on truthfulness; the newspaper is fifth on believability but third on truthfulness; oil companies are generally sixth (last) on believability and last on truthfulness.

Other than men and women being consistent on believability and truthfulness regarding consumer groups (first) and the oil companies (last), they do not rank the various sources according to truthfulness as they do believability; i.e., while both say that they believe government information second in case of conflicts, they both rank it fourth on truthfulness. Both rank television third on believability but second on truthfulness.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

Since there has been a lack of studies attempting to link energy awareness and media credibility, this study attempted to determine whether people perceive an energy problem, how much they know about energy use, how they receive information about the energy problem, what degree of credibility they attach to various means of communicating information, and the best media for reaching these people. Limitations faced during the study included limited funds and time to conduct a state-wide survey versus one city (Grand Rapids), the considerable use of secondary analysis of previous studies, limited target audience requirements which led to the asking of an age question at the outset of the survey, the inability to sufficiently represent minorities, and the use of telephone interviewing which limited follow-up questioning and eliminated those with unlisted telephone numbers or non-subscribers.

The methodology of this study involved the use of

questionnaires answered via the telephone by trained interviewers. The sample was systematically drawn from the 1977-78 Grand Rapids telephone directory. The population included all young families consisting of 18- to 40-year-old single persons or couples who may or may not be married, may or may not have children, and make more than $8000 (household) a year. The treatment of data collected involved the use of product-moment coefficients of correlation, chi-square, t-tests, and ANOVA.

In general, the results of this study indicate that the people of Grand Rapids perceive an energy problem, that they perceive paying more for energy but use less, that they are still not knowledgeable of energy consumption, that they do not necessarily use the sources of information which they believe to be the most credible, and that they contradict themselves when it comes to media credibility.

It was found that people now perceive an energy problem, leading to the rejection of (H_1). It was also found that males tend to perceive an energy problem more than females do, repudiating (H_2). The third hypothesis (H_3) which says that persons with higher incomes are more likely to perceive an energy problem is not supported by this study. It was noted that income level does not affect perception of an energy problem. The fourth hypothesis (H_4) dealt with the recognition of an energy problem, and it is supported by the findings (as the level of education increases, the more respondents perceive an energy problem).

Responsibility for the energy crisis, in general, is attributed to everyone, consumers, the government, oil industry, scarcity of fuels, and the utility companies. This reflects a change has occurred, shifting the blame from the utility companies, and the government; thus, (H_5) is rejected.

Energy consumption habits and knowledge involve (H_6) through (H_{12}). The sixth hypothesis (H_6) is supported by the findings of this study which indicated that respondents use more energy (amounts) now than they did before the energy crisis. Not only does the size of a household not affect the amount of money spent on energy, but it does not affect the amount of energy actually used (amounts); therefore, (H_7) is rejected. The eighth hypothesis (H_8) is rejected as well, as it was noted that high-income households were found to not have any effect on energy consumption habits. Likewise, it was not found that education is a predictor of consumption habits (H_9). While both white and nonwhite respondents report spending more for energy, whites perceive using less quantities of energy and blacks more. This is significant at the .05 level. Sex is not significant, as both males and females spend more but use less energy than before the 1973-74 energy crisis.

Knowledge of energy use is important to understanding answers respondents gave about energy information sources and the credibility of those sources. Respondents were wrong

on three of the five energy consumption questions. All levels of education incorrectly answered three questions on the average. An ANOVA resulted in a lack of significance, and thus, (H_{11}) is not accepted. Sex, likewise, was found not to be a significant factor at the .05 level (H_{10}). While it was noted that persons making more than $8000 answered more questions correctly on the average, the results are not significant; thus, (H_{12}) is rejected. Such is the case with household size, race, and paying for utilities separately from the rent payment versus utilities being included in the rent payment.

The newspaper, rather than television, is named most often by respondents as the source used to obtain energy information. This finding caused the rejection of (H_{13}). Men receive more information from newspapers than any other source which supports (H_{14}). Women also use newspapers more than any other source thus disproving the contention that women receive more information from the television (H_{15}). It was also found that income is a significant factor in determining information sources, as it was found that lower-income households tend to use television as their main source (H_{16}). Education, though, is not a significant factor; thus, (H_{17}) is rejected. Non-whites tend to use the television more for energy information while whites tend to use the newspaper more.

In analyzing the credibility of information sources, it was found that consumer group information was the most

credible, thus the contention that television is the most credible source (H_{18}) is disproved. Interestingly, newspapers are third, indicating that people may use newspapers more than television to obtain energy information but believe it less than information obtained from television. At the same time, the contention that information from the oil industry is less credible than consumer group information (H_{19}) is supported. Income and education as influencing factors was not verified by the results (H_{20}) and (H_{21}), respectively.

Conclusions

The results of this study are not totally supportive of the hypotheses. There are three possible explanations: 1) there may have been shortcomings in the study as it was designed; 2) there may have been shortcomings in the method of study used; and 3) society may have altered its priorities over time through experience and/or education. All such possibilities will be discussed in the following sections.

The significant conclusions are:

1) People perceive there to be an energy problem.

2) Males tend to perceive an energy problem more than females do.

3) Income level does not affect perception of an energy problem.

4) As the level of education increases, the more respondents perceive an energy problem.

5) Blame for the energy problem is attributed first to everyone and consumers then government, the oil industry, scarcity of fuels, and the utility companies.

6) People use more amounts of energy now than they did before the 1973-74 energy crisis.

7) The size of a household has no effect on the money spent on energy nor on the amount of energy used.

8) Education and sex are not determining factors of energy consumption.

9) Whites use less energy now than before the 1973-74 energy crisis; whereas, blacks use more now.

10) Education, sex, income, household size, race, and paying for utilities separately from the rent payment are not determinants of energy knowledge.

11) More energy information is obtained through the newspaper than any other source.

12) Both men and women received most of their energy information through the newspaper.

13) Income is a significant factor in selecting an energy information source.

14) Lower-income households receive most of their energy information from the television.

15) The level of education is not a determining factor in selecting an energy information source.

16) Whites obtain most of their energy information from the newspaper; non-whites obtain most of theirs through TV.

17) Consumer groups are perceived as being more credible than that from any other source; oil industry energy information is least credible.

18) Income and education are not determining factors of source credibility.

The Study as Designed

While the sample was properly extracted from the Grand Rapids telephone directory and large enough to make inferences about the city of Grand Rapids, it fell short in representing minorities. There are two possible explanations. When the age question was asked at the beginning of the questionnaire, minorities might have taken the opportunity to lie about their age to avoid answering potentially embarrassing questions. Although a systematically-drawn sample was used and offers the best chance for achieving representativeness of certain ethnic groups, that may not have occurred due to certain minorities disproportionately not being listed in the telephone book due to not having telephones or having unlisted numbers.

The Sample

Since more than the estimated number of completed questionnaires were obtained, total number is not the issue, rather the breakdown by demographics (i.e., race, income, and education). Since all three demographic areas are either estimated or updated figures based on the 1970 Census, some

of the difference may have been due to old figures or inaccurate estimations. The lying-about-age factor, due to its being asked at the beginning of the questionnaire, may have been remedied by asking it with the other demographic questions at the end of the questionnaire; however, considerable time would have been wasted interviewing persons not in the defined population (i.e., persons too old or too young).

The Instrument

The validity of the instrument used has repeatedly been proven. Its attributes are discussed at length in Chapter III.

The Questionnaire

The majority of problems encountered with this study originated with the questionnaire and the method to implement it. Since a telephone interview was used, questions had to be limited in number and simplified in order to obtain a maximum number of total responses. This prevented in-depth questioning when conflicting answers arose and to fully ascertain the respondent's reasoning. Some of these questions were based on questions asked in other studies and were not worded or clarified accurately; thus, responses in many cases may have been altered due to individual perceptions of the meaning or intent (e.g., the first quiz question). Also, since eye-to-eye contact could not be attained, interviewers could not detect purposely misleading answers (e.g.,

lying about income, education, age, etc.). It was also harder to detect if someone was giving answers to please the interviewer, thus over-cooperating.

Method of Study

The difficulties encountered may have been caused by the method of study. The complexity of analyzing two major subjects may have been too involved; however, the problem with previous studies as noted in the first chapter is that they failed to link energy awareness and media credibility. The recommendations section discusses an alternative which takes into account this possibility.

A Changing Society

The possibility of the society changing its attitudes and behavior because of inflation and generally hard economic times is easily seen by economic trends since the Arab Oil Embargo. While the motives of the oil industry and government were highly suspect in the first months of the crisis, the public has slowly become aware that a problem does exist, whatever the degree may be. But the problem does not end there, as evident by the performance of the people of Grand Rapids on the energy knowledge quiz and its contradictory perceptions of information sources. The changing attitudes and behavior patterns are also reflected in the numerous studies outlined in Chapter II.

Recommendations

Considering the social significance of the energy situation and mass media, this section discusses the implications of this study and makes recommendations for its usefulness and for further studies.

People still need to be educated on energy, its uses, and implications. Since the public seems to be saying one thing (newspapers as their main source of information) and doing something else (consumer groups and television as the main sources with credibility), more in-depth publicity is needed to educate the public. Also, in-depth personal interviewing is appropriate to determine social attitudes, knowledge, consumption habits, and the best energy sources based on demographics. Such should make it possible for an intense advertising strategy to be formulated and implemented.

Since people now appear to blame themselves rather than everyone else for the energy problem, future energy messages should be aimed at how conservation can best be accomplished in business, in the home, and in travel. It appears that nearly every form of mass media need to be used to educate the general public. Besides newspapers and television, radio should be used more extensively along with cable television, newsletters and pamphlets enclosed with utility bills, and even guest speakers at union and P.T.A. meetings. Waiting rooms and bulletin boards should be carefully programmed for distributing energy information using such devices as

pamphlet and newsletter racks. Libraries should be more heavily used to distribute energy information in a similar manner. Clubs and community organizations should be recruited to generate and distribute energy information. School systems should be used to educate not only children but their parents as well through audio tapes and printed literature sent home with their children from school.

Since budgeting information programs has been a problem, colleges and universities should be contacted by energy agencies to obtain consultation and assistance in conducting research. These institutions are also valuable sources of media and advertising talent to help formulate the information programs and producing the final products.

While it was hoped this study would provide invaluable new insight into energy awareness and media credibility, the limitations and problems encountered make it possible for this study to only serve as a model for future investigation taking into account these problems. Given more time and money, a state-wide survey should be conducted using a design which will properly represent all groups within the society (i.e., race, sex, etc.) then interviewing these persons on a personal basis to prevent the omission of those who do not have telephones or those who have unlisted telephone numbers. Since the survey would be conducted on an eye-to-eye basis, in-depth questioning would provide the researcher with more data and would preclude persons lying about age or income.

Some form of multi-variate analysis should also be considered in order to determine how the various factors interact with one another. Persons of all ages should also be interviewed based on state demographics in order to draw conclusions about this age limitation as defined by the Extension Staff Services.

APPENDICES

APPENDIX A

Questionnaire

MEDIA-ENERGY SURVEY
1977

TELEPHONE NO._____

SURVEY I.D. NO._____

CALLBACKS: 1 2 3
(CIRCLE AFTER COMPLETING)

DR. ANN FIELD
(355-7732)

BILL BROWNELL
(355-8372)

STATUS OF INTERVIEW:
COMPLETED (1)
REFUSED (2)
DISCONNECTED (3)
NOT AT HOME (4)
NO ANSWER (5)

INTRODUCTION: Hello, I'm _____ calling long distance from Michigan State University. We're doing a study on energy awareness and what people think about the information they get from various services as television and newspapers. I have a few questions that I'd like to ask the man/woman of the house.

We are interested in talking to people between 18 and 40 years of age. Are you in that age range?

(1) YES (2) NO (STOP HERE AND THANK RESPONDENT)

1. In your opinion, is there an energy problem?

   (1) YES (2) NO (GO TO Q. 3) (3) DON'T KNOW (GO TO Q. 3)

2. Who or what do you think is most responsible for this energy problem? (DO NOT LIST)

   (1) OIL INDUSTRY (2) UTILITY COMPANIES

   (3) CONSUMERS (4) GOVERNMENT (5) ARAB OIL COUNTRIES

   (6) EVERYONE (7) SCARCITY OF FUELS

   (8) OTHER (SPECIFY:_____) (9) DON'T KNOW

3. Cost-wise, do you think you are using more or less energy now than you were four years ago?

   (1) MORE (2) SAME (3) LESS (4) DON'T KNOW

4. Excluding cost, do you think you are using more or less amounts of energy than you were four years ago?

   (1) MORE (2) SAME (3) LESS (4) DON'T KNOW

5. Do you rent or own where you now live?

   (1) RENT (2) OWN (GO TO Q. 7)

6. Excluding telephone service, do you pay for any utilities separately from your rent payment?

   (1) PAY SEPARATELY (2) PART OF MY RENT

   (3) DON'T KNOW

In the next few questions, I need your opinion about energy use.

7. Which of the following uses the most energy: a color TV, a refrigerator, an air conditioner, or gas heater?
   (1) REFRIGERATOR (2) COLOR TV (3) AIR CONDITIONER
   (4) GAS HEATER (5) ALL THE SAME (4) DON'T KNOW

8. For long-distance trips, which type of transportation uses the least energy per person: an automobile, train, airplane, or bus?
   (1) AUTOMOBILE (2) TRAIN (3) AIRPLANE (4) BUS
   (5) ALL THE SAME (6) DON'T KNOW

9. In a house, where is most heat lost: the walls, ceiling, floor, doors, or windows?
   (1) WALLS (2) CEILING (3) FLOOR (4) DOORS
   (5) WINDOWS (6) ALL THE SAME (7) DON'T KNOW

10. For most families, which requires the most energy: heating a house, cooking, lighting, or heating water in a gas water heater?
   (1) HEATING A HOUSE (2) COOKING (3) LIGHTING
   (4) HEATING WATER (5) ALL THE SAME (6) DON'T KNOW

11. Which type of housing of the same size and insulation requires least energy to heat: an apartment, single-family house, or mobile home?
   (1) APARTMENT (2) HOUSE (3) MOBILE HOME
   (4) ALL THE SAME (5) DON'T KNOW

12. Where do you get most of your information about the energy situation?

    (1) TV (2) RADIO (3) NEWSPAPERS (4) MAGAZINES
    (5) FAMILY (6) FRIENDS (7) PAMPHLETS
    (8) OTHER (SPECIFY:_____) (9) DON'T KNOW

13. If you received conflicting information about the energy situation, which of these sources would you believe most: an oil company advertisement, a television newscast, a newspaper account, utility company information, a government report, or a report issued by a consumer group?

    (1) OIL CO. (2) TV (3) UTILITY CO.
    (4) NEWSPAPER (5) GOVERNMENT (6) CONSUMER GROUP
    (7) ALL OF THESE (8) NONE OF THESE (9) DON'T KNOW

The next few questions involve using a scale of zero to 100 percent. Zero means not truthful, and 100 means totally truthful.

14. On this scale, how truthful is <u>local</u> television in presenting energy information?

    (_____)%

15. On the same scale, how truthful is your local newspaper in presenting energy information?

    (_____)%

16. On the same scale, how truthful are government pamphlets in presenting energy information?
(_____)%

17. On the same scale, how truthful are the oil companies in presenting energy information?
(_____)%

18. On the same scale, how truthful are the utility companies in presenting energy information?
(_____)%

19. On the same scale, how truthful are the consumer groups in presenting energy information?
(_____)%

20. Have you ever received a newsletter or pamphlet in the mail about the energy situation?
(1) YES (2) NO (GO TO Q. 22) (3) DON'T KNOW (GO TO Q. 22)

21. Did you read: all of it, most of it, some of it, or none of it?
(1) ALL (2) MOST (3) SOME (4) NONE

22. Do you subscribe to cable-TV?
(1) YES (2) NO (GO TO Q. 25)

23. Do you ever watch the weather, news, or sports channels on cable?

(1) YES (2) NO (3) NONE ARE AVAILABLE

24. Do you watch the all-night movie channel on cable?

(1) YES (2) NO (3) NO SUCH CHANNEL EXISTS

25. Have you ever learned anything about the energy situation at the library?

(1) YES (2) NO (3) DON'T KNOW

26. Have you ever learned anything from reading material while in a waiting room?

(1) YES (2) NO (GO TO Q. 28) (3) DON'T KNOW (GO TO Q. 28)

27. Did you learn anything about the energy situation from that reading material?

(1) YES (2) NO (3) DON'T KNOW

28. Have you ever learned anything from bulletin boards?

(1) YES (2) NO (GO TO Q. 30) (3) DON'T KNOW (GO TO Q. 30)

29. Did you learn anything from the bulletin boards about the energy situation?

(1) YES (2) NO (3) DON'T KNOW

30. Have you ever learned anything from signs on buses or trains?

(1) YES (2) NO (GO TO Q. 32) (3) DON'T KNOW (GO TO Q. 32)

31. Did you learn anything from these signs about the energy situation?

(1) YES (2) NO (3) DON'T KNOW

32. Have you ever learned anything about the energy situation through information sent home with your children from school?

(1) YES (2) NO (3) CHILDREN NOT IN SCHOOL

(4) HAVE NO CHILDREN (5) DON'T KNOW

33. Have you ever learned anything about the energy situation through community organizations or clubs?

(1) YES (2) NO (3) DON'T KNOW

I have just a few more questions.....

34. How much education have you completed?

(1) LESS THAN HIGH SCHOOL DIPLOMA

(2) HIGH SCHOOL DIPLOMA (3) SOME COLLEGE/TRADE SCHOOL

(4) COLLEGE DEGREE (5) GRADUATE WORK/DEGREE

(6) REFUSED

35. What is the number of persons in your household?

(_____)

36. Would you please tell me if your household income is more or less than $8000?

(1) LESS (GO TO Q. 37)

(-) MORE: is it more than $15,000?

(2) NO (GO TO Q. 37)

(-) YES: is it more than $25,000?

(3) NO (GO TO Q. 37)

(4) YES

(5) STUDENT

(6) RETIRED

(7) UNEMPLOYED

(8) DON'T KNOW

(9) REFUSED

37. May I ask your race?

(1) WHITE (2) BLACK (3) AMERICAN INDIAN

(4) ORIENTAL (5) SPANISH AMERICAN

(6) OTHER (SPECIFY:_____) (7) REFUSED

I'd like to thank you for your help. Have a nice evening.

RECORD SEX:

(1) MALE (2) FEMALE

APPENDIX B

Pearson Correlation Matrix

	Energy Problem Awareness	Responsibility for Problem	Cost of Energy Used	Amounts of Energy Used	Rent/Own Home	Paying for Utilities	Energy Knowledge (Quiz)	Information Sources	Conflicting Information	TV Credibility	Newspaper Credibility	Government Credibility	Oil Company Credibility	Utility Company Credibility	Consumer Group Credibility	Received Newsletters/Pamphlets	Read Newsletters/ Pamphlets	Cablevision Subscription	Watch Cable News Channels	Watch All-Night Movie Channel	Learn about Energy at Library	Learn Anything in Waiting Rooms	Learn about Energy in Waiting Rooms	Learn Anything from Bulletin Boards	Learn about Energy Bulletin boards	Learn Anything from Bus/Train Signs	Learn about Energy Bus/Train Signs	Learn about Energy School Children Info	Learn about Energy Clubs/Community Groups	Education Level	Household Size	Income Level	Race	Sex
Energy Problem Awareness	-	-.37*	.00	-.03	.07	-.08	-.11*	-.01	-.03	-.01	-.10*	-.10*	-.08	-.07	-.13*	-.03	.06	.01	.03	.00	.10*	.03	.02	-.01	.00	.06	-.06	-.08	.12*	-.18*	.12*	.02	.08	.13*
Responsibility for Problem	-.37*	-	.02	-.10*	.05	-.03	.02	.00	-.03	-.04	-.05	.03	.06	.01	-.05	.20	-.11	-.01	-.02	.02	.01	.12*	-.08	.12*	-.08	.03	-.03	.04	.06	-.11*	.02	-.03	.08	-.09*
Cost of Energy Used	.00	.02	-	.25*	-.08	.04	-.00	.13*	.05	-.01	-.04	-.01	-.01	-.09	-.03	.04	-.01	-.12*	.08	.09*	-.02	.10*	-.07	.10*	-.08	.05	-.06	-.04	-.01	-.05	-.01	-.07	.04	-.01
Amounts of Energy Used	-.03	-.01*	.25	-	-.01	.01	.00	.01	.05	.00	.00	-.05	-.00	-.09*	-.03	-.05	.02	.06	-.10	-.08	.07	-.07	.05	.07	-.06	.13*	-.15*	-.08	-.01	.05	-.04	-.08	-.10*	.07
Rent/Own Home	.07	.06	-.05	-.01	-	-.88*	.04	-.04	.01	.03	.00	.04	-.02	-.00	-.05	.11*	-.08	.08	-.08	-.09*	.14*	.03	.01	.10*	-.10*	.12*	-.11*	-.20*	.13*	-.11*	.35*	.13*	-.05	.01
Paying for Utilities	-.08	-.03	.04	.01	-.88*	-	.01	.03	-.01	-.01	.03	-.03	.04	.01	-.00	-.10*	.05	-.07	.07	.09*	-.13*	-.03	.01	-.08	.07	-.07	.06	.17*	-.12*	.10*	-.28*	-.06	.00	.01
Energy Knowledge (Quiz)	-.11*	.02	-.00	-.00	.04	.01	-	.05	.04	.22*	.19*	.11*	.08	.16*	.19*	-.00	-.00	.04	.07	.09*	.07	.04	.04	-.07	.12*	.06	.02	.08	-.00	.15*	.08	.04	.00	-.06
Information Sources	-.01	.00	.13*	.01	-.04	.03	.05	-	.14*	-.10*	-.05	-.01	.03	-.02	-.17*	.03	-.04	-.04	.00	.02	-.12*	.11*	-.11*	-.01	-.01	.03	-.05	.00	-.08	.07	.00	.02	.12*	-.03
Conflicting Information	-.03	-.03	.05	.05	.01	-.01	.04	.14*	-	-.06	-.02	-.02	-.10*	-.14*	.08	.04	.09*	.06	-.05	-.08	.00	-.08	.06	.02	-.05	.13*	-.08	.03	-.04	-.05	.00	-.02	-.00	-.02
TV Credibility	-.01	-.04	-.01	.00	.03	-.03	-.03	.22*	-.10	-	.66*	.34*	.24*	.34*	.39*	.05	-.02	-.10*	.10*	.09*	.03	-.05	.01	-.05	.08	-.02	.03	.06	-.01	.06	-.06	-.01	-.06	-.03
Newspaper Credibility	-.10*	-.05	-.04	.00	.00	.03	.19*	-.05	-.02	.66*	-	.33*	.29*	.35*	.47*	-.02	.01	-.13*	.13*	.13*	-.02	-.15*	.09*	-.09*	.09*	-.03	.05	.17*	-.05	.09	-.10*	.04	-.07	.02
Government Credibility	-.10*	.03	-.01	-.05	.04	-.03	.11*	-.01	-.02	.34	.33*	-	.52*	.45*	.36*	.02	-.04	-.02	-.03	-.01	.01	-.02	-.02	-.02	.04	.00	-.01	.04	.03	.06	.00	.11*	-.07	.01
Oil Company Credibility	-.08	.06	-.01	-.00	-.02	.04	.08	.03	-.10*	.24*	.29*	.52*	-	.64*	.17*	.01	.03	-.11*	.03	.08	.01	-.02	-.02	-.02	.04	.00	.08	.09*	.01	.05	-.07	.10*	-.03	-.09*
Utility Co. Credibility	-.07	.01	-.09	-.09*	-.00	.01	.16*	-.02	-.14*	.34*	.35*	.45*	.64*	-	.31*	-.10*	.09*	-.14*	.08	.11*	.06	-.01	-.02	-.07	.09*	-.08	.08	.09*	.01	.01	-.05	.07	-.05	-.03
Consumer Gp. Credibility	-.13*	-.05	-.03	-.03	-.05	-.00	.19*	-.17*	.08	.39*	.47*	.36*	.17*	.31*	-	.02	-.00	-.07	.06	.06	-.02	-.12*	.05	-.09*	.10*	-.06	.06	.08	.01	.07	-.06	-.03	- 07	.02
Received Newsletters/Pam.	-.03	.20	.04	-.05	.11*	-.10*	-.00	.03	.04	.05	-.02	.02	.01	-.10*	.02	-	-.75*	.07	-.09*	-.05	.09*	.02	.01	.09*	-.01	-.03	.07	-.06	.14*	-.09*	.10*	-.01	-.04	.04
Read Newsletters/Pamphlets	.06	-.11	-.01	.02	-.08	.05	-.00	-.04	.09*	-.02	.01	-.04	.03	.09*	-.00	-.75*	-	-.10*	.10*	.06	.01	-.00	.00	-.05	.03	-.04	-.01	.01	-.04	.09*	-.08	.04	.06	-.01
Cablevision Subscription	.01	-.01	-.12*	.06	.08	-.07	.04	-.04	.06	-.10*	-.13*	-.02	-.11*	-.14*	-.07	.07	-.10*	-	-.84*	-.86*	.11*	-.04	-.01	-.02	-.03	.09*	-.10*	-.00	-.02	.02	.05	.10*	-.24*	-.02
Watch Cable News Channels	.03	-.02	.08	-.10	-.08	.07	.07	.00	-.05	.10*	.13*	-.03	.03	.08	.06	-.09*	.10*	-.84*	-	.94*	-.10*	.01	.02	.01	.00	-.09*	.11*	.04	.04	-.05	.08	-.09*	.18*	.02
Watch All-night Movie Ch.	.00	.02	.09*	-.08	-.09*	.09*	.09*	.02	-.08	.09*	.13*	-.01	.08	.11*	.06	-.05	.06	-.86*	.94*	-	-.11*	.01	.03	-.01	.04	-.10*	.12*	.04	.03	-.02	-.08	-.09*	.17*	.03
Learn about Energy-Library	.10*	.01	-.02	.07	.14*	-.13*	.07	-.12*	.00	.03	-.02	.01	.02	.06	-.02	.09*	.01	.11*	-.10*	-.11*	-	.04	.02	.23*	-.18*	.10*	-.09*	-.15*	.15*	-.15*	.02	-.05	-.08	.00
Learn Anything-Waiting Rooms	.01	.12*	.10*	-.07	.03	-.03	.04	.11*	-.08	-.05	-.15*	-.02	.04	-.01	-.12*	.02	-.00	-.04	.01	.01	.01	-	-.85*	.12*	-.12*	.19*	-.21*	-.00	.12*	-.02	-.02	.01	.06	.06
Learn Energy-Waiting Rooms	.02	-.08	-.07	.05	.01	.01	.05	-.14*	.06	.01	.09*	-.02	.00	-.03	.05	.01	.00	-.01	.02	.03	.02	-.85*	-	-.12*	.14*	-.17*	.21*	-.02	-.06	.02	.06	.01	.00	.00
Learn Anything-Bulletin Bds.	-.01	.12*	.10*	.07	.10*	-.08	-.02	-.01	.02	-.05	-.09*	-.02	-.03	-.07	-.09*	.09*	-.05	-.02	.01	-.01	.23*	.12*	-.11*	-	-.86*	.15*	-.13*	-.11*	.19*	-.20*	.05	.00	-.16	.08
Learn Energy-Bulletin Bds.	.00	-.08	-.08	-.06	-.10*	.07	.12*	.01	-.05	.08	.09*	.04	.08	.09*	.10*	-.01	.03	-.03	.00	.04	-.18*	-.12*	.14*	-.86*	-	-.18*	.21*	.14*	-.14*	.24*	-.07	-.01	.11*	-.10*
Learn Anything-Buses/Trains	.06	.03	.05	.11*	.12*	-.07	.06	.03	.13*	-.07	-.03	.00	-.07	-.08	-.06	-.03	-.04	.09*	-.09*	-.10*	.10*	.19*	-.17*	.15*	-.18*	-	-.89*	-.08	-.03	-.06	.11*	.00	-.05	.06
Learn Energy-Buses/Trains	-.06	-.03	-.06	.15*	-.11*	.06	.02	-.05	-.08	.03	.05	-.01	.08	.08	.06	.07	-.01	-.10*	.11*	.12*	-.09*	-.21*	.21*	-.13*	.21*	-.89*	-	.08	.03	.05	-.15*	-.02	.07	-.10*
Learn Energy-Sch. Children	-.08	.04	-.04	-.08	-.20*	.17*	.08	.00	.03	.07	.17*	.04	.09*	.09*	.08	-.06	.01	-.00	.04	.04	-.15*	-.09	-.02	-.11*	.14*	-.08	.08	-	.06	.11*	-.44*	.06	-.03	-.08
Learn Energy-Clubs/Orgs.	.12*	.06	-.01	-.01	.13*	-.12*	-.00	-.08	-.04	-.01	05	.03	.01	.01	.01	.14*	-.04	-.02	.04	.03	.15*	.12*	-.06	.19*	-.14*	-.03	.03	.06	-	-.20*	.09*	.02	-.04	.02
Education Level	-.18*	-.11*	-.05	.05	-.11*	.10*	.15*	.07	-.05	.06	.09	.06	.03	.01	.01	-.09*	.09*	.02	-.05	-.02	-.15*	-.02	.02	-.20*	.24*	-.06	.05	.11*	-.20*	-	-.20*	.16*	-.06	-.05
Household Size	.12*	.02	-.01	-.04	.35*	-.28*	.08	.00	.00	-.06	-.10*	.00	-.07	-.05	-.06	.10*	-.08	.05	.08	-.08	.02	-.02	.06	.05	-.07	.11*	-.15*	-.44*	.09*	-.20*	-	.18*	.01	.02
Income Level	.02	-.03	-.02	-.08	.13*	-.06	.04	.02	-.02	-.01	.04	.11*	.10*	.07	-.03	-.01	.04	.10*	-.09*	-.09*	-.05	.01	.01	.00	-.01	.00	-.02	.06	.02	.16*	.18*	-	-.12*	.02
Race	.08	.08	.04	-.10*	-.05	.00	.00	.12*	-.00	-.06	-.07	-.07	-.03	-.05	-.07	-.04	.06	-.24*	.16*	.17*	-.08	.06	.00	-.16	.11*	-.05	.07	-.03	-.04	-.06	.01	-.12*	-	.01
Sex	.13*	-.09*	-.01	.07	01	.01	- 06	- 01	-.02	-.03	.02	.01	-.09*	-.03	.02	.04	-.01	-.02	.02	.03	.00	.06	.00	.08	-.10*	.06	-.10*	-.08	.02	-.05	.02	.02	.01	-

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