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HOUSEHOLD WORK SATISFACTION AND ENERGY BEHAVIORS OF KOREAN HOMEMAKERS: KOREAN COMPARED TO AMERICAN HOUSING SITUATION

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By

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ABSTRACT

HOUSEHOLD WORK SATISFACTION AND ENERGY BEHAVIORS OF KOREAN HOMEMAKERS: KOREAN COMAPRED TO AMERICAN HOUSING SITUATION

By

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Using an ecological framework, this study investigated Korean homemakers' activities and satisfaction relative to household work, including energy behaviors comparing their Korean experiences with that in the United States.

Data were collected among the Korean homemakers who lived in Michigan State University apartment complexes during the summer of 1985. Sixty-four surveys were used for the analysis of the data. The t-test and chi-square analyses were used to test the hypothesized differences between living in two countries.

The importance of this study appears to be that it reveals that there were major differences in household activities, satisfaction with household work, energy behaviors, and housing, when a sample of Korean homemakers were asked to compare their experiences between living in the United States and in Korea. The only aspects of the study in which greater satisfaction with the Korean situation was revealed was in the areas of the housing itself, the kitchen, and clothing care.

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INTRODUCTION

Background

The energy shortage during the winter of 1973-1974 affected not only families in the United States but also in Korea. People all over the world experienced increased utility and gasoline prices. Fuel oil has been the form of energy most affected by increasing energy prices and threats to a stable supply since the Arab oil embargo. Since Korea has no known oil reserves, it depends totally on imported oil(Korea Annual, 1983). In 1982 Korea spent $7,528.2 million to import various kinds of energy, about ten percent of the its gross national product (Korean Annual, 1983). Korea in 1982 produced no crude petroleum while the United States produced 425,591 thousand metric tons of crude petroleum; U.S. production totaled 427,515 thousand metric tons in 1983 (1983: Energy Statistics Yearbook, 1985).

Wide differences exist in the amount of energy consumption in Korea and in the United States. In 1983 U.S. per capita consumption of crude petroleum was 2463 kilograms compared to 679 kilograms per capita in Korea (1983: Energy Statistics Yearbook, 1985). The consumption of electricity in Korea was also considerably less than in the United

states; in 1983 Korea used 1,334 kilowatt hours per capita compared to 10,280 kilowatt hours per capita in the United States (1983: Energy Statistics Yearbook, 1985). In the consumption of natural gas, that of Korea was also remarkably less than in the United States, 1145 megajoules per capita compared to 92,323 megajoules per capita in 1983 (1983: Energy Statistics Yearbook, 1985). In spite of the fact that Korean's used less energy nationally and on a per capita basis, Korea lacks natural resources such as petroleum, thus making the energy problem in Korea more serious than in the United States.

Due to the different energy situations, the energy behaviors of Korean students moving to the United States may change after moving to and living in the United States. For example, most young Korean couples in Korea do not have cars; however, they often have cars in the United States because other transportation is inconvenient and cars and gasoline cost less in the United States. Also, Korean couples do not pay for their utility bills if they live in Michigan State University campus apartment complexes. In Korea, to the contrary, Korean's must pay a great part of their income on energy use despite much lower consumption rates.

Housing in Korea and America are very different. Korean houses are of two main types: (a) Traditional houses, and (b) Western-style houses that in Korea are similar to Western-style houses in America in terms of structure. The major difference between Traditional houses and Western style houses in Korea is in the design of the kitchen and the

heating system. The kitchens of American and Western style houses are often designed using the work triangle principle. Work efficiency is a carefully considered design principle. However, the kitchens in Traditional Korean houses are designed without considering work efficiency. Chang (1979) reported that the expenditure of human energy in Traditional Korean kitchens is notably higher than in improved kitchens. Chang indicated four reasons: (a) the kitchen floor is lower than the other rooms, therefore, the homemaker uses stairs and climbs over a high doorsill in order to come from and go to the other rooms; (b) the cooking center is very low and is used for cooking as well as for heating the room; and (c) the absence of running water in the kitchen (water is supplied by a faucet in the yard) and; (d) a direct passage way between the kitchen and the other rooms affects human energy consumption. In contrast, cooking centers and counters in the kitchens of Western-style Korean houses and in American houses are designed to be at appropriate heights. Each is designed to consider physical limitations and dimensions, work efficiency, and the convenience of the user.

The heating system of Traditional Korean houses is the hot floor (On-Dol) system. This unique system, still in use today, is used not only for house-heating purposes in the homes of commoners, but also for cooking in the kitchen. Flues that carry the hot air in this system are made with stone and mud. Coal is used as its fuel source. Western-style houses generally use natural gas, oil, or electricity.

Therefore, the cost for heating in the Traditional houses is considerably lower than in Western-style Korean homes. The floor heating system used by Koreans for their Western-style houses is similar to that of some American houses. The hot water pipes are installed beneath the floor. Rooms in Traditional houses have to be heated separately, but Western-style houses have central furnaces that heat all the rooms. Homemakers in Traditional houses spend considerably more time and human energy in running the household.

Housework is not only a task inequitably assigned to women and undervalued by society as a whole, but also plays a substantial part in putting women at a disadvantage in the rest of the economy (Glazer, 1976; Sweet, 1973). Traditionally women in Korea work in the home as homemakers, mothers, and wives. These cultural and social limitations inhibit women from working outside the home. For example, in Korea jobs outside home for married women and mothers are very limited. In the past women have been in the labor force in Korea only because of financial necessity. Although these limitations exist, the number of women in the labor force has been increasing in recent years. Partially this is because women have more education than before. However, most housework in Korea is still done by women.

Great differences are evident in comparing the household work activities of American and Korean women. In the United States, for instance, vacuum cleaners are used to clean the house once a week. In Korea, houses are typically cleaned at least every day by using a broom and wet dustcloths.

Constant cleaning is needed because Koreans sit on the floor inside the home and have special floor covering of paper (Jang-Pan) because of the floor heating system.

For laundry Americans use washing machines and dryers, but Koreans wash clothes by hand every day. Korean homemakers typically boil all underwear and white clothes to disinfect and bleach them during every wash. Homemakers in Korea do not use dryers because electricity is expensive. Even homemakers who have washing machines pre-wash by hand before using their washing machines. Also in Korea homemakers typically iron the clothes every day.

The household tasks in Korea already mentioned above consume a great amount of time and human energy. Several important questions are: Do household work behaviors of Korean wives change after they have lived in the United States? Do they use vacuum cleaners instead of the dustclothes and the brooms? Do they also use washing machines and dryers instead of doing laundry by hand? Since they do not have to work to heat their Michigan State University campus apartments, the amount of household work, therefore, would be reduced. In accordance with substantial reductions in time and energy devoted to household tasks, it is expected that satisfaction regarding household work would change. These questions are central to this research.

The Need for Study

In studying quality of life in the United States, Bubolz et al. (1980) found that among the 21 life concerns, one's

house or apartment was the second most important item. Respondents also said that the work (either a job or work at home) was very important. Therefore, satisfaction with work was significantly and positively related to overall quality of life in their study. Andrews and Withey's findings (1976) are similar to these. Andrews and Withey found 12 concerns that included work and house or apartment that explained 50 to 60 percent of the variance in perceived quality of life in each of the two national samples, as well as in 22 subgroups of the American population.

A study of family time use and its relationship to quality of life perception (Lee and Go, 1985) in Korea indicated that the perception of quality of life among the rural families was positively related to their socio-economic status and inversely related to the amount of household work time. This result is quite a contrast to the urban families' perception of quality of life which showed no significant relationship among their household work time use, their demographic characteristics and their perception of quality of life. In the studies already mentioned, house and work were important environments to both individuals and families, and they were significantly related to their overall quality of life satisfaction.

In recent years the number of Korean students has remarkably increased in the United States as well as at Michigan State University. Appendix A (pp. 70 - 71) shows the increasing number of Korean students enrolled at MSU.

However, no studies could be found that compare Korean homemakers' household work activities and housework satisfactions, and energy behaviors in Korea and in the United States.

Conceptual Framework:
Human Ecological Systems Approach

A human ecological framework derives from a general ecological model in which organisms are regarded as interacting with their environments, i.e. as an ecosystem (Bubolz et al., 1980). Humans are dependent on all components of their environment to satisfy needs and desires (Bubolz et al., 1980). They also indicate that much human behavior can be considered to consist of efforts to cope with, adapt to, or change environments to achieve a better person-environment fit; through these efforts, therefore, humans transform their environment, and in a feedback process it, in turn, transform them. In this study, a human ecological framework is considered useful, therefore, a human ecological model that applies this conceptual framework was used.

Sprout's (1965) notion of three organising concepts (human environed unit, environment, interactions and transactions between and within the components) were essential centralizing ideas around which the human ecological analytical framework could be built. Within human ecology the human environed unit (HEU) of central concern is the human, the human as part of a social unit -- the family (Morrison, 1974). The environment is defined as "that which environs;

surroundings; specifically the aggregate of all the external conditions and influences affecting the life and development of an organism, etc, human behavior, society, etc." (Webster, 1949). The environments are largely classified into three types: the natural envionment (NE), the human constructed environment (HCE), and human behavioral environment (HBE) by Bubolz et al. as follows (1979, pp. 29-30);

> Natural environment (NE) is the environment formed by nature with space-time, physical, and biological components.... Human constructed environment (HCE) is defined as an environment altered or created by human beings. It includes modifications made by humans of the natural environment's physical and biological components and other social and cultural constructions... Human behavioral environment (HBE) is the environment of human beings and their biophysical, psychological, and social behaviors.

The third organizing concept of an ecosystem is interaction, that is, a relationship of reciprocal influence among a system's components (Bubolz et al., 1979). Interaction in an ecosystem occurs when any part of an ecosystem influences or acts on any other part and influences or acts on any other part and is influenced or acted upon in return. The interaction takes place among components within the human ecosystem. For example, interaction takes place between the humans (HEU's) and among the environments.

Human Ecological Model

Figure 1 (p. 9) presents a human ecological model for this study. The human environed unit (HEU) were respondents in this study and are the Korean ~~homemakers~~ American consumers. For the family one of the most necessary human constructed environments (HCE) is housing. The energy consumed in the process of doing

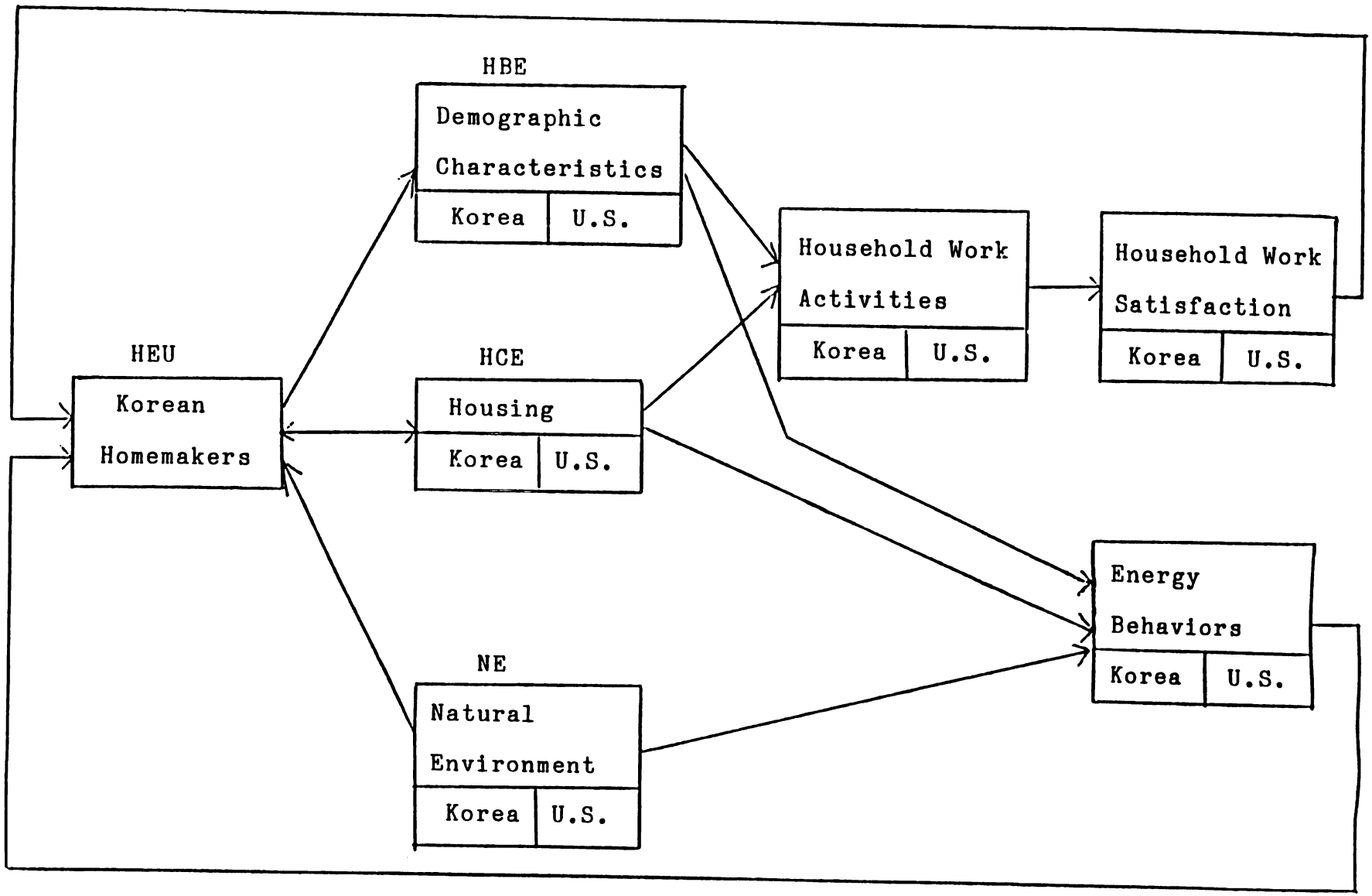

Figure 1.1.--A Human Ecological Model used in the Study.

household tasks and cooking or heating the home are the natural energy resources. The fuel types used in both Korea and the United States are considered important elements in natural environment (NE). The cultural context in which household work activities and energy behavior are done are considered the human behavioral environment (HBE) in this study. The focus of this study is how the different cultural contexts (HBE) (Korea and the U.S. situations) affect Korean homemakers' housework activities, housework satisfaction, and how the different environments (NE, HCE) affect their energy behaviors.

The Objectives

Using an ecological framework, this study investigated Korean homemakers' activities and satisfacton relative to household tasks, including energy behaviors comparing their Korean experiences with that in the United States. The objectives of the study are as follows: (a) to study the satisfactions that Korean homemakers (who are living temporarily at Michigan State University) have with housework and housing: Korean housing compared to United States housing situation; and (b) to compare energy behaviors of Korean wives: Korean housing compared to United States housing situation.

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Chapter II.

REVIEW OF LITERATURE

This research is related to energy behaviors and houshold work activities and satisfaction of Korean homemakers to the housing situation, Korean compared to American housing.

This review of literature consists of two main sections:

1. Household Work
    a. Household Work Satisfaction
    b. Housework Time
2. Energy Behaviors
    a. Residential Energy Use
    b. Energy Conservation Behaviors

Household Work

Household Work Satisfaction

In view of the fact that housework is work, the home is a workplace in which a large proportion of the population labors (Ferree, 1980). Household work clearly consumes vast amount of human energy. Attitudes toward household work affect performance directly not only as output following performance, but also as input (Kim, 1981). The affective component concerns the worker's personal feelings about the activity, his/her attitudes and interests, and his/her

preferences and dislikes (Steidle and Bratlon, 1968). These aspects may contribute to the homemaker's feelings of working hard or easily. Feelings of working easily or hard may contribute to greater satisfaction or dissatisfaction with the work.

Satisfaction from household work varies among individuals. Alter and Deacon (1972) found that the wife's satisfaction with the organization of her household work was related to social-emotional activity. It was associated with the amount of marital role agreement. That is, as the wife reported more agreement between herself and her husband, she reported more satisfaction with the organization of her household work. This finding suggests that satisfactions with tasks identified as managerial ones are affected in part by some amount of perceived consensus between the husband and wife. Alter and Deacon (1972) also indicated that the wife's perception of consensus between herself and her husband is related, in part, to her satisfaction with certain kinds of household activity and resource allocation. Therefore, women who endorsed nontraditional expectations for the female role but believed their husbands held traditional expections would be particularly likely to be dissatisfied with their house-work role (Krause, 1983).

In analyzing the family life cycle, Burr (1970) found that satisfaction with the way the spouse performs his or her household tasks is lowest when they have school-age children, (i.e., between the ages of 6 and 12). In the same study, the

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wife's satisfaction with the way the husband performed his household tasks was highest when the family was at the retired family life-cycle stage. More children as well as the actual increases in workload children cause may result in less satisfaction with full-time housework (Ferree, 1980). However, there were no significant differences in the attitudes of Korean homemakers toward household work related to the number of children in a family (Kim, 1981). Ferree (1980) also suggested that the age of children does not make a significant difference in satisfaction either for working- or middle-class women. However, the age of the oldest child accounted for some of the difference in the degree of satisfaction of the homemaker with her household organization (Alter and Deacon, 1972). This could suggest that as the child matures, his/her demands may make organization more difficult.

Weaver and Holmes (1975) reported that 53 percent of homemakers in the United States whose full-time work activity was keeping house reported being very satisfied with their work. Women with full-time jobs were less satisfied with their household work than those whose full-time work activity was housekeeping. This finding was the same as Ferree's (1976) in a study of working class jobs; women who have held paid jobs were more likely to find housework frustrating. However, Ferree indicated that the women with full-time outside jobs were happier and felt themselves to be better off than full-time housewives despite the strains of carrying a double role. Part-time workers, however, were the group

most satisfied with their situation and most interested in the nonfinancial aspects of their jobs. On the other hand, national survey data for the period 1971 to 1976 in the United States did not reveal significant differences between working women and housewives in regard to life satisfaction in general or to the measurable components thereof (i.e., work, marriage, family, and so on). Kim (1981) also found no differences between working women and full-time homemakers in their attitudes toward housework in Korea.

Bortel and Gross (1954) found different levels of satisfaction among women from various socioeconomic statuses; upper-class groups reported less favorable attitude toward household work, and with some tendency toward dissatisfaction with the role of homemaker. However, there is no significant difference between working-class and middle-class women in their satisfaction with housework (Ferree, 1980). A study in Korea (Kim, 1981) also found no difference according to income. But Wright (1978) indicated that working-class women may not be any more satisfied as housewives than middle-class women in the United States.

Satisfaction levels differ according to age and education. There are also differences in findings between studies in Korea and in the United states. Older women were more satisfied with their housework than younger women (Krause, 1983; Campbell, et al., 1976). Women with a high level of educational attainment were more dissatisfied with housework than women with less education. On the contray,

the study of attitudes of Korean homemakers toward household work (Kim, 1981) suggested that homemakers who are in their 20s and 30s expressed more favorable attitudes toward housework. Kim found that homemakers with high levels of educational attainment had more favorable attitudes toward housework than the homemakers with less education. Moreover, the homemakers who were in extended families expressed more favorable attitudes toward household work than the homemakers who were in a nuclear family in Korea.

Oakley (1974) suggested that working-class housewives have fewer conveniences afforded them by technology, but that such technological conditions have little impact on work satisfaction.

Responses to specific household activities vary widely. Traditionally, certain homemaking tasks are identified by homemakers as liked such as meal preparation and child care, others as disliked such as dishwashing, ironing and cleaning, and the remainder such as washing the clothes and shopping for groceries in that shady, intermediate zone of not most or least liked (Steidle and Bratton, 1968). However, shopping for groceries and gardening were identified by Korean homemakers as liked tasks (Kim, 1981). The number of hours spent on the most liked task was greater than the time spent on the least liked task (Maloch, 1963). Maloch also suggest that "adequate equipment" was one of the most important characteristics of the most liked task.

Housework Time

Most of the household appliances that have come on the market since 1920s have been marketed as laborsaving devices and many other products and services designed to ease the homemaker's task have been put on the market during the past 50 years (Vanek, 1974). Nevertheless, the presence of numerous appliances did not seem to reduce womens' household work efforts and time (Lee and Go, 1985; Im, 1981; Berheide et al., 1976; Vanek, 1974, Walker, 1969). Yoon (1975) and Im (1981) found that Korean homemakers spent more time doing homemaking tasks than homemakers in other countries. Yoon (1975) also indicated that this may be attributed to the lack of convenient facilities and goods and services, while Im (1981) and Lee and Go (1985) indicated that many pieces of household equipment and appliances were not used effectively in Korea. Rural homemakers spend no more time doing household work than urban ones, even though urban homes were more likely to have electricity, running water, and laborsaving machines (Vanek, 1974).

As mentioned in the introduction, household work time use was inversely related to the family's perception of quality of life. Household work is an extremely varied and time-consuming activity. Several variables significantly influence time spent on household work such as employment, family size, education, and family imcome. In additon to the above factors, age of homemaker, presence and age of children, presence of pets, size of the house, location of

children's play areas, amount of work space in kitchen or laundry, and arrangement of kitchen or laundry were found to have significant effects on the homemakers' workload and hours per week spent at household tasks.

The homemakers in Korea spent more time doing housework activities than the homemakers in other countries(Yoon, 1975; Im, 1981). The mean time expenditure at various household tasks by homemakers in Korea was found to be 8 to 9 hours a day (Yoon, 1975; Kang et al., 1968). However, in a recent study Korean homemakers spent 7.2 hours a day (Lee and Go, 1985). This suggested that the time spent on housework has been reduced in Korea. Korean homemakers without household help spent as much as 11.0 hours a day, whereas homemakers in Germany, the U.S., and Japan spent 7.2, 6.7, and 9.3 hours a day, respectively (Yoon, 1975). Nevertheless, Korean homemakers expressed slightly more favorable attitudes toward household work (Kim, 1981). Shin (1982) also reported that most Korean homemakers (95 percent) had positive attitudes about being in charge of household affairs. Compared with Japanese homemakers, Korean homemakers showed more favorable attitudes about household tasks (Shin, 1982). American homemakers' images of household work and their own relation to it illustrated relatively high level of ambivalance (Berk and Berheide, 1977; Berheide et al., 1976)

Energy Behaviors

In our society, energy is a vital, societal commodity. Supplies of energy are necessary to the functioning of human

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groups and form the basis for societal development (Cunnigham and Lopreato, 1977). Lenski and Lenski (1974) also stressed that a human population cannot survive without a steady, daily input of energy; and every social and cultural complexity over and above the members' bare survival requires additional input.

Since "the energy crisis" (Arab oil embargo in 1973 - 1974), the critical role that energy plays in society has been recognized. Families experienced increased utility and gasoline prices. A time series analysis of household energy consumption by Morrison (1982) showed that fuel oil consumption was reduced from 25 percent of total household use in 1970 to 16 percent by 1980. This study indicated that families were finding substitutes for energy or simply using less of it through conservation practices. Schipper (1983) also reported that higher energy prices in 1974 and 1979 had a marked impact on energy consumption and growth in nine countries. However, Herberlein (1975) indicated that the energy crisis appeared to have no effect on conservation behavior, even though utility prices increased. Seligman et al. (1979) also found that the energy crisis did not appear to affect electric consumption.

Scholars have expected that the energy problem will be more serious because of increasing population and increasing demand in spite of the dollars spent on cognitive appeals for conservtion. This increase in demand is due to the structure of our social system and the human costs associated with reductions of energy consumption (Herberlein, 1975).

The following review of literature on energy behavior covers factors affecting residential energy use and energy conservation behaviors.

Residential Energy Use

The size of the household is the most important factor contributing to energy consumption (Morrison, 1975). Many studies have also indicated that the number of people living in a household is an important determinant of energy consumption (Herberlein, 1975; Morrison and Gladhart, 1976; Curtin, 1976; Yoon, 1980; Marganus and Badenhop, 1983; Gladhart, Morrison and Zuiches, 1984; Urich and Hogan, 1985). However, in larger households each person tends to use less energy than in smaller households (Gladhart, Morrison and Zuiches, 1984).

The size of a family has a major influence on the size of the dwelling. A study of energy consumption in single dwellings (Morrison, 1975; Urich and Hogan, 1985) indicated that number of rooms in the dwelling, number of doors to the exterior, and number of rooms heated were the major factors contributing most to the variance explained in residential energy consumption. The number of rooms, doors, windows and rooms air-conditioned were also found to make independent contributions to energy consumption (Newman and Day, 1975; Gladhart, Zuiches and Morrison, 1978). Herberlein (1975) reported that apartment size had an effect on electricity use in his study.

Dwelling type also affected energy consumption. Single

family homes required much more energy per family than did multifamily dwellings (Newman and Day, 1975; Gladhart, 1977).

Degree of insulation in ceilings and walls was also an important determinant of household energy use (Morrison and Gladhart, 1976; Newman and Day, 1975).

Family income was the single best indirect predictor of residential energy consumption (Morrison and Gladhart, 1976). Hannon (1975) reported that the correlation was stronger between income and indirect family uses of energy than for direct uses. Family income was also found to be positively related to energy expenditures (Marganus and Badenhop, 1984). Cramer et al. (1983) found that income strongly affected energy use.

Family life cycle indicates the age distribution of children living within or outside the family household. Each stage of the family life cycle has different housing needs and therefore differing energy consumption (Gladhart, Morrison and Zuiches, 1984; Urich and Hogan 1985). Yoon (1980) also reported that energy consumption was significantly related to the stage of family life cycle.

The homemaker's level of education was significantly related to energy use in the exploratory study of energy consumption in Seoul, Korea (Yoon,1980). The higher the homemaker's level of education, the more energy consumption was found. However, Hassoun and Hunt (1980) found that there was no significant relationship between electricity usage and educational level of the respondent in the United States.

Work roles influence how much time people spend at home and therfore has the potential to use electricity (Herberlein, 1975). A family in which a spouse stays home during the day uses more electricity during the week than a family in which both spouses work. Eichenberger (1975) and Gladhart (1983) also found that families with the full-time homemakers used more electricity during the week than family in which both spouses work. On the contrary, Hassoun and Hunt (1980) found that the more hours per week the respondent was employed outside the home, the greater was the amount of electric energy used.

The number of major appliances in the home was a important determinant of household energy use (Morrison, 1975; Morrison and Gladhart, 1976). Hassoun and Hunt (1980) found that the number of major electrical appliances owned explained 24 percent of the electrical energy use. However, owning or not owning one or more modern large appliances made only a small difference in the winter and spring electricity use and was not significant in explaining variation in electricity expenditure or in total annual energy expenditure (Ruffin and Weinstein, 1979). Preferences for and choices of appliances are likely to have a stronger impact on consumption than attitudes about electricity use (Herberlein, 1975).

Where a family lives has a direct impact on its energy needs and has important implications for the availability and cost of an energy source for direct consumption by the household (Gladhart, Morrison and Zuiches, 1984). However,

Hasson and Hunt (1980) found no significant relationship between location of the residence and amount of electricity used by the household. While no important differences were found between urban and rural residential energy use, rural families used 42 percent more gasoline for private automobiles than did urban families (Gladhart, 1977). Cecelski et al. (1979) also suggested that there was no difference between rural and urban energy consumption despite the generally higher urban incomes, because of the low rural energy efficiencies, particularly in cooking, and the use of noncommercial fuels.

Belief in the reality of the energy problem did not diminish in any meaningful way the energy consumed in a household (Morrison and Gladhart, 1976). Becker (1981) and Seligman et. al (1979) also found that people's perception of the reality of the energy crisis was not significantly correlated with their energy use.

Peoples' need or desire for comfort can have a substantial impact on consumption because space heating and cooling comprise the biggest components of residential energy comsumption in the winter and summer, respectively (Becker et al., 1981). A study of summer electric consumption (Seligman et al., 1979) indicated that the comfort and health factor is the most important determinant of actual summer electric comsumption. Cramer et al. (1983) also found that thermal comfort was associated with summer electricity use.

Energy price change was also important in explaining

change in consumption (Gladhart, 1983). Chatelain (1983) found that respondents from nine broad income groups indicated the degree of impact the changes in the cost of energy made on their consumption. She also pointed out that a high percentage of respondents of her study reported that the high cost of energy had had adverse effects on their lives. This may be explained by the state of the economy, and the increasing costs of energy as well as unemployment.

Energy Conservation Behaviors

Disruptions of energy supplies to the United States and associated increases in the price of energy fuels have combined to create a situation in which consumers are pressed to reevaluate their energy-use behaviors, to adopt more energy-conserving practices, and to purchase more energy-efficient goods (Cunningham and Lopreato, 1977).

Hannon (1975) stressed that energy conservation is necessary because of (a) the environmental effects of unbridled consumption; (b) the long lead time and massive capital allocations necessary for future increases in energy supply; (c) the instabilities associated with a large dependence on foreign energy supplies; (d) the need for an enduring national goal that unifies the nation and does not require massive new economic growth; and (e) because energy is a fundamental ingredient in any economic system.

Kempton et al. (1982) divided energy conservation into three types: efficiency investments, management, and curtailment. They found that consumer's estimates of savings

are not strongly related to the actual savings potential of their homes, but rather seem determined by social or attitudinal factors.

Morrison and Gladhart (1976), Yoon (1980), and Kahng (1981) indicated that adoption of energy conservation attitudes and practices were significantly related to family size, family income, and the stage of family life cycle.

The value "eco-consciousness" was a good predictor of energy conservation practices but varied across age, income, occupation, wife's employment status, education, stage of family life cycle, and family size variables (Hogan and Paolucci, 1979).

Morrison et al. (1979) found that the primary determinants of conservation that appeared in their analysis were the absolute level of prior consumption and the increases in prices of energy. Cunningham and Lopreato (1977) also indicated that the major influence on energy conservation behavior was price, especially for low-to-middle income groups. They concluded that in most cases those individuals who were classified as more energy conserving were lower-income, less educated, and more likely to be of a minority race or ethnic group than were the less-energy-conserving subjects. The need to reduce the bill, or at least stop it from rising so fast was the greatest incentive to conserve among working class women (Bagshaw, 1982). Curtin (1976) found that respondents who were charged 20 percent more on an actual usage basis for home heating, reported that they had conserved more on heat than of those whose home heating costs

were included in their monthly rental charge. Respondents who faced fixed utility charges were significantly less likely to see conservation as personally difficult.

The study of desert and nondesert residents of Arizona (Wilhelm and Iams, 1983) indicated that geographic location rather than energy attitudes was the primary influence of behavior regarding energy conservation. Attitudes were not found to differ among their respondents from various geographic locations. Reported behaviors concerning structural changes to reduce energy consumption, however, were found to differ significantly among groups with those in colder climates adding or planning to add more conservation devices relative to respondents in warmer climates.

Curtin (1976) found that suburban residents and people who live in the many smaller cities and towns did not differ much from each other in their responses. However, residents of central cities reported more frequently that they were able to easily adjust to lessened gas consumption than rural residents.

Chatelain (1983) reported that a higher proportion of rural respondents showed more conservation practices than urban respondents. On the other hand, fewer rural respondents believed the energy problems were very serious.

Perceived problems in electrical availability and energy consumption were found the major factors affecting belief in the energy problem (Morrison, 1975). Morrison also found the evidence was not strong that belief affects actions (behavior

changes, life style changes) toward reduced energy consumption.

Olsen (1981) used the Fishbein attitude model to develop an energy conservation action model and concluded that broad attitudes and beliefs about the reality and seriousness of the energy crisis or the desirability of conservation policies bore little or no relationship to reported adoption of energy saving practices. But most critical was the extent to which individuals perceive the energy problem or energy conservation as having direct personal consequences for themselves.

Energy conservation practices were also significantly related to homemaker's employment. Employed homemakers in Korea used energy for appliances instead of human energy and time (Kahng, 1981), whereas Morrison and Gladhart (1976) found that working homemakers in their sample did not substitute the energy of appliance for their own human energy to the same extent as their nonworking counterparts.

Energy conservation practices were significantly related to the homemaker's level of education (Kahng, 1981; Yoon, 1980). The higher the homemaker's level of education, the higher scores in attitudes and practices were found. Curtin (1976) also indicated that the young and the highly educated did engage in energy conservation to a greater extent and viewed further adjustments with less difficulty.

Seligman et al. (1971) and Yoon (1980) found a significant relationship between energy conservation attitudes and practices. Kohno's study (1980) also showed that there was an

indirect but significant relationship between energy attitudes and energy behaviors.

In summary, the primary determinant for energy conservation behaviors was the increases in prices of energy. The family size, family income, homemaker's employment status and education, and the stage of family life cycle were also significantly related with energy conservation behaviors. However, the belief in the energy problem was not strongly related to energy behaviors.

Chapter III.

METHODOLOGY

This chapter describes the steps taken in the research process: research design, procedure for sampling and data collection, description of the sample, hypotheses, coding rules, data analyses, assumptions, and limitations.

Research Design

This cross-cultural study used survey research methodology to collect data on the household work satisfaction and energy behaviors of the Korean homemakers to compare their experiences in Korean and American housing situation.

A structured self-report survey instrument was developed specifically for this study (see Appendix B, p.72). All questions have separate answer sections for both Korea and United States. The questionnaire covered the following information: the household work information such as house care, clothing care, meal preparation, and heating; energy information; satisfaction; major and minor appliances; and background information. The survey instrument contained several types of questions including four-point Likert-type questions to measure satisfactions, and mutiple-choice and open-ended questions to assess the other information.

Procedure for Sampling and Data collection

The list of one hundred married Korean students and their addresses were obtained from the Korean Student Association. From this list of couples and families, seventy-five homemakers were randomly selected to be respondents in this study. For the purposes of this study, two criteria were necessary: (a) that the homemaker was living with her husband, and (b) that the homemaker had at least 3 months living experience in American housing. Data collection procedures were carried out in July 1985. All of the questionnaires were distributed and picked up by the researcher from the respondents' homes within a 2-week period. Seventy-one questionnaires were returned, but 7 of these were excluded from the data analyses because the information was not completed or did not meet the criteria. Therefore, 64 questionnaires were usable for this analysis.

Description of the Sample

The respondents in this study were Korean homemakers who were living in the United States temporarily while they or their husbands were studying at Michigan State University and living in the university apartment complexes. Basic demographic characteristics of respondents and structural characteristics of their residences in Korea and United States used in this research are presented in Tables 3.1, 3.2, and 3.3.

The respondents were mostly young and highly educated (see Table 3.1). Sixty-seven percent of the respondents were

TABLE 3.1. Characteristics of Respondents.

Respondent Characteristic	In Korea (N=64)	In U.S. (N=64)
AGE CATEGORIES	percent (#)	percent (#)
25 - 30 years		67.2 (43)
31 - 35 years		25.0 (16)
36 - 40 years		7.8 (5)
EDUCATIONAL LEVEL		
High School graduate	4.7 (3)	4.7 (3)
College graduate	89.1 (57)	89.1 (57)
Master graduate	6.3 (4)	6.3 (4)
EMPLOYMENT STATUS		
Student or Employed homemaker	20.3 (13)	7.8 (3)
Full-time homemaker	79.7 (51)	92.2 (59)
MARRIAGE PERIOD BEFORE COMING TO THE U.S.A.		
3 months or less	23.4 (15)	
4 - 11 months	15.6 (10)	
1 - 2 years	26.6 (17)	
2 - 4 years	10.9 (7)	
4 years and over	23.4 (15)	
PERIOD IN THE U.S.A.		
3 - 11 months		15.6 (10)
1 - 2 years		45.3 (29)
2 - 4 years		28.1 (18)
4 years and over		11.0 (7)

(All catagories may not sum to 100 % due to rounding, this is true for all the following tables.)

TABLE 3.2. Characteristics of Households.

Household Characteristics	Korea (N=64)	U.S. (N=64)	t-value	df	P
	percent (#)	percent (#)			
NUMBER OF MEMBERS IN HOUSEHOLD					
2	20.3 (13)	29.7 (19)			
3	10.9 (7)	40.6 (29)			
4	21.9 (14)	23.4 (15)			
5	14.1 (9)	4.7 (3)			
6	23.4 (15)	1.6 (1)	5.44	63	.000
7	1.6 (1)	-			
8	3.1 (2)	-			
9	4.7 (3)	-			
Mean Number of Members	4.5	3.1			
INCOME LEVEL PER MONTH					
Less than $500	20.3 (13)	6.3 (4)			
$ 500 - $ 999	28.1 (18)	45.3 (29)			
$1,000 - $1,499	20.3 (13)	26.6 (17)			
$1,500 - $1,999	9.4 (6)	12.5 (8)	1.11	63	.273
$2,000 - $2,999	10.9 (7)	4.7 (3)			
$3,000 and Over	9.4 (6)	1.6 (1)			
INCOME RESOURCES			Chi-Square		
Parents	37.5 (24)	59.4 (38)			
Scholarship Fund	7.8 (5)	46.9 (30)			
Salary	76.4 (47)	25.0 (16)	46.17	4	.000
Wages	0	15.6 (10)			
Investment Income	10.9 (7)	6.3 (4)			

TABLE 3.3. Characteristics of Housing.

Housing Characteristic	In Korea (N=64)	In U.S. (N=64)	t-value	df	P
TYPE OF HOUSING	percent (#)	percent (#)			
Tradition Korean house	15.6 (10)	-			
Western style house	42.2 (27)	-			
Apartment	42.2 (27)	100.0 (64)			
TYPE OF KITCHEN					
Traditional Kitchen	6.3 (4)	-			
Modern Kitchen (Western style)	92.2 (59)	100.0 (64)			
Mixture	1.6 (1)	-			
NUMBER OF BED ROOMS					
1	0	25.0 (16)			
2	10.9 (7)	71.9 (45)			
3	29.7 (19)	-			
4	25.0 (16)	-			
5	15.6 (10)	-	11.45	61	.000
6	7.8 (5)	-			
7	4.7 (3)	-			
8	1.6 (1)	-			
9	1.6 (1)	-			
Missing	3.1 (2)	3.1 (2)			

in the 25 to 30 age range and 95 percent of them had four years of college education or more. Though no notable differences in educational level of respondents occured after they came to the United States, some differences did occured in employment status. Though twenty percent of respondents were employed or students in Korea, only 8 percent of were employed in the United States. Therefore, most respondents were full-time homemakers (92 percent) in the United States (see Table 3.1). The majority of respondents (66 percent) had been married less than 2 years prior to coming to the United States.

A significant difference in the size of household between Korea and the United States was evident (see Table 3.2). The size of household was reduced after coming to the United States; the mean number of members in household in Korea and in United States were 5 and 3 respectively. Even though the number of household members was reduced, there was no significant differnce in income level, therefore, actual income was higher in the United States than in Korea.

A significant difference in income resources between the two countries was found. The most frequent income resource was a salary in Korea, whereas in America, parents and scholarship funded the respondents' households. This suggested that many of the husbands earned incomes in Korea, but after coming to the United States, Korean students were supported through graduate assistantships and/or their parents.

Over half of respondents (59 percent) had one or two

household helpers (maids or part-time housekeepers) in Korea, but only two of them (3 percent) have such help in United States.

In Korea, the majority of respondents (84 percent) lived in American style housing (Western style houses and apartments), and only 16 percent of them had experience in Traditional houses. For kitchens, only 6 percent of homemakers had traditional Korean kitchens, whereas 92 percent of them had Western style kitchens in Korea. This indicated that even though the homemakers lived in a traditional Korean house, they had modern kitchens (Western style kitchens) in Korea.

A significant difference in the number of bedrooms between Korea and the United States became evident. The median number of bedrooms in Korea was 4, wheras they had 2 in United States. This indicated that they lived in larger houses in Korea than in the United States.

Hypotheses

Hypothesis 1: There are no significant differences in the household work activities of Korean homemakers between the Korean and American housing situation.

Hypothesis 2: There are no significant differences in the household energy behaviors of Korean homemakers between the Korean and American housing situation.

Hypothesis 3: There are no significant differences in the household work satisfaction of Korean homemakers

between the Korean and American housing situation.

Coding Rule

The frequencies of use of appliances were calculated by days per a month and coded from 1 to 30. The homemakers' indication of "often" was coded 10 days per a month, "sometimes" was coded 3 days, and "rarely" was coded 1 day per a month. "Once bimonthly" was also coded 1 day per month, and "once every three month and over" were coded o.

Data Analysis

The t-test was used to analyze for significant differences in housework activities, energy behavior, satisfaction, and number of appliances and frequency of use of appliances between Korea and the United States.

The chi-square test, a nonparametric test of statistical significance, was employed only to examine nominal level variables.

An alpa level of .05 was selected for this study. This represents the probability of a Type I error, i.e., that the null hypothesis will be rejected when, in fact, it is true.

Descriptive analyses (using percentage) were used to discuss the demographic characteristics of the sample.

Analysis was completed using a Control Data Corporation 750 computer at Michigan States University with the Statistical Package for the Social Sciences (SPSS).

Assumption

1. The survey research was considered appropriate

for gaining both structural and behavioral measures to be examined.

2. The t-test is an appropriate statistical analysis procedure for comparing a representative random sample of homemakers' household work activities, satisfaction, and energy behaviors between Korea and the United States.

3. The descriptive analysis (frequencies and percentages) is an appropriate method to describe the demographic characteristics of the sample.

Limitations of the study

1. Experiences in Korean housing might not be accurate because they were answered from memory in the United States.

2. Married student housing at Michigan States University was limited in representativeness of American housing.

3. For coding the frequency of use of appliances, respondents' perceptions of "often", "sometimes," and "rarely" might be different for each individual. They might not be accurately reflected when coding.

Chapter IV.

FINDINGS

This chapter presents the results of data analyses under the following section headings; (1) household work activities, (2) energy behaviors, (3) appliances, (4) household work satisfaction, and (5) summary.

Household Work Activities

Household work information was composed of house care, clothing care, meal preparation, and heating.

House Care

There were significant differences in all the equipment used for house cleaning between Korea and the United States (see Table 4.1). The homemakers used vacuum cleaners more in United States than in Korea (94 percent as compared to 27 percent), while the use of the broom, duster, and wet dustcloth were reduced for cleaning the house in the United States. The increased use of mops in the United State should be noted. This indicated that for the Korean respondents house care activities changed after coming to the United States, i.e., Korean style vs. American style as mentioned in Chapter I.

The reason given as to why Korean homemakers use vacuum

TABLE 4.1. The Equipment used for Cleaning the House.

The Equipment	Korea (N=64)	U.S. (N=64)	t-value	df	P
Vacuum Cleaner	26.6 (17)	93.8 (60)	-10.63	63	.000
Broom	96.9 (62)	45.3 (29)	7.72	63	.000
Mop	18.8 (12)	48.4 (31)	-3.90	63	.000
Duster	75.0 (48)	6.3 (4)	11.77	63	.000
Wet Dustcloth	96.9 (62)	82.8 (53)	2.86	63	.000

(All findings from this table forward an reported in percentages and #'s.)

TABLE 4.2. Reasons for Vacuum Cleaner Use.

Reason	Korea (N=17)	U.S. (N=60)	t-value	df	P
Convenient	35.3 (6)	70.0 (42)	-2.69	75	.001
It gets floor clean enough	11.8 (2)	20.0 (12)	- .77	75	.191
Cheap electricity price	0	15.0 (9)	-1.71	75	.095
Because of carpets	76.5 (13)	83.3 (50)	- .64	75	P>.20

cleaners both in Korea and United States was that most of the homemakers who used vacuum cleaners do so because of carpets (see Table 4.2). The homemakers who answered that they use vacuum cleaners because of its convenience increased from 35 percent in Korea to 70 percent in United States (significant at P = .001). While the reasons why they did not use vacuum

cleaners in Korea were mainly because of expensive electricity, vacuum cleaners did not get floors clean enough, and they did not use carpets in Korea (see Table 4.3).

TABLE 4.3. Reasons for Vacuum Cleaner Nonuse.

Reason	Korea (N=47)	U.S. (N=4)	t-value	df	P
Noisy	2.1 (1)	0	.29	49	P>.20
Expensive electricity price	29.8 (14)	0	1.28	49	.140
Inconvenient	4.3 (2)	25.0 (1)	-1.70	49	.099
Not familiar	10.6 (4)	0	.68	49	P>.20
It did not get floors clean enough	17.0 (8)	0	.89	49	.179
Because of Korean style house	6.4 (3)	0	-	-	-
Do not have carpet	14.9 (7)	0	-	-	-
Do not have vacuum cleaner	6.4 (3)	0	-	-	-
No response	10.6 (5)	75.0 (3)			

There was also a significant difference in the frequency of cleaning the house by homemakers between Korea and the United States (see Table 4.4). In Korea, most of the homemakers (84 percent) cleaned the house everyday, whereas only 41 percent of them cleaned the house everyday in the United States. In summary, these findings imply that their changing activities of house care were created because of technology

and perhaps because of the changing housing situation.

TABLE 4.4. Frequency of Cleaning House.

Frequency	Korea (N=62)	U.S. (N=64)	t-value	df	P
Once a week	1.6 (1)	14.1 (9)			
Twice a week	3.1 (2)	20.3 (13)			
3-5 Times a week	7.8 (5)	25.0 (16)	6.64	61	.000
Everyday	84.4 (54)	40.6 (26)			
No response	3.1	0			

Clothing Care

There were significant differences in homemakers' activities in clothing care between Korea and the United States (see Table 4.5). Twenty-five percent more of them used washing machines instead of hand washing clothes in United States. There was also a significant difference in clothes dryer use. The use of dryers increased by 38 percent in the United States, while hanging the clothes up to dry was reduced by 34 percent. In Korea almost 69 percent of the homemakers boiled their clothes to disinfect and bleach them. Only 14 percent of them did so in United States, though the use of bleach increased in the United States from 23 percent in Korea to 64 percent in the United States.

The reason why the homemakers used washing machines was mainly because of convenience, both in Korea and in the

Table 4.5. Ways of Washing and Dryng Clothes.

	Korea (N=64)	U.S. (N=64)	t-value	df	P
Use washing machine	67.2 (43)	92.2 (59)	-3.74	63	.000
Washing by hand	59.4 (38)	28.1 (18)	4.47	63	.000
Use dryer	7.8 (5)	45.3 (29)	-5.46	63	.000
Hang up to dry	75.0 (48)	40.6 (26)	4.83	63	.000
Boil the clothes to bleach and disinfect	68.8 (44)	14.1 (9)	8.22	63	.000
Use bleach	23.4 (15)	64.1 (41)	-5.85	63	.000

TABLE 4.6. Reasons for Washing Machine Use.

Reason	Korea (N=43)	U.S. (N=59)	X2	df	P
Cheap electricity price	0	13.6 (8)			
Convenient	97.7 (42)	84.7 (50)	6.34	2	.044
It gets clothes cleaner than handwashing	2.3 (1)	1.7 (1)			

(X2 = chi-square fo this table and all tables with chi-square statistics that follow.)

United States (see Table 4.6). The reason some homemakers did not use washing machines was because they believe that machines do not get clothes clean enough when compared to hand washing (see Table 4.7). It means that some Korean homemakers use washing machines because of convenience, but they think machines do not get clothes clean enough compared

to hand washing. And, although not significantly different, 24 percent reported they did not use the washing machine in Korea because it was considered expensive.

TABLE 4.7. Reasons for Washing Machine Nonuse.

Reason	Korea (N=21)	U.S. (N=5)	t-value	df	P
Noisy	0	0	-	24	-
Expensive electricity price	23.8 (5)	0	1.2	24	.15
Inconvenient	4.8 (1)	0	.48	24	P>.20
It doesn't get clothes clean enough	52.4 (11)	40.0 (2)	.48	24	P>.20
No response	19.0 (4)	60.0 (3)			

There was a significant difference in frequency of washing clothes between Korea and the United States (see Table 4.8). The homemakers who washed clothes everyday dropped noticeably (61 percent in Korea to 19 percent in United States); however, the homemakers who washed clothes once a week increased from 8 percent in Korea to 38 percent in United States.

The frequency of ironing was significantly different between Korea and the United States (see Table 4.9). The homemakers who ironed clothes "twice a week" were reduced from 28 percent in Korea to 2 percent in United States, while the homemakers who ironed clothes "not frequently" increased from 50 percent in Korea to 81 percent in United States.

TABLE 4.8. Frequency of Washing Clothes.

Frequency	Korea (N=64)	U.S. (N=63)	t-value	df	P
Once a week	7.8 (5)	37.5 (24)	7.66	62	.000
Twice a week	7.8 (5)	17.2 (11)			
3-5 times a week	23.4 (15)	25.0 (16)			
Everyday	60.9 (39)	18.8 (12)			
Missing	0	1.6 (1)			

TABLE 4.9. Frequency of Ironing.

Frequnecy	Korea (N=64)	U.S. (N=64)	t-value	df	P
Twice a week	28.1 (18)	1.6 (1)	-3.14	63	.003
Once a week	20.3 (13)	9.4 (6)			
Every two weeks	1.6 (1)	3.1 (2)			
Not frequently	50.0 (32)	81.3 (52)			
No response	0	4.7 (3)			

In summary, the clothing care activities changed after the respondents came to the United States. The majority of them used washing machines instead of hand washing clothes, and the frequency of washing clothes and ironing also diminished. This indicated that they changed from human energy use to mechanical energy use, thereby spending less time on clothing care.

Meal Preparation

For breakfast, there were significant differences in the type of food prepared, preparation time, and clean up time between Korea and the United States (see Table 4.10 and Table 4.11). Seventy-five percent of the homemakers prepared typical American breakfasts in United States, but only 25 percent did so in Korea. Breakfast preparation time (44 percent between 41 and 60 minutes in Korea compared to 5 percent between 41 and 60 minutes in the United States) and clean-up time were reduced in the United States (by 34 percent, or between 5 and 15 minutes). These findings show that typical American breakfasts took less time to prepare and clean up after than the typical Korean breakfasts.

Significant differences were also found in the types of food prepared for lunch, lunch preparation time, and lunch clean-up time between the two countries (see Table 4.12 and Table 4.13). The homemakers who prepared a typical Korean lunches dropped remarkably from 83 percent in Korea to 48

TABLE 4.10. Preparing Food for Breakfast.

Type of Food	Korea (N=63)	U.S. (N=64)	X2	df	P
Korean food	71.9 (46)	12.5 (8)			
American food	25.0 (16)	75.0 (48)			
Mixture	1.6 (1)	12.5 (8)	48.18	2	P<.001
Missing	1.6 (1)	0			

TABLE 4.11. Breakfast Preparation Time and Clean-up Time

Time	Korea	U.S.	t-value	df	P
PREPARATION TIME	(N=62)	(N=64)			
5 - 15 minutes	9.4 (6)	32.8 (21)			
16 - 25 minutes	7.8 (5)	18.8 (12)			
26 - 40 minutes	32.8 (21)	43.8 (28)	9.10	61	.000
41 - 60 minutes	43.8 (28)	4.7 (3)			
61 and over	3.1 (2)	0			
Missing	3.1 (2)	0			
BREAKFAST CLEAN UP TIME	(N=61)	(N=63)			
5 - 15 minutes	40.6 (26)	75.0 (48)			
16 - 25 minutes	14.1 (9)	12.5 (8)	6.00	60	.000
26 - 40 minutes	39.1 (25)	10.9 (7)			
41 and over	1.6 (1)	0			
Missing	4.7 (3)	1.6 (1)			

TABLE 4.12. Preparing Food for Lunch.

Type of Food	Korea (N=58)	U.S. (N=62)	X2	df	P
Korean food	82.8 (53)	48.4 (31)			
American food	3.1 (2)	21.9 (14)	22.54	2	.000
Mixture	4.7 (3)	26.6 (17)			
Missing	9.4 (6)	3.1 (2)			

TABLE 4.13. Lunch Preparation Time and Clean-Up Time

Time	Korea	U.S.	t-value	df	P
PREPARATION TIME	(N=56)	(N=64)			
5 - 15 minutes	7.8 (5)	20.3 (13)			
16 - 25 minutes	7.8 (5)	10.9 (7)			
26 - 40 minutes	50.0 (32)	45.3 (29)	2.70	54	.009
41 - 60 minutes	21.9 (14)	14.1 (9)			
61 and over	0	3.1 (2)			
Missing	12.5 (8)	0			
LUNCH CLEAN UP TIME	(N=55)	(N=58)			
5 - 15 minutes	45.3 (29)	64.1 (41)			
16 - 25 minutes	18.8 (12)	17.2 (11)			
26 - 40 minutes	21.9 (12)	7.8 (5)	2.99	53	.004
41 and over	0	1.6 (1)			
Missing	14.1 (9)	9.4 (6)			

percent in the United States, whereas the homemakers who prepared a typical American lunch increased by 19 percent.

There were no significant differences in types of food prepared for dinner, dinner preparation time, and clean-up time between the two countries (see Tables 4.14 and 4.15). This suggested that homemakers prepared typical Korean dinners in both Korea and in the United States.

TABLE 4.14. Preparing Food for Dinner.

Type of Food	Korea (N=64)	U.S. (N=64)	X2	df	P
Korean food	100.0 (64)	98.4 (63)			
American food	0	0	1.01	2	P>.25
Mixture	0	1.6 (1)			

TABLE 4.15. Dinner Preparation Time and Clean-Up Time

Time	Korea	U.S.	t-value	df	P
DINNER PREPARATION TIME	(N=61)	(N=63)			
5 - 15 minutes	6.3 (4)	15.6 (10)			
16 - 25 minutes	7.8 (5)	7.8 (5)			
26 - 40 minutes	45.3 (29)	51.6 (33)			
41 - 60 minutes	21.9 (14)	15.6 (10)	1.99	63	.51
61 and over	14.1 (9)	7.8 (5)			
Missing	4.7 (3)	1.6 (1)			
DINNER CLEAN UP TIME	(N=62)	(N=64)			
5 - 15 minutes	21.9 (14)	31.3 (20)			
16 - 25 minutes	17.2 (11)	26.6 (17)			
26 - 40 minutes	46.9 (30)	34.4 (22)	2.23	63	.30
41 and over	10.9 (7)	7.8 (5)			
No response	3.1 (2)	0			

Heating

The type of home heating changed between Korea and the United States. Fifty-six percent of the homes had a central

furnace in Korea, while all of them (100 percent) had it in United States (see Table 4.16). Twenty-eight percent of them had On-Dol, which is the heating system of the traditional Korean house. Rooms with On-Dol are heated separately with coal. When using coal as a heating source, homemakers must replenish coal to keep the floors warm during the cold seasons. Table 4.17 shows the frequency required for refilling coal in Korea. Most of the homemakers (79 percent)

TABLE 4.16. Type of Home Heating.

Heating System	Korea (N=64)	U.S. (N=64)	X2	df	P
Central furnace	56.3 (36)	100.0 (64)	35.84	3	.000
Room heater in wall	15.6 (10)	0			
Electric portable heaters	0	0			
On-Dol	28.1 (18)	0			

replenished the coal twice a day among the homemakers who use coal as a heating source (44 percent of the whole sample). Twenty-eight percent of the homemakers had to refill coal in each room separately. Heating with coal in Korea was hard work for a majority of the homemakers, however they do not have this task in United States. In summary, a significant difference in the heating of homes was found between Korea and the United States.

TABLE 4.17. Frequency of Coal Replenished in Korea.

Frequency	(N=28)
Once a day	10.7 (3)
Twice a day	78.6 (22)
Three times or more a day	10.7 (3)

Energy Behaviors

Water Uses

There were significant differences in water temperatures used to wash clothes and dishes between Korea and the United States (see Table 4.18). The homemakers used warmer water temperatures in United States than in Korea when washing dishes and clothes. Another significant difference was found in the frequency of showers or baths taken between Korea and the United States. Korean took more showers or baths after coming to the United States. The homemakers who showered or bathed everyday was 31 percent in Korea compared to 69 percent in United States. These data suggest that Korean practiced more energy conservation behaviors related to using hot water in Korea than in the United States.

Lighting Uses

There were significant differences in the number of lights turned on during the day and when out of the house (see Table 4.19), while no significant difference was found in the number of lights turned on in the evening, even though

TABLE 4.18. Water Temperature to Wash Clothes and Dishes.

Water Temperature	Korea	U.S.	t-value	df	P
WATER TEMPERATURE TO WASH CLOTHES					
Wash - Rinse	(N=62)	(N=64)			
Hot - Warm	7.8 (5)	12.5 (8)			
Warm - Warm	31.3 (20)	59.4 (38)			
Warm - Cold	43.8 (28)	25.0 (16)	4.47	61	.000
Cold - Cold	14.1 (9)	3.1 (2)			
Missing	3.1 (2)	0			
WATER TEMPERATURE TO WASH DISHES					
	(N=63)	(N=64)			
Very hot	0	3.1 (2)			
Hot	10.9 (7)	18.8 (12)			
Warm	43.8 (28)	60.9 (39)	5.84	62	.000
A little cold	35.9 (23)	17.2 (11)			
Very cold	7.8 (5)	0			
Missing	1.6 (1)	0			

they had more rooms in Korea than in the United States. Homemakers who turned on one light during the day increased noticeably, from 8 percent in Korea to 42 percent in the United States. The homemakers who turned on two lights during the day was also increased from 3 percent in Korea to 17 percent in the United States. None of the homemakers turned on lights when going out the house in Korea, however, 49 percent of the homemakers turned on one or two lights when

TABLE 4.19. Number of Lights Turned on During the Day and When Leaving the House.

	Korea (N=64)	U.S. (N=64)	t-value	df	P
NUMBER OF LIGHTS TURNED ON DURING THE DAY					
0	89.1 (57)	35.9 (23)			
1	7.8 (5)	42.2 (27)			
2	3.1 (2)	17.2 (11)	- 6.74	63	.000
3	0	1.6 (1)			
4	0	3.1 (2)			
NUMBER OF LIGHTS TURNED ON WHEN LEAVING THE HOUSE					
0	100.0 (64)	51.6 (33)			
1	0	39.1 (25)	-462.4	63	.000
2	0	9.4 (6)			

going out of the house in the United States. This indicates that respondents practice more energy conservation behaviors in electricity use in Korea than in the United States.

Energy Behaviors in the Winter

There was a significant difference in clothing behavior in the house during the winter (see Table 4.20). Homemakers wore lighter clothes in United States than in Korea. There was also a significant difference in the frequency of opening windows in winter (see Table 4.21). Homemakers opened windows in the winter more frequently in the United States than in Korea. Homemakers gave high room temperatures as reason

for opening the window in the winter, an increase from 3 percent in Korea to 39 percent in the United Sates.

TABLE 4.20. Clothing Behavior in House During the Winter.

	Korea (N=64)	U.S. (N=64)	t-value	df	P
Short sleeve shirts and short pants	1.6 (1)	12.5 (8)			
Short sleeve shirts and long pants	6.3 (4)	46.9 (30)	8.68	63	.000
Long sleeve shirts and long pants	64.1 (41)	37.5 (24)			
Sweater and long pants	28.1 (18)	3.1 (2)			

TABLE 4.21. Frequency of Opening the Window in Winter.

	Korea (N=63)	U.S. (N=63)	t-value	df	P
Never	7.8 (5)	3.1 (2)			
Infrequently	51.6 (33)	29.7 (19)			
Frequently	37.5 (24)	57.8 (37)	- 4.98	62	.000
Very frequently	1.6 (1)	7.8 (5)			
Missing	1.6 (1)	1.6 (1)			

In summary, the homemakers' energy behaviors were changed after coming to the United States. They conserved

energy less in the United States than in Korea.

Appliances

There were significant differences in the possession of appliances between Korea and the United States (see Table 4.22). Among the appliances, the biggest difference was in the possession of refrigerators. Eighty-seven percent of the homemakers had self-defrosting refrigerator in Korea, while in the the United States the university apartments had only refrigerators without defrost cycles.

The homemakers who lived in University Village and the Cherry Lane apartment complexes had electric stoves with surface burners; but the homemakers who lived in Spartan Village had gas stoves with surface burners. Almost half of the homemakers had electric stoves and the others had gas stoves in the United States; whereas in Korea 88 percent of the homemakers had gas stoves and 56 percent of them also had oil stoves, and only 11 percent of them had electric stoves. Because electricity is more expensive in Korea, most of the homemakers had gas or oil stoves in Korea.

Even though over 84 percent of the homemakers had washing machines in Korea, 17 percent of them very seldom used them (refer back to Table 4.5). However, 58 percent of the homemakers had washing machines in the United States, but 92 percent of them used them. Some homemakers used laundramats, which accounted for the difference. Therefore, more homemakers had washing machines in Korea than in the United States, but more homemakers used them in the United States

TABLE.4.22. Significant Differences in the Number of Major and Minor Appliances, Korea compared to United States.

Appliance	t-value	df	P
MAJOR APPLIANCES			
Electric Stove with surfacae Burner	-5.15	63	.000
Gas Stove with surface Burner	5.11	63	.000
Oil Stove	8.55	63	.000
Gas Stove	-2.55	63	.013
Refrigerator (Self-Defrosting)	10.32	63	.000
Refrigerator (Without Defrosting)	-10.72	63	.000
Washing Machine	3.56	63	.000
Home Freezer	-2.05	63	.045
Gas Water Heater	2.31	63	.024
Vacuum Cleaner	-5.46	63	.000
Room Air Conditioning	5.02	63	.000
Black and White Television	5.38	63	.000
MINOR APPLIANCES			
Food Processor	-2.61	63	.011
Electric Mixer	4.43	63	.000
Electric Coffee Maker	-3.28	63	.002
Electric Frypan or Wok	3.73	63	.000
Electric Can Opener	-2.17	63	.034
Electric Hair-Curlers	2.86	63	.006
Iron	2.25	63	.028
Portable Gas Burner	4.90	63	.000
Electric Blanket	2.57	63	.013

TABLE 4.22. Continued.

Appliance	t-value	df	P
Electric Fan	5.79	63	.000
Sewing Machine (Non-Electric)	7.69	63	.000
Electric Type Writer	-3.97	63	.000
Lamps	-2.61	63	.011
Lights (Wall or Ceiling Fixtures)	6.20	63	.000
Movie Project	3.00	63	.004
Electric Razor	2.55	63	.013

than in Korea. In Korea the homemakers thought washing machines did not get clothes clean enough and that electricity prices in Korea were too high (refer back to Table 4.7). There are also significant differences in numbers of lights (wall or ceiling fixtures). The mean number of lights in Korea was 5; 2 in the United States.

There was a significant difference in the possession of non-electric sewing machines among the minor appliances. Half of the homemakers had sewing machines in Korea, but none of them had them in the United States.

There were no significant differences in how frequently they used appliances except for electric stoves, electric ovens, and irons (see Table 4.23). The homemakers who had electric ovens used them 15 days per month in the United States but only 3 days per month in Korea. This suggested that they did not use electric ovens in Korea as much as in

TABLE 4.23. Significant Differences in the Frequency of Use of Major and Minor Appliances, Korea Compared to the United States.

Appliance	t-value	df	P
MAJOR APPLIANCES			
Electric Stove with Surface Burner	-2.84	38	.000
Electric Oven	-3.79	37	.000
MINOR APPLIANCES			
Iron	3.98	92	.000

the United States because electricity was more expensive in Korea. Homemakers reported using irons 8 days per month in Korea but only 4 days per month in the United States. This finding indicated that they did not have to iron in the United States as much as in Korea because of using washing machines and/or dryers.

Household Work Satisfactions

There were no significant differences in satisfaction with cleaning the house and with meal preparation between Korea and the United States, even though the work time was reduced in United States (see Table 4.24). Homemakers indicated that they were satisfied because the house was clean enough; however, in Korea they were dissatisfied because of the inconvenience, time used, and human energy expended (see Table 4.25). They were satisfied because of the convenience of vacuum cleaners, but they were dissatisfied

TABLE 4.24. Satisfactions Related to Household Work, Kitchen, and House.

Satisfaction Level	Korea	U.S.	t-value	df	P
CLEANING HOUSE	(N=62)	(N=63)			
Very satisfied	28.1 (18)	23.4 (15)			
Moderatly satisfied	42.2 (27)	46.9 (30)			
A little dissatisfied	18.8 (12)	23.4 (15)	- .20	61	.840
Very dissatisfied	7.8 (5)	4.7 (3)			
Missing	3.1 (2)	1.6 (1)			
CLOTHING CARE	(N=62)	(N=61)			
Very satisfied	34.4 (22)	15.6 (10)			
Moderatly satisfied	40.6 (26)	28.1 (18)			
A little dissatisfied	18.8 (12)	48.4 (31)	- 3.45	60	.001
Very dissatisfied	3.1 (2)	3.1 (2)			
Missing	3.1 (2)	4.7 (3)			
MEAL PREPARATION	(N=62)	(N=63)			
Very satisfied	23.4 (15)	28.1 (18)			
Moderately satisfied	48.4 (31)	45.3 (29)			
A little dissatisfied	25.0 (16)	23.4 (15)	.21	61	.905
Very dissatisfied	0	1.6 (1)			
Missing	3.1 (2)	1.6 (1)			
HEATING	(N=64)	(N=64)			
Very satisfied	18.8 (12)	75.0 (48)			
Moderately satisfied	35.9 (23)	14.1 (9)			
A little dissatisfied	22.8 (21)	9.4 (6)	7.26	63	.000
Very dissatisfied	12.5 (8)	1.6 (1)			

TABLE 4.24. Continued.

Satisfaction Level	Korea	U.S.	t-value	df	P
KITCHEN	(N=64)	(N=64)			
Very satisfied	32.8 (21)	14.1 (9)			
Moderately satisfied	45.3 (29)	15.6 (10)			
A little dissatisfied	17.2 (11)	45.3 (29)	- 5.82	63	.000
Very dissatisfied	4.7 (3)	25.0 (16)			
HOUSE	(N=63)	(N=64)			
Very satisfied	25.0 (16)	10.9 (7)			
Moderately satisfied	53.1 (34)	54.7 (35)			
A little dissatisfied	17.2 (11)	29.7 (19)	- 2.46	62	.017
Very dissatisfied	3.1 (2)	4.7 (3)			
Missing	1.6 (1)	0			

because the house was not clean enough when using the vacuum cleaner.

There were no significant differences in satisfaction between Korea and the United States in meal preparation. The homemakers indicated that they prepared less food in United States than in Korea. Therefore, they were satisfied with the convenience of preparing food in United States, whereas, they were dissatisfied because they could not get a variety Korean food and fresh food in United States (see Table 4.26). However, they were dissatisfied because of the amount of time and energy needed to prepare food in Korea.

TABLE 4.25. Reasons of Satisfaction or Dissatisfaction with Cleaning House

Reason	Korea (N=35)	U.S. (N=35)	X2	df	P
Satisfied because of cleaness	21.9 (14)	4.7 (3)			
Satisfied because of convenience	0	17.2 (11)			
Dissatified because of inconvenience	26.6 (17)	0	48.06	5	.000
Dissatified because not clean enough	1.6 (1)	17.2 (11)			
Satisfied with convenience but dissatisfied because not clean enough	0	4.7 (3)			
Other	4.7 (3)	10.9 (7)			

TABLE 4.26. Reasons of Satisfaction or Dissatisfaction with Meal Preparation.

Reason	Korea (N=28)	U.S. (N=30)	X2	df	P
Satisfied because of reducing the number of foods prepared	0	9.4 (6)			
Satisfied because of the variety of food and fresh food	12.5 (8)	1.6 (1)			
Satisfied because of cheap meats prices	0	4.7 (3)			
Dissatisfied because of time and energy needed	23.4 (15)	0	41.54	6	.000
Dissatisfied because of lack of variety of food and fresh food	0	14.1 (9)			

Table 4.26. Continued.

Reason	Korea (N=28)	U.S. (N=30)
Dissatisfied because of expensive food prices and not a variety of food	1.6 (1)	7.8 (5)
Other	6.3 (4)	9.4 (6)

TABLE 4.27. Reasons of Satisfaction or Dissatisfaction With Heating

Reason	Korea (N=33)	U.S. (N=28)	X2	df	P
Satisfied because rooms are warm enough	0	17.2 (11)			
Satisfied because of its convenience	1.6 (1)	9.4 (6)			
Satisfied because room temperature can be easily controlled	1.6 (1)	4.7 (3)	43.78	5	.000
Dissatisfied because of inconvience	12.5 (8)	0			
Dissatisfied because rooms were not warm enough	29.7 (19)	0			
Other	6.3 (4)	12.5 (8)			

Significant differences were found in satisfaction with clothing care, heating, the kitchen, and the house between Korea and the United States (see Table 4.24). For heating the homemakers were more satisfied in United States than in Korea (75 percent in the United States compared to 19 percent

in Korea). They suggested that they were dissatisfied because of the inconvenience of the heating system and the house was not warm enough in Korea because of expensive energy prices (see Table 4.27).

The homemakers were more satisfied with clothing care, their kitchens, and their houses in Korea than in United States. Even though more human energy and time were needed for hand washing than for machine washing, they were more

TABLE 4.28. Reasons of Satisfaction or Dissatisfaction with Clothing Care.

Reason	Korea (N=31)	U.S. (N=36)	X2	df	P
Satisfied because clothes are clean enough	12.5 (8)	0			
Satisfied because of convenience	1.6 (1)	4.7 (3)			
Satisfied because of cheap dry-cleaning prices	7.8 (5)	0			
Satisfied with convenience but dissatisfied because clothes were not clean enough	0	3.1 (2)	41.14	8	.000
Dissatisfied because clothes were not clean enough	1.6 (1)	4.7 (3)			
Dissatisfied because of inconvenience	14.1 (9)	1.6 (1)			
Dissatisfied with expensive dry-cleaning price	1.6 (1)	12.5 (8)			
Dissatisfied because they have to manage clothing care themselves	0	12.5 (8)			
Other	9.4 (6)	9.4 (6)			

satisfied in Korea because the clothes were cleaner with hand washing than with machine washing (see Table 4.28). However, they also noted the inconvenience of hand washing clothes in Korea. They were dissatisfied because of expensive dry-

TABLE 4.29. Reasons of Satisfaction or Dissatisfaction with Kitchen and House.

Reason	Korea	U.S.	X2	df	P
KITCHEN	(N=34)	(N=47)			
Satisfied with its convenience and enough space	23.4 (15)	1.6 (1)			
Satisfied with its convenience but dissatisfied with too small kitchen	0	3.1 (2)	44.14	4	.000
Dissatisfied because of too small space	7.8 (5)	59.4 (38)			
Dissatisfied because of convenience of kitchen type	12.5 (8)	1.6 (1)			
Other	9.4 (6)	7.8 (5)			
HOUSE					
Satisfied with enough space for living	6.3 (4)	1.6 (1)			
Satisfied with convenience	1.6 (1)	17.2 (11)			
Dissatisfied with inconvenience to house care	10.9 (7)	0	30.50	5	.000
Dissatisfied because of too small space	1.6 (1)	21.9 (14)			
Dissatisfied because of housing type	7.8 (5)	1.6 (1)			
Other	3.1 (2)	4.7 (3)			

cleaning prices in the United States. In Korea they often did not do clothing care themselves, but had household help to do clothing care.

The reasons given why homemakers were more dissatisfied with their kitchens and houses in United States than in Korea were mainly that the kitchen and the houses in United States were too small(see Table 4.29). They had more space in their kitchens and houses in Korea. On the other hand, they were dissatisfied because of the inconvenience of Korean kitchens and heating systems.

Chapter V.

Summary, Conclusion, and Implications

The chapter presents a summary and the conclusions of the data analyses in the following order: (1) overview of the study, (2) conclusions of the findings, and (3) implications for future research.

Overview of the study

The present study investigated Korean homemakers' housework activities and satisfactions relative to household work and housing, including energy behaviors, comparing Korean and American housing situations. The ecological approach was adapted as a conceptual model of the study. A human ecological conceptual framework was used because several environments of humans were considered to be interacting with humans. The Natural Environment (NE) was considered the source of energy modified for human use. The Human Constructed Environment (HCE) was the housing and technological devices used in everyday activities in housework, the Human Behavioral Environment (HBE) was considered to be the household activities of house care, clothing care, meal preparation, and heating, and satisfaction with all of these, plus the housing situation in Korea and in the United States. The study examined the experiences of a sample of Korean

homemakers who were living temporarily in the United States as wives of students at Michigan States University. Would the experience of Korean homemakers in the United States create a difference in the daily activities and energy behaviors of these homemakers? This became the central focus of the study reported here. The findings indicate that the ecological complex (ie. the natural environmet and its energy resources; the human constructed environment -- housing and equipment; and the human behavioral environment -- cultural and social context) all contributed to differences found in household work activities, reported energy behaviors, and house work satisfaction. This human ecological approach allowed for the possibility of comparing the same environed unit (Korean homemakers) and their environments (HBE, HCE, and NE) in two distinctly different cultural settings.

Data were collected among the Korean homemakers who lived in Michigan States University apartment complexes during the summer of 1985. Sixty-four surveys were used for the analysis of the data. The t-test and chi-square analyses were used to test the hypothesized differences between living in two countries.

Conclusion of Findings

The hypotheses stated in Chapter III have been mainly rejected in their null form. The conclusions are organized around the three hypotheses in the study.

Hypothesis 1: There were no significant differences in the housework activities of Korea homemakers

comparing the Korean and American housing situations.

Hypothesis 1 was rejected except for the food prepared for dinner, dinner preparation time, and dinner clean up time. Korean homemakers still prepare Korean food for dinner in the United States, so no significant differences was found.

There was a significant difference in the frequency of household tasks completed. The frequencies of household tasks were reduced after coming to the United States. These findings suggested that the amount of housework was reduced and simplified in the United States with the adoption of mechanical energy instead of human energy and time.

Hypothesis 2: There were no significant differences in the household energy behaviors of Korean homemakers between the Korean and American housing situations.

Hypothesis 2 is also rejected. The homemakers conserved energy less in the United States than in Korea. This indicated that the more abundant natural resources, differing housing and appliances, and cheaper energy prices contributed to changes in their energy behaviors.

Hypothesis 3: There were no significant differences in satisfaction with houshold work, the kitchen and the house itself between the Korean and American housing situations.

Hypothesis 3 is rejected except for satisfaction with house cleaning and meal preparation. Even though the work

time and frequency were reduced in United States, there were no significant differences in satisfaction with cleaning the house and meal preparation.

The homemakers were more satisfied with clothing care, their kitchens, and their houses in Korea than in United States. They were dissatisfied with their kitchens and homes in United States because the University apartments were considered too small. The homemakers were less satisfied with heating systems in Korea that in United States because of the inconveniences of the Korean systems.

The importance of this study appears to be that it reveals that there were major differences in household activities, satisfaction with household work, energy behaviors, and housing, when a sample of Korean homemakers were asked to compare their experiences between living in the United States and in Korea. It would appear that the Korean homemakers were doing less housework, were adapting to more convenient appliances, and were, in general, adapting to the cultural, technical, social and economic situation that was created when moving from Korea to the United States. The only aspects of the study in which greater satisfaction with the Korean situation was revealed was in the areas of the housing itself, the kitchen, and clothing care. It was obvious that the housing in Korea, which they left behind to come to the United States, was larger than the University housing; the some held true for their kitchens.

The experience of Korean homemakers when comparing their living situations between Korea and the United States is thus

distinctly different, lending support to the ecological notion that the environment in which human find themselves makes a difference in household work activities, work satisfaction and energy behaviors.

Implications for Further Study

In a future study, the sample could be collected from the Korean homemakers who immigrated to the United States rather than who were temporarily staying in United States for educational purposes. This study could be designed to offer more variety in American housing experiences for the homemakers. The sample could include a variety of educational and socioeconomic levels of the homemakers for the sake of comparison. Of course the sample size for such a study would need to be much larger.

Another study of homemakers who have returned to Korea after being in the United States for a period of time would be relevant to investigate. Their housework activities, satisfaction with housework and housing, and energy behaviors, could once again be investigated to discover the effects of having had experience in American housing, and with its social and technological milieu. It would be possible to ask if the activities, satisfactions and energy behaviors remained as they were in the United States, with the adaption of greater technology, or if when returning to Korea, do the activities and behaviors returned to pre-United States experiences? In other words, would the Korean homemaker, once exposed to the activities and technologies of the

Western world, ever be satisfied with less technology. A future research question could also be asked once the findings were established; what will be the roles of the Korean homemakers in a world of advanced household technologies?

APPENDIX A

TOP TEN COUNTRIES SENDING FOREIGN STUDENTS TO MSU

1970 -1985

TOP TEN COUNTRIES SENDING FOREIGN STUDENTS TO MSU
1970-1985

1970 Total Enrollment: 1,209

	Country	Number	Percentage
1.	Canada	148	12.24
2.	Taiwan(ROC)	122	10.09
3.	India	89	7.36
4.	Thailand	84	6.95
5.	Turkey	65	5.38
6.	South Korea	52	4.30
7.	Japan	51	4.22
8.	Iran	50	4.14
9.	Venezuela	35	2.89
10.	Brazil	32	2.65

1975 Total Enrollment: 1,137

	Country	Number	Percentage
1.	Iran	125	11.12
2.	Taiwan (ROC)	98	8.72
3.	Thailand	83	7.38
4	Canada	67	5.96
5.	Saudi Arabia	64	5.69
6.	Brazil	58	5.16
7.	Japan	54	4.80
8.	India	45	4.00
9.	Nigeria	44	3.91
10.	Libya	35	3.11

1980 Total Enrollment: 1,406

	Country	Number	Percentage
1.	Iran	191	13.58
2.	Taiwan (ROC)	125	8.89
3.	Saudi Arabia	102	7.25
4.	Japan	95	6.76
5.	Canada	71	5.05
6.	South Korea	53	3.77
7.	Nigeria	50	3.56
8.	India	43	3.06
9.	Brazil	41	2.92
10.	Mexico	37	2.63

1983 Total Enrollment: 1,749

	Country	Number	Percentage
1.	Taiwan (ROC)	170	9.73
2.	South Korea	160	9.16
3.	Saudi Arabia	99	5.67
4.	Iran	98	5.61
5.	Canada	79	4.52
6.	Japan	74	4.24
7.	Malaysia	69	3.95
8.	India	68	3.89
9.	China (PRC)	65	3.72
10.	Jordan	43	2.46

1984 Total Enrollment: 1,853

	Country	Number	Percentage
1.	South Korea	200	10.79
2.	Taiwan (ROC)	184	9.92
3.	China (PRC)	87	4.69
4.	Saudi Arabia	86	4.64
5.	Japan	86	4.64
6.	Iran	79	4.26
7.	Canada	78	4.21
8.	India	72	3.89
9.	Malaysia	66	3.56
10.	Egypt	45	2.42

1985 Total Enrollment: 1,985

	Country	Number	Percentage
1.	South Korea	252	12.70
2.	Taiwan (ROC)	191	9.62
3.	China (PRC)	108	5.44
4.	Saudi Arabia	98	4.94
5.	Japan	96	4.84
6.	Malaysia	88	4.43
7.	India	79	3.98
8.	Canada	78	3.93
9.	Iran	71	3.58
10.	Singapore	47	2.37

APPENDIX B

SURVEY INSTRUMENT

May 22, 1985

Dear

I would like to introduce myself. I am Seung Youn Wee, a Masters student in the Department of Human Environment and Design, College of Human Ecology at Michigan State University.

This survey is being conducted as the research for my Master's thesis. I would like to invite you to consider participation. The Master's thesis is designed to study housing situations: Korean compared to the United States.

The questionnaire will take about 30 minutes. All information will be used for research purposes only and will be held in STRICT CONFIDENCE, therefore, please do not write your name anywhere on the questionnaire, this will insure your anonymity. The return of the completed questionnaire is evidence of your informed consent. Being a part of this study is, of course, your choice -- there is no penalty for refusing to do the survey.

Your cooperation and willingness to participate in my Master's research is very important to me. My thesis advisor, Dr. Bonnie Morrison, will be willing to answer any questions. Her telephone number is 353-9506.

Thank you for seriously considering my request.

Sincerely,

Seung Youn Wee

This is an example of how to answer this questionnaire. Please check (V) All that apply to each question, even though there are no special indication.

(EXAMPLE)

1. What equipment did (do) you use for cleaning your house? (Check (V) All that you used (use))

	KOREA	U.S.	
1.	____	V	VACUUM CLEANER
2.	V	____	BROOM
3.	____	V	MOP
4.	V	____	DUSTER
5.	V	____	DUSTCLOTH

HOUSEHOLD WORK INFORMATION

I. HOUSE CARE

1. What equipment did (do) you use for cleaning your house? (Check (V) All that you used (use))

	KOREA	U.S.	
1.	____	____	VACUUM CLEANER
2.	____	____	BROOM
3.	____	____	MOP
4.	____	____	DUSTER
5.	____	____	DUSTCLOTH ——→ How often did (do) you use it?

	KOREA	U.S.	
1.	____	____	EVERYDAY
2.	____	____	OFTEN
3.	____	____	SOMETIMES
4.	____	____	SELDOM
5.	____	____	ALMOST NEVER

2. How often did (do) you use this vacuum cleaner?

	KOREA	U.S.	
1.	____	____	ONCE A MONTH
2.	____	____	ONCE A WEEK
3.	____	____	TWICE A WEEK
4.	____	____	3-5 TIMES A WEEK
5.	____	____	EVERYDAY
6.	____	____	0 ——→ Why didn't (don't) you use it? (Check (V) All that apply)

→ (IF YOU USE OR USED A VACUUM CLEANER IN EITHER COUNTRY GO TO QUESTION 3)

	KOREA	U.S.	
1.	____	____	NOISY
2.	____	____	EXPENSIVE ELECTRICITY PRICE
3.	____	____	INCONVENIENT
4.	____	____	NOT FAMILIAR WITH VACUUM CLEANER
5.	____	____	IT DOES NOT GET FLOORS CLEAN ENOUGH
6.	OTHER (Please specify):		
	KOREA	_____	
	U.S.	_____	

3. Why did (do) you use the vacuum cleaner?
(Check (√) All that apply)

	KOREA	U.S.	
1.	____	____	CONVENIENT
2.	____	____	IT GETS FLOOR CLEAN
3.	____	____	CHEAP ELECTRICITY PRICE
4.	____	____	BECAUSE OF CARPETS
5.	OTHER (Please specify):		KOREA _____
			U.S. _____

4. Normally, how often did (do) you clean the house?

	KOREA	U.S.	
1.	____	____	ONCE A WEEK
2.	____	____	TWICE A WEEK
3.	____	____	3-5 TIMES A WEEK
4.	____	____	EVERYDAY
5.	OTHER (Please specify):		KOREA _____
			U.S. _____

II. CLOTHING CARE

1. How did (do) you get clothes washed and dried?
(Check (√) All that apply)

	KOREA	U.S.	
1.	____	____	USE WASHING MACHINE (IF USE, GO TO QUESTION 2, AND IF DON'T USE, GO TO QUESTION 3)
2.	____	____	WASHING BY HAND
3.	____	____	USE DRIER
4.	____	____	HANG UP TO DRY IN HOUSE OR APARTMENT
5.	____	____	BOILING CLOTHES TO BLEACH AND DISINFECT
6.	____	____	USE BLEACH
7.	OTHER (Please specify):		KOREA _____
			U.S. _____

2. If use, why did (do) you use it? (Check (√) All that apply)

	KOREA	U.S.	
1.	____	____	CHEAP ELECTRICITY PRICE
2.	____	____	CONVENIENT
3.	____	____	IT GETS CLOTHES CLEANER THAN HAND WASHING
4.	OTHER (Please specify):		KOREA _____
			U.S. _____

3. If don't use, why didn't (don't) you use it?
(Check (√) All that apply)

	KOREA	U.S.	
1.	____	____	NOISY
2.	____	____	EXPENSIVE ELECTRICITY PRICE
3.	____	____	INCONVENIENT
4.	____	____	IT DOESN'T GET CLOTHES CLEAN ENOUGH
5.	OTHER (Please specify):		KOREA _____
			U.S. _____

4. How often did (do) you wash clothes?

	KOREA	U.S.	
1.	____	____	ONCE A WEEK
2.	____	____	TWICE A WEEK
3.	____	____	3-5 TIMES A WEEK
4.	____	____	EVERYDAY
5.	OTHER (Please specify):		KOREA _____
			U.S. _____

5. Was (is) there hot water running in your house?

	KOREA	U.S.	
1.	____	____	YES
2.	____	____	NO If no, how can you get hot water?

	KOREA	U.S.	
1.	____	____	BOILING WATER ON STOVE
2.	____	____	USE INSTANT WATER HEATER
3.	____	____	USE JUST COLD WATER
4.	OTHER (Please specify):		
			KOREA _____
			U.S. _____

6. How often did (do) you iron for your family?

	KOREA	U.S.	
1.	____	____	ONCE A WEEK
2.	____	____	TWICE A WEEK
3.	____	____	EVERY TWO WEEK
4.	____	____	NOT FREQUENTLY--ONLY WHEN NEEDED IT
5.	OTHER (Please specify):		KOREA _____
			U.S. _____

III. MEAL PREPARATION

1. What fuel(s) did (do) you use when cooking?
(Check (√) All that apply)

	KOREA	U.S.	
1.	____	____	ELECTRICITY
2.	____	____	GAS
3.	____	____	COAL
4.	____	____	FUEL OIL
5.	____	____	WOOD
6.	OTHER (Please specify):		KOREA _____
			U.S. _____

2. What type(s) of kitchen did you have?
(Check (√) All you have)

	KOREA	U.S.	
1.	____	____	ONE WALL
2.	____	____	L SHAPE
3.	____	____	U SHAPE
4.	____	____	CORRIDOR
5.	OTHER (Please specify):		KOREA _____
			U.S. _____

3. What kind(s) of kitchen did you have in Korea?

1. ____ TRADITIONAL KITCHEN
2. ____ WESTERN STYLE KITCHEN (MODERN)

4. What did (do) you prepare for breakfast typically?
(Please specify)

KOREA _____
U.S. _____

A. How many minutes (or hours) have you typically taken for breakfast preparation?

KOREA _____
U.S. _____

B. How many minutes have you typically taken for after breakfast clean up?

KOREA _____ MINUTES
U.S. _____ MINUTES

5. What did (do) you prepare for lunch typically?
(Please specify)

KOREA _____
U.S. _____

A. How many minutes (or hours) have you typically taken for lunch preparation?

KOREA _____
U.S. _____

B. How many minutes have you typically taken for after lunch clean up?

KOREA _____ MINUTES
U.S. _____ MINUTES

6. What did (do) you prepare for dinner typically? (Please specify)

KOREA _____
U.S. _____

A. How many minutes (or hours) have you typically taken for dinner preparation?

KOREA _____
U.S. _____

B. How many minutes have you typically taken for after dinner clean up?

KOREA _____ MINUTES
U.S. _____ MINUTES

IV. HEATING

1. How was (is) your home heated? (Check (√) All that apply)

	KOREA	U.S.	
1.	____	____	CENTRAL FURNACE
2.	____	____	ROOM HEATER IN WALL
3.	____	____	ELECTRIC PORTABLE HEATERS
4.	____	____	ON-DOL
5.			OTHER (Please specify): KOREA _____
			U.S. _____

2. What was (is) your heating resources? (Check (√) All that apply)

	KOREA	U.S.	
1.	____	____	ELECTRICITY
2.	____	____	FUEL OIL
3.	____	____	GAS
4.	____	____	COAL (IF USE COAL, GO TO QUESTION 3)
5.			OTHER (Please specify): KOREA _____
			U.S. _____

↓

3. How many times did you refill the coal supply in Korea?

   1. _____ ONCE A DAY
   2. _____ TWICE A DAY
   3. _____ THREE TIMES OR MORE (#_____)

4. How many rooms did (do) you have?

   KOREA #_____ (Last house you lived in in Korea)
   U.S. #_____ (At M.S.U.)

ENERGY INFORMATION

1. Which water temperature do you usually select, when you wash wash clothes?

	KOREA	U.S.	WASH	RINSE
1.	____	____	HOT	- WARM
2.	____	____	WARM	- WARM
3.	____	____	WARM	- COLD
4.	____	____	COLD	- COLD

2. Which water temperature did (do) you usually prefer, when you wash dishes?

	KOREA	U.S.	
1.	____	____	VERY HOT
2.	____	____	HOT
3.	____	____	WARM
4.	____	____	A LITTLE COLD
5.	____	____	VERY COLD

3. How often did (do) you take a shower or bath?

	KOREA	U.S.	
1.	____	____	TWICE A DAY
2.	____	____	EVERYDAY
3.	____	____	EVERY OTHER DAY
4.	____	____	ONCE A WEEK
5.	OTHER (Please specify):		KOREA _____
			U.S. _____

4. How many lights did (do) you usually turn on in the evening?

KOREA #_____
U.S. #_____

5. During the day, did (do) you turn on the lights?

	KOREA	U.S.		
1.	____	____	NO	
2.	____	____	YES ⟶ How many?	KOREA #_____
				U.S. #_____

6. When you leave your houses, did (do) you turn off all lights?

	KOREA	U.S.	
1.	____	____	YES
2.	____	____	NO ⟶ How many lights did (do) you turn on?

KOREA #_____
U.S. #_____

7. What kind of clothes did (do) you most often wear in your house during the winter?

	KOREA	U.S.	
1.	____	____	I WEAR SHORT-SLEEVE SHIRTS AND SHORT PANTS.
2.	____	____	I WEAR SHORT-SLEEVE SHIRTS AND LONG PANTS.
3.	____	____	I WEAR LONG SLEEVE SHIRTS (NOT HEAVY) AND LONG PANTS.
4.	____	____	I WEAR A SWEATER AND LONG PANTS.
5.	OTHER (Please specify):		KOREA _____
			U.S. _____

8. How often did (do) you open the window during the winter?

	KOREA	U.S.		
1.	____	____	NEVER	
2.	____	____	INFREQUENTLY	(IF YOU OPEN THE WINDOW, GO TO QUESTION 9).
3.	____	____	FREQUENTLY	
4.	____	____	VERY FREQUENTLY	

9. Why did (do) you open the window during the winter?
(Check (✓) All that apply)

	KOREA	U.S.	
1.	____	____	FOR VENTILATION
2.	____	____	TOO HIGH ROOM temperature
3.	____	____	ELIMINATE COOKING ODORS
4.	OTHER (Please specify):		KOREA _____
			U.S. _____

SATISFACTION

Please answer how satisfied you are with the household work in the United States compared to in Korea.

1. How satisfied were (are) you with cleaning house?

	KOREA	U.S.	
1.	____	____	VERY SATISFIED
2.	____	____	MODERATELY SATISFIED
3.	____	____	A LITTLE DISSATISFIED
4.	____	____	VERY DISSATISFIED

→ Why? (please specify): KOREA _____
U.S. _____

2. How satisfied were (are) you with clothing care?

	KOREA	U.S.	
1.	____	____	VERY SATISFIED
2.	____	____	MODERATELY SATISFIED
3.	____	____	A LITTLE DISSATISFIED
4.	____	____	VERY DISSATISFIED

→ Why? (Please specify): KOREA _____
U.S. _____

3. How satisfied were (are) you with meal preparation?

	KOREA	U.S.	
1.	____	____	VERY SATISFIED
2.	____	____	MODERATELY SATISFIED
3.	____	____	A LITTLE DISSATISFIED
4.	____	____	VERY DISSATISFIED

→ Why? (Please specify): KOREA _____
U.S. _____

4. How satisfied were (are) you with heating?

	KOREA	U.S.	
1.	____	____	VERY SATISFIED
2.	____	____	MODERATELY SATISFIED
3.	____	____	A LITTLE DISSATISFIED
4.	____	____	VERY DISSATISFIED

→ Why? (Please specify): KOREA _____
U.S. _____

5. How satisfied were (are) you with your kitchen?

	KOREA	U.S.	
1.	____	____	VERY SATISFIED
2.	____	____	MODERATELY SATISFIED
3.	____	____	A LITTLE DISSATISFIED
4.	____	____	VERY DISSATISFIED

→ Why? (Please specify): KOREA _____
U.S. _____

6. On the whole, how satisfied are you with your house?
(Korea = last house you lived in in Korea,
U.S. = at M.S.U.)

	KOREA	U.S.	
1.	____	____	VERY SATISFIED
2.	____	____	MODERATELY SATISFIED
3.	____	____	A LITTLE DISSATISFIED
4.	____	____	VERY DISSATISFIED

→ Why? (Please specify): KOREA _____
U.S. _____

MAJOR APPLIANCES

Please give the number of major and minor appliances that you have in the United States since coming here and had in Korea before coming here. Please specify the frequency of use. (See example below).

(EXAMPLE)

NUMBER KOREA	NUMBER U.S.		FREQUENCY OF USE KOREA	FREQUENCY OF USE U.S.
____	1	ELECTRIC STOVE WITH SURFACE BURNERS	____	everyday
1	2	VACUUM CLEANER	1 times a week	2 times a week
1	1	IRON	everyday	2-3 times a month

NUMBER KOREA	NUMBER U.S.		FREQUENCY OF USE KOREA	FREQUENCY OF USE U.S.
____	____	ELECTRIC STOVE WITH SURFACE BURNERS	____	____
____	____	GAS STOVE WITH SURFACE BURNERS	____	____
____	____	OIL STOVE	____	____
____	____	ELECTRIC OVEN	____	____
____	____	GAS OVEN	____	____
____	____	MICRO-WAVE OVEN	____	____
____	____	REFRIGERATOR (SELF-DEFROSTING)	____	____
____	____	REFRIGERATOR (WITHOUT DEFROSTING)	____	____
____	____	WASHING MACHINE	____	____
____	____	DRYER	____	____
____	____	HOME FREEZER	____	____
____	____	ELECTRIC WATER HEATER	____	____
____	____	GAS WATER HEATER	____	____
____	____	ELECTRIC SPACE HEATER	____	____
____	____	OIL SPACE HEATER	____	____
____	____	VACUUM CLEANER	____	____
____	____	ELECTRIC RICE COOKER	____	____
____	____	ROOM AIR-CONDITIONING	____	____
____	____	CENTRAL AIR-CONDITIONING	____	____
____	____	COLOR TELEVISION	____	____
____	____	BLACK AND WHITE TELEVISION	____	____

MINOR APPLIANCES

____	____	FOOD PROCESSOR	____	____
____	____	ELECTRIC MIXER	____	____
____	____	BLENDER	____	____
____	____	ELECTRIC COFFEE MAKER	____	____
____	____	ELECTRIC FRYPAN, ELECTRIC WOK	____	____
____	____	TOASTER	____	____
____	____	ELECTRIC CAN OPENER	____	____
____	____	OUTDOOR ELECTRIC GRILL	____	____

NUMBER KOREA	NUMBER U.S.		FREQUENCY OF USE KOREA	FREQUENCY OF USE U.S.
____	____	OUTDOOR GAS GRILL	_____	_____
____	____	ELECTRIC HAIR-CURLERS	_____	_____
____	____	HAIR DRYER	_____	_____
____	____	ELECTRIC ICE CREAM MAKER	_____	_____
____	____	IRON	_____	_____
____	____	ELECTRIC KNIFE SHARPENER	_____	_____
____	____	PORTABLE ELECTRIC BURNER	_____	_____
____	____	PORTABLE GAS BURNER	_____	_____
____	____	ELECTRIC BLANKET	_____	_____
____	____	ELECTRIC CLOCK	_____	_____
____	____	ELECTRIC FAN	_____	_____
____	____	SEWING MACHINE (Non-Electric)	_____	_____
____	____	ELECTRIC SEWING MACHINE	_____	_____
____	____	PORTABLE ELECTRIC BROILER	_____	_____
____	____	ELECTRIC TYPE WRITER	_____	_____
____	____	TYPE WRITER (NON-ELECTRIC)	_____	_____
____	____	ELECTRIC VAPORIZER	_____	_____
____	____	LIGHTS (WALL or Ceiling FIXTURES)	_____	_____
____	____	LAMPS	_____	_____
____	____	MOVIE PROJECTOR OR SLIDE PROJECTOR	_____	_____
____	____	ELECTRIC RAZOR	_____	_____

BACKGROUND INFORMATION

Till up to now, you answered U.S. compared to Korea, but in this part Korea and U.S. sections are separated. Please answer Korea and U.S. separately.

Again, all information will be used for research purposes only and will be held in STRICT CONFIDENCE, therefore, please do not write your name anywhere on the questionnaire this will insure your anonymity.

I. KOREA

1. How long had you been married before coming to the U.S.?
   _____ years/months

2. List below all member of the Korean Household you lived in just before you come to the United State and their relationship to you. Also give their sex, age, education and employment status as indicated and type of work.

Members of Household (relation to you)	Sex	Age	Last complete School Grade	Employment: 1.Full 2. Part, 3. Unemployed 4. Retired	Type of Work (such as secretary, teacher, etc)

3. What kind of housing had you lived in Korea?
   (Check (✓) All that apply)

   1. ____ TRADITIONAL KOREAN HOUSE
   2. ____ WESTERN STYLE HOUSE
   3. ____ APARTMENT
   4. ____ ROW HOUSE
   5. OTHER (please specify) _____
      _____

4. Income Information in Korea.

   A. What are the principle sources of your income?
      (Check (✓) All that apply)

1. _____ PARENTS
2. _____ SCHOLARSHIP FUND
3. _____ SALARY (A Fixed Compensation for services rendered; contracted by the year or by the month)
4. _____ WAGES (regular jobs, paid for by ;the day, or hour)
5. _____ INVESTMENT INCOME (Income from stocks, bonds, savings, etc.)

B. Please check income (the total amount of income as above but before deductions) per month that you lived with just before coming to the U.S. which most nearly fits that of your family (Check (√) only one).

1. _____ W less than 90,000 ($ 100)
2. _____ W 90,000 - 179,000 ($ 100 - 199)
3. _____ W 180,000 - 269,000 ($ 200 - 299)
4. _____ W 270,000 - 359,000 ($ 300 - 399)
5. _____ W 360,000 - 449,000 ($ 400 - 499)
6. _____ W 450,000 - 899,000 ($ 500 - 999)
7. _____ W 900,000 - 1349,000 ($ 1000 - 1499)
8. _____ W 1350,000 - 1799,000 ($ 1500 - 1999)
9. _____ W 1800,000 - 2699,000 ($ 2000 - 2999)
10. _____ W 2700,000 ($ 3000) and over

5. Do you had household help in Korea?

1. _____ NO
2. _____ YES ⟶ How many? _____
   If you had part time housekeeper, how many hours? _____ hours per week

II. UNITED STATES

1. How long have you been in the United States?
   _____ years/ months

2. List below all members of U.S. HOUSEHOLD and their relationship to you. Also give their sex, age, schooling and employment status as indicated and type of work.

Members of Household (relation to you)	Sex	Age	Last Complete School Grade	Employment: 1.Full 2. Part 3. Unemployment 4. Retired	Type of Work (such as teaching ass. nurse, etc.)

3. What kinds of housing have you lived in U.S.?
(Check (√) All that apply)

1. _____ APARTMENT
2. _____ TOWN HOUSE
3. _____ SINGLE FAMILY HOUSE
4. _____ DUPLEX
5. OTHER (Please specify) _____

4. Income Information in the United States.

A. What are the principle sources of your income?
(Check (√) All that apply)

1. _____ PARENTS
2. _____ SCHOLARSHIP FUND (Assistantships)
3. _____ SALARY (A fixed compensation for services rendered; contracted by the Year or by the Months)
4. _____ WAGES (Regular jobs, paid for by the day or hour)
5. _____ INVESTMENT INCOME (Income from Stocks, Bonds, Savings, etc.)
6. _____ OTHER (Please specify) _____

B. Please check Income (before deducations, the total amount of Income as above) per Month which most nearly fits of your family during the past year.
(Check (√) only One)

1. _____ less than $ 500
2. _____ $ 500 - $ 999
3. _____ $1,000 - $1,499
4. _____ $1,500 - $1,999
5. _____ $2,000 - $2,499
6. _____ $2,500 - $2,999
7. _____ $3,000 and Over

5. Do you have household help in the United States?
(including Babysitter)

1. _____ NO
2. _____ YES ⟶ If you have part time housekeeper,
_____ Hours per Week
If babysitter: _____ Hours per Week

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