SOCIALIZATION OF ENERGY BELIEFS AND VALUES

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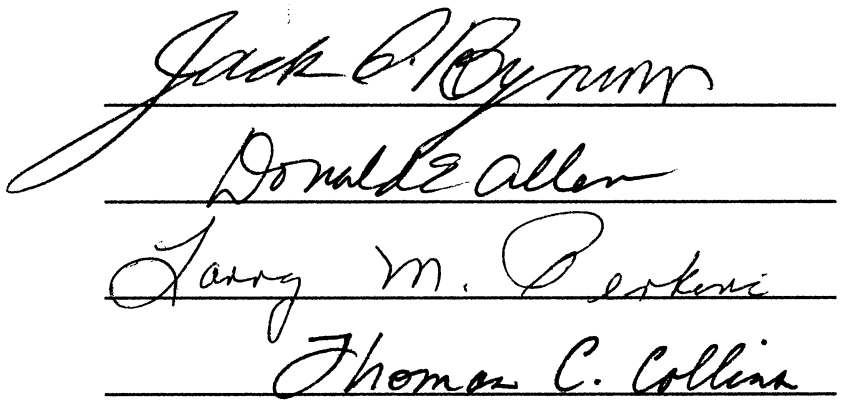

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TABLE OF CONTENTS

LIST OF TABLES

Table Page

Table Page

CHAPTER I

INTRODUCTION

Energy production and consumption are vastly important facets of today's world. The possession and utilization of energy is directly related to a nation's ability to compete in the world economy and is necessary to the survival of modern industrial civilization.

From 1950 to 1980, the demand for energy in the United States increased 163.3%. In 1981, the U.S. demand for energy represented $53.52 billion, roughly the same as that year's budget for the entire United States Army (Lesko, 1986).

In 1977, the President of the United States commissioned the "Global 2000 Report to the President" (Barney, 1982). The report concluded that by the year 2000, the world demand for energy will be much greater. Moreover, the ability of available world resources to provide energy will be much less than the predicted demand. In the report, Barney comments:

> The conclusions . . . are disturbing. They [the present trends] indicate the potential for global problems of alarming proportions by the year 2000. Prompt and vigorous changes in public policy . . . are needed to avoid or minimize these problems before they become unmanageable (1982: Letter of Transmittal).

While the human need for energy in various forms is fundamental and vital to our survival, there are several negative side effects. As we increase our use of energy, we

also increase the pollution levels and their related environmental effects. Primarily produced by the combustion of fossil fuels, the element carbon has become one of the largest waste products on Earth. Each ton of carbon released into to the air produces 3.7 tons of carbon dioxide (Brown, 1990: 18).

> World energy consumption is expected to increase by 50 or 60 percent by 2010. Thus global carbon (carbon dioxide) emissions would also increase by 50 or 60 percent (Davis, 1990: 57).

Many scientists have suggested that a global warming, or Greenhouse Effect would be created by the increased accumulation of carbon dioxide. According to most sources, the problem of global warming is possibly our greatest threat (Brown 1990; Davis 1990; Ehrlich and Ehrlich 1990; Weinberg and Williams 1990; and others).

In addition to global warming, energy production and consumption result in many other negative effects. Today's nuclear energy production methods result in 8,000 tons of radioactive waste each year (Hafele, 1990: 138). Plans for the so-called clean nuclear energy, *fusion*, are also fraught with negative side effects.

> Contrary to prevailing perceptions, current fusion technology is not inherently 'clean', because neutrons escape, making surrounding materials and the reactor radioactive (Hafele, 1990: 142).

Ehrlich and Ehrlich (1990) inform us that sulfur and nitrogen oxides (by-products of coal and oil) cause the formation of acid rain, "the result of which is already upon us" (1990: 123). Amulya Reddy and Jose Goldemberg (1990) indicate that even hydroelectric dams are not free from side

effects, "Hydroelectric dams can flood prime forests and displace people from their settlements" (Reddy and Goldemberg, 1990: 118).

Because of these (and many other) side effects, the overall energy situation must be critically evaluated.

Innovative Technological Approaches

What can be done? To date, research into energy has concerned itself with engineering aspects. For instance, Lester Brown of the Worldwatch Institute comments,

> The U.S. could be deriving 10-20% of its electricity from the wind by 2030. Meeting all the U.S. electricity needs with this technology [direct solar electrical conversion] would require about 29,000 square kilometers, an area about one tenth the size of Arizona (1990: 177, 179).

U.S. electrical demand could be satisfied by wind turbines spaced half a kilometer apart over 10% of the U.S. where wind is favorable. Presently Sweden is planning to build offshore wind generators of such capacity that 60 of them (at 500,000 KW each) could replace all 12 of Sweden's nuclear reactors (Fisher and Peterkofsky, 1990: 25).

Wolf Hafele (world renowned expert in nuclear energy) suggests that nuclear power is still one of our reasonable options based on technological advances:

> Comparing nuclear reactor designs has successfully led to correction of design flaws. By applying [these new] designs, engineers estimate that a major core meltdown is likely only once in 20,000 years, further design correction of containment facilities would reduce this to only once in a 100,000 years (Hafele, 1990: 141).

Soil melting technology, called *In-situ Vitrification*, is turning soil saturated with radioactive pollution (cesium,

strontium, lead, and chromium) into glassious boulder-like masses with safety periods estimated at one million years (Fisher and Peterkofsky, 1990: 30).

The Sociological Approach To Our Energy Problems

Unfortunately, knowing how to do something is only one small part of a solution. Our energy problems are also people problems - involving deeply ingrained social values and attitudes. We must understand more than just how to engineer technology.

> Technology developed in the laboratory does not guarantee market acceptance. Also our experiences from the 1980's shows that public policy can acceler-ate market acceptance of solar energy (Weinberg and Williams,1990:151,154,155).

If we do not begin studying possible solutions to our energy problems, we may face grave results.

> If the world is to achieve sustainability, it will need to do so within the next 40 years. If not, environmental deterioration and economic decline are likely to pull us into a downward spiral of social disintegration (Brown, 1990: 174).

"Values . . . provide the foundation that underlies a people's entire way of life." (Light and Keller, 1985: 59).

Thus, attitudes and values comprise the basic motivation for human behavior--including conduct related to energy acquisition and consumption.

A vital key to possible solutions is how we acquire and fulfill basic energy values and attitudes. Consequently, this study was initiated as a beginning in the attempt to understand our views of energy and to gain insight into the socialization of energy related values and practices.

Research Objectives and Research Design

The three objectives of this study were related to the topic of energy values and attitudinal socialization. The first objective involved surveying 400 Oklahoma State University students concerning energy beliefs and practices. This objective consisted of utilizing a questionnaire designed to provide answers to the following questions:

1. What are the respondent's beliefs about energy issues?
2. What are the respondent's actual energy practices and patterns in everyday use?
3. What are the demographic characteristics of each respondent and how might these relate to energy beliefs, values, and practices?
4. What source(s), or socializing agents do the respondents believe provided them with their present energy beliefs and behaviors?

The second objective of this study was to determine the common elements of energy related aspects of socialization among those respondents who demonstrate a correlation between their energy related beliefs and their actions.

The third objective was to gain an understanding of the energy related socialization process so that new educational programs, policies, techniques, or methods may be implemented to establish a belief based system supportive of energy aware practices.

This study was undertaken because of our worldwide reliance on energy and the related environmental effects of

energy production and consumption. The findings will allow us to gain a greater understanding of our views and the process of socialization related to energy issues. Hopefully, this study can help contribute to social policies and programs that enhance the quality of life and survival of the human species.

CHAPTER II

THEORETICAL BASIS

The theoretical nexus for this study is comprised of the deterministic theories relating to the process of socialization and the emergent values and attitudes related to our society's energy demands.

A prerequisite to the study of any subject is the defining of the applicable terms. To create a balanced understanding of the subject of socialization, working definitions will be supplied as the various concepts are introduced.

Introduction to Socialization

Socialization is defined in a number of ways, each reflecting similar qualifications. Judson R. Landis (1989: 35) defines *socialization* as, "The process through which values are transmitted from one generation to the next."

Allan Johnson (1986: 15) defines a *value* as a conception of what is desirable or undesirable, or what might be labeled good or bad. An *attitude* is defined as an evaluation predisposing us to feel and behave positively or negatively toward people, objects, or situations."

Talcott Parsons (Parsons, 1951: 11) describes the process of socialization: "People internalize the values of

a society and, thereby, make the social values of the cultural system their own by learning from other actors what is expected of them.". Diane Bush and Roberta Simmons (Rosenberg and Turner, 1981: 133) comment on the importance of socialization within the social sciences.

> As the social sciences have developed, the study of socialization has assumed major importance in psychology, anthropology, and sociology. Although each discipline has its own distinctive approach . . . the part treated by socialization processes is treated as a cornerstone both for the maintenance of society and the well being of the individual.

The utility of these concepts in addressing our energy related behavior will come into focus in the subsequent discussion of theory.

Development of Socialization Theory

One of the earliest studies related to socialization comes from the experiments on "conditioned response" by Ivan Pavlov. Pavlov demonstrated that much of behavior is a learned process and his experiments provided the initial building blocks with which sociological and psychological theorists began the true studies of socialization (Light and Keller, 1985: 100).

After examining the concepts involved with the Pavlovian experiment, Psychologist John B. Watson proposed that patterns of human behavior are conditioned by the environment (just as the dogs were conditioned in Pavlov's study). His theory, known as behaviorism, explains behavior patterns as being the result of learning within a social environment, rather than as the result of biological instincts (Watson,

1930). Watson so strongly believed this he declared,

> Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in, and I'll guarantee to take any one at random and train him to become any type of specialist I might select . . . ." (1930: 104).

Thus, Watson initiated the psychological concept that the role a person takes is not predetermined, but is a product of the learning process to which the child is exposed.

Margaret Mead, in commenting on conditional learning stated, "The differences between individuals are almost entirely to be laid to differences in conditioning, this conditioning is culturally determined" (Mead, 1963: 280; orig. 1935).

Kingsley Davis also supports the concept that a social role is socially acquired and not genetically programed. He uses the case study of Isabelle to support this belief.

Isabelle, the daughter of a deaf-mute mother, was kept her virtually imprisoned for the first six years of her life. When found by authorities at the age of 6, Isabelle showed no human social qualities. She could not talk and, other than showing signs of fear, was totally uncommunicative.

Although initially labeled as deaf and mentally retarded, Isabelle eventually began to speak and even passed the sixth grade. According to Davis, this demonstrates that socialization is clearly an interactive social process (Davis, 1940: 554-564).

Harry Harlow's 1959 experiments with monkeys and social isolation also indicated that social behavior is learned and

not inherited. Harlow concluded, "The necessity of human interaction and the related stimulation is a precursor to the fundamental aspects of socialization" (Harlow, 1962: 146).

Schools of Thought in Socialization Theory

From these early studies and observations, the theories of socialization have been refined and divided into a variety of classes. Four theoretical approaches in particular have contributed to an understanding of socialization. They are Conflict Theory, Developmental Theory, Symbolic Interactionist Theory, and Social Learning Theory.

Conflict Theory of Socialization

Marxian conflict theory proposes socialization as a capitalist tool that using child rearing practices to perpetuate class distinctions. According to Donald Light and Suzanne Keller (Light and Keller, 1985: 106), Marx believes that the socialization process is a method of legitimizing oppression. This is accomplished by fostering false hopes of upward mobility for themselves and their children, the workers are socialized in traditions that contribute to their passivity and compliance.

Developmental Theories of Socialization

The focus of the developmental approach suggests that socialization is a progressive series of stages through which a child must progress to become a socialized actor within a

society. They cannot advance to another stage until the present stage is completed.

There are four major developmental theorists cited in the present study: Sigmund Freud (theory of personality), Erik Erikson (theory of identity), Jean Piaget (theory of cognitive development), and Lawrence Kohlberg (theory of moral development).

Sigmund Freud. Freud also viewed socialization from a conflict perspective. However, he taught that the opposing forces at work in socialization are not classes. They are societal and biological drives, specifically those of sex and aggression. Freud proposed there are two drives in humans, Eros, the need for human bonding and Thanatos the aggressive drive (Freud, Strachey ed., 1977).

Freud labeled the psychological aspects of the personality as the id (basic human needs, the ego (the attempt to balance innate drives and the demands of society, and the superego is the presence of the culture (society) within the individual.

Freud assumed that children, beginning as pure Id, are primarily socialized by their parents and the personality is essentially formed by the age of five or six (Sigmund Freud, Strachey ed., 1977). As society interacts with the child through parental demands, the ego develops. As socialization continues, the Superego develops as the child internalizes the values of the parents and society.

Erik Erikson. Following Freud, Erik Erikson studied the socialization process of children. In 1950, he identified what he refers to as, *The Eight Stages of Life*. Erikson viewed each stage as a progressive step that must be completed before beginning the next stage. Each stage is defined by an identity crisis or set of problems that arise because of changes in physiology, psychology (Erikson, 1963). He refers to the stages as developmental crises. These crises are periods where we must confront the major issues of life.

Jean Piaget. As with Freud and Erikson, Piaget viewed socialization as series of developmental stages. A child psychologist, Piaget was one of the first to recognize that cognitive development (the process of human thought and understanding) consists of both social and psychological development. As a result of his studies Piaget outlined his *Four Stages of Socialization and Social Development*, which are concerned with the ages at which the differing levels of reasoning ability are achieved (Piaget and Inhelder, 1969).

Lawrence Kohlberg. Another stage-oriented (developmental) theorist is the psychologist, Lawrence Kohlberg. Kohlberg, basing several concepts on Piaget's work, formulated, *The Six Stages of Moral Development*. According to Kohlberg (1976: 175-177), morality is not primarily a character trait. It is a function of the social situation in which individuals find themselves. Kohlberg's stages of moral development begin with the adjustment of behaviors according to the acknowledgment of direct physical

results. As the stages progress the individual learns conformity to law and order, and eventually end (if the development of the individual progresses to the final level) with the ability to reason right and wrong, even in opposition to larger social population (Kohlberg,1976:175-177).

Symbolic Interactionist's Theories of Socialization

The focus of the symbolic interactionist is the development of the *self*. Socialization is thought to be part of the process of self. Light and Keller (1985:104) suggest that symbolic interactionism is the most influential of the three theoretical perspectives reviewed (conflict, developmental and symbolic interactionism).

The interactionists usually reject the developmental theory of unvarying sequence of stages. Socialization as a continuing process where the self is defined through communication with others (Light and Keller,1985:104). Two major interactionist theorist were Charles Horton Cooley and George Herbert Mead.

Charles Horton Cooley. Cooley developed the concept referred to as *the looking glass self*. According to Cooley (Cooley, 1964; orig. 1902), the *looking glass self* involves three processes; presentation, identification, and subjective interpretation. In brief, Cooley's interactive theory consists of three elements:

1. How we imagine others see us.
2. How we imagine others are reacting to us.

3. How we respond based on how we imagine others are reacting to us.

George Herbert Mead. Following Cooley in the study of socialization as a symbolic interactionist was George Herbert Mead. Mead proposed that the basic facet of human existence is the *self*. He viewed the self as the individual's conscious awareness of being a distinct entity in the midst of and inseparable from society. The self is composed of two parts, the *I* and the *Me*. The *I* is the active subjective self. The *Me* is the objective self. Mead believed the self emerges as a result of social experience. The ability of the *I* and the *Me* to reflect on one another gives the self "Identity" (Mead, 1962; orig. 1934: 192-194).

Mead traced the development of self awareness (Me) to the interaction between parent and child (1962: 241). Like Freud and others, Mead considered early childhood as the crucial time during which the self takes form and the process usually initiates in the interactions between the child and the parents.

Mead's concept, *The Generalized Other*, refers to the internalized cultural norms and values within the self, or the ability of the self to view the world from other perspectives. In Mead's view, the generalized other is the me aspect of the total self. As such, the me consists of those social rules, values, and other cultural aspects that have been internalized and are utilized as a information base to provide the self with the knowledge of appropriate (or

what is believed to be appropriate) reactions in social contexts or settings.

Mead suggested that the development of the self takes place in three stages (Mead, 1962).

1. The self emerges as a result of social experience. Very young children respond to others in the form of imitation only. As further social experience is gained and symbols and language increase, the self emerges through play.
2. The next role is being able to take the role of many others simultaneously.
3. The final characteristic is the ability to respond to themselves from the viewpoint of the general society.

Social Learning Theory of Socialization

Social learning theory provides many concepts which seem to help explain how and why a person desires to accept and internalize the lessons introduced by socialization. According to Albert Bandura, three types of behavior control relate to the internalizing of cultural items such as values, beliefs, and behaviors:

1. Reinforcement Control.
2. Stimulus Control.
3. Cognitive Control.

Reinforcement control refers to the concept of direct learning through resulting natural consequences. Stimulus control refers to the concept of classical conditioning, which cause us to give behaviors emotional significance.

Cognitive control refers to behavior controlled by internal thought processes (Bandura, 1971).

Both learning and behavior control motivate the individual to accept or internalize the lessons of socialization. Conformity is another way of viewing the internalizing of the lessons of socialization. According to Stephan and Stephan (1985: 149) identification is a way the process of socialization is incurred.

The process of identification is viewed as a operational reaction of one person desiring to be accepted by others they look up to or value. This process is often achieved through imitation (or as Bandura labels it, rehearsal). Stephan and Stephan (1985: 150) propose three aspects that encourage others to want to identify with someone. If someone can offer nurturing, social power, or social status, they are in a position to bring rewards to others. These agents who are able to offer rewards tend to do so to those that identify or otherwise favorably associate with them.

Socialization as a Desired Product

For socialization to be functional, two things must take place. Initially the information to be internalized must be available and second the person being socialized must have a reason for accepting the socialization training (the internalizing of the information).

Why does the individual choose (even at a very young age) to accept the lessons of socialization? Jack E. Bynum and William E. Thompson (1989: 6) identify a concept they

refer to as the *Social Imperative*. The social imperative is defined as forces that motivate people to interact with a social group. Bynum and Thompson note,

> However, the human social imperative is not solely a biological or genetically programed response as in the lower forms of animal life. Mankind's compulsion toward sociality also is embedded in the cultural content of every society and consciously transmitted to each new generation as a learned response to our basic needs for social interaction and social interdependence. (1989: 6)

The mechanism of informal social control is one way to promote the internalization of the lessons of socialization. This mechanism is effective even in the very young because it is applied by other social members which include the family, peers, and significant others.

This form of social control consists of gossip, ridicule, peer pressure, and other informal but socially utilized methods (Bynum and Thompson, 1989: 408). The mechanisms of formal social control are usually left to the officiating agents such as law enforcement agencies and are therefore probably less influential in the very young.

Gene Acuff, Donald Allen, and Lloyd Taylor (1973: 88-89) describe the socialization process as a means of conforming individual members to society and suggest four motivations for wanting to receive socialization:

1. Conformity is fun.
2. Conformity is useful or rewarding.
3. Conformity is a moral duty.
4. Conformity is necessary to gain the respect of others.

Categories of Socialization

Acuff, Allen, and Taylor (1973: 88-89) announce that successful socialization involves three factors:

1. Expectations.
2. The desire to conform.
3. Changed behavior

According to Peter Berger and Thomas Luckmann (1966) socialization occurs at two levels; primary and secondary. *Primary socialization* refers to the socialization which takes place in childhood. *Secondary socialization* refers to any subsequent process of socialization.

However, George McCall and J. L. Simmons (1982:101-104) describe socialization as taking place in three broad sections or stages. Stage one is referred to as the stage of anticipatory socialization. Stage two is the initial entry stage, and stage three is the continuing socialization stage.

Anticipatory Socialization

Regardless of which process of internalization is involved, the concept of anticipatory socialization must be of primary importance to the socialization process. If the person has reasons (whatever the motivation) to desire to join a group, then anticipatory socialization would be viewed as an extremely important process in the steps of internalizing the norms of a group.

Anticipatory socialization (Landis, 1989: 44) develops when a person adopts the role, values, behavior, and/or

viewpoints of a group he or she would like to belong to.

Initial Entry Socialization (Primary Socialization)

The next step is called initial entry socialization (also known as primary socialization, when the those being socialized are children) is the first real interacting stage of the socialization process. This stage is comprised of four basic elements (McCall and Simmons, 1982: 101-104).

1. The basic rules of the group to be entered.
2. Accepted aspirations - Goals of success as defined by the group.
3. Learning the necessary skills of the culture.
4. Learning appropriate roles.

Resocialization

So far socialization has been referred to as a learning procedure which most children experience, process, and usually accept. However, many theorists believe that socialization in childhood is only the beginning of a long process of socialization and resocialization.

Orville G. Brim Jr. (Smelser, 1984: 57) was the first to describe socialization as a lifelong process.

Continuing socialization (the third stage of socialization) is often referred to as resocialization. Resocialization is defined by many sources as the process of discarding old roles and values and learning new roles and values. This also involves the adjusting of our reference

groups (as our beliefs and values change) and the adjusting of our self perceptions and self evaluations.

This altering of old values and the instilling of new values is intimately tied to the studies of socialization. V. L. Bengston and K. D. Black state:

> Even though the membership of a society constantly changes through birth and death, socialization preserves the society itself by instilling ideals, values, and appropriate behaviors in its new members (Bengston and Black, 1973).

By most definitions, resocialization is divided into two areas of application. First, the learning of new skills, values, attitudes and beliefs through individual choice or preference (referred to as *Reorganizational Socialization*); and second, is resocialization regardless of individual choice through force or coercion. The best research on forced resocialization was carried out by Erving Goffman who entitled the type of organizations applying forced resocialization as the *Total Institution* (Goffman,1961).

Reorganizational Socialization. An example of the choice aspect would the be required socialization necessary to begin a totally new career. An example of forced socialization would be a person incarcerated into the prison system.

The situation of being resocialized into a new career or similar organization structure is what I refer to as organizational resocialization. According to George McCall and J. L. Simmons (1982: 97-98) there are two basic ways that socialization is passed on to the individual within an

organization (organizational resocialization), orientation and education.

> [Orientation is defined as] a relatively brief period of explicit communication procedures, followed by a somewhat longer period of implicit procedures. [Education is defined as] a relatively long period of intensive communication . . . [and] the individual is formally cast in the role of learner - not yet trusted to function as a true member.

Which method used depends on the individual. McCall and Simmons suggest that an intelligent and motivated individual is socialized with an orientation process. However, if the individual is less able or less willing to learn then education (as a socializing method) is used (1982: 97-98).

The Total Institution. A second method or type of re-socialization comes from the societal controls as a means to re-orient an individual whose present socialization is unacceptable to the norms of the society. An example of this is the chronic criminal.

In this type of resocialization of the individual, Erving Goffman (Goffman, 1961) developed the concept of the total institution. A total institution is a setting where the individuals are isolated from the rest of society and subjected to the control and manipulation of the administrative staff.

This serves to resocialize those put into the total institution. Resocialization is socialization at odds with past social experiences and is designed to radically alter the individuals personality (Macionis, 1987: 178).

Although participation in the United States military is

at present a voluntary situation, military resocialization is more akin to total institution resocialization than that of organizational socialization. This is primarily for two reasons. The military views its recruits as requiring a total resocializing (due to military norms being somewhat different that civilian norms) and as with a total institution, those receiving the resocialization are isolated from the rest of society and subjected to the control and manipulation of the basic training staff.

Modern studies of socialization incorporate, apply, and examine the various theories that have been outlined in this chapter.

Agents of Socialization

The child usually takes on (internalizes) the characteristics of the significant other and begins to accept those characteristics as his or her own. The process of socialization occurs through social interaction with others. These "others" are referred to as agents of socialization.

An *agent of socialization* is defined as "any person or institution that shapes a person's values and behavior" (Landis, 1989: 39).

However, according to Harry Stack Sullivan, when the socializing agent is one or a few specific individuals closely associated with the child and strongly influence the child's development, they are referred to as significant others (Sullivan, 1953).

The agents of socialization are usually categorized in

the following areas: family, peer groups, the school (education), the media, and the workplace.

The Family. Usually the family comprises the Significant Other for the first few years of a child's life. Light and Keller remark on the family and the child's socialization.

> It is from the parents and family that children first learn values and behaviors. Much socialization of the family is conscious and deliberate. But a great deal is not. The family . . . reflects the attitudes, pressures, values, and folkways of the social class, religion, ethnic group, and region to which it belongs (1985:108).

As Light and Keller (1985:108) point out the family is not the only significant other in the socialization of a child. Many other factors come into play. Such factors include significant others outside the family.

Peer Groups. When the child begins to socialize with others his own age, and with similar status (of the child) he takes on the socialization training provided by this group. This group is referred to as the peer group. Usually peers (the members of the peer group) are thought of as other students the child accepts as significant others. Peers can be any group of people of equal status and positions in relation to the world around them.

Education. As the child begins formal schooling, a relationship with the staff, usually the teachers, is developed and the young person accepts other significant influentials outside the family. As the youth grows and enlarges his circle of social interactions, the socializing process continues.

Mass Media. One of the most influential agents of socialization is not a significant other; it is the institution referred to as the Mass Media.

Mass media plays an extremely important role in the socialization of the modern person. Much socialization from mass media occurs through the use of direct instruction, explicit written expectations, rituals or ceremonies marking new roles, and imitation. However, some media socialization occurs as an indirect effect that can have some unpredictable results on the socialization of the individual.

Occupations and Professions. When an individual enters the arena of employment, he engages another powerful source of socialization, that of the workplace. The socializing agents in the workplace include those individuals with which the individual interacts in the course of employment. e.g. co-workers, superiors, clientele, etc.

A Final Notation on Socialization

One modern theorist Dennis Wrong (1961: 772-782) has drawn attention to what he calls the "over-socialized conception" of human beings. Wrong points out that people often feel coerced by society into doing things they do not want to do, a clear indication that socialization is less than perfect. Socialization, he argues, can never completely wipe out any basic personality traits with which we are born.

Wrong points out that experiences of past socialization are not simply added together, they are blended in unique

ways by each person. We hold people responsible for their behavior because they can exercise choice over what they do.

Summary and Application of Socialization Theory

Socialization is considered a life long process of learning our identity in relation to ourselves and others. The many theoretical points of view discuss various ways to operationalize, measure, observe, and even manipulate socialization. The conclusion is that socialization is a complex multi-faceted process. Even more, it is vital in assisting us to approach an understanding of human relationships and self perceptions.

Although socialization theory is a complex and wide ranging area of study, some theoretical views are of particular importance to the focus of this study.

In reviewing the various aspects of socialization, in particular, Kohlberg's "Stages of Moral Development", Bynum and Thompson's "Social Imperative", and the socializing agents; some useful theoretical applications develop.

The social imperative suggests that individuals are motivated to interact with others. These others, socializing agents, can have profound effects on the development of beliefs and values. The theory of the stages of moral development suggest that our moral values develop in predictable stages.

One theoretical conclusion, then, is that people are inclined to be socialized by predictable agents and develop

values (morals) in sequenced stages. There-by allowing carefully planned and implemented educational programs that can alter energy values and beliefs. I will return to this theoretical framework at the end of this thesis.

CHAPTER III

REVIEW OF THE LITERATURE

Energy Related Studies

Studies operationalizing the use of socialization theory to the identification, acquisition, and modification of energy related beliefs, values, attitudes, and practices are minimal.

In addition to the works cited in the last chapter that have a general theoretical application to this study, several other research studies have been identified that have a particular focus on energy related beliefs and practices. Primarily these studies deal with the views people hold concerning particular cultural items and practices. Thus, the application of these studies are of limited value to the specific focus of this study.

For example, the public's attitudes toward nuclear power (Van-der-Pligt et al., 1986) only demonstrates stated beliefs, not actions. It is not uncommon for people to assert idealized views that they do not practice in real life. The phrase, cultural fiction, is specifically oriented to this occurrence. *Cultural fiction* is defined as, the occurrence of behaviors that do not coincide with idealized values.

This study is specifically interested in those respondents whose both state a belief AND apply that belief in their actions.

A study on the effects of college socialization (William Thompson, 1979) is also available, but does not address the area of focus for this study, e.g. "Do energy values and practices have any relationship to college socialization?"

Of the two studies nearest to the focus of this project, one (Moore, 1988) focused on the relationship between political and environmental values. However, it is not published and it focuses specifically on economic relationships. The second study is somewhat more relatable.

The study referred to as, The Nation's Energy Education Development Project Report Card (Whitman and Chacon, 1990), (also known as the NEED Project) was interested in the energy knowledge various school age individuals possess. Although the Whitman and Chacon report is not specifically aligned with the focus of this study, it does provide some useful insights. In their study Whitman and Chacon surveyed 25,000 American students and determined the following:

> . . . they have great difficulty understanding and identifying such basic concepts about energy and the environment as estimated costs, efficiency factors, predominant uses and properties of the nation's various fuel sources . . . while most students characterize themselves as energy-savers, few demonstrate sufficient knowledge of the . . . aspects of energy they need to be informed consumers and make wise choices about complex energy issues facing citizens.

Summarizing the responses to particular questionnaire items, result in the following statement. The students, in general, have decided opinions on various issues, but

demonstrate insufficient knowledge to support these views, and the responses indicate considerable contradiction in energy beliefs when similar questions resulted in differing responses.

Also of importance are the instructors responses to the questionnaire. The instructors responses indicated the following results:

With the exception of science teachers, the majority of instructors provided less than two hours of energy education per year.

Of those asked, "What factors would probably influence your involvement in energy education?", 83% (combined) responded that student questions, administrative support, and personal understanding of the importance of energy issues, would encourage them.

When asked, "To what degree does your school district emphasize energy concepts/issues in curriculum policy and curriculum guides?", only 7% responded with a strong emphasis, on the other hand, 59% responded with, "Little/no emphasis" or "Don't Know".

The results of the instructor polling in the NEED study suggests that our nations education system, in general, gives energy issues little value, time, or consideration in the education of American children.

Other related studies were either insufficiently related to include, or simply state what is already stated above.

Studies Related to Socialization Theory

The previous chapter looked at the theoretical aspects of socialization and the subordinate concepts within the studies of socialization that are relevant to this investigation.

Values and Attitudes

One of the most important aspects of the socialization theory the contribution of the process to the development of attitudes.

According to Jack Bynum (1986: 20, 90-91), our values and attitudes play a significant role in how we view and utilize our resources.

> Values are the motivating force behind much human behavior. From our values also comes attitudes . . . The relationship between values, attitudes, and behavior can be illustrated by the 'cowboy attitude'. . . The attitude is one of casual carelessness towards the land, water, wildlife, mineral resources, and other parts of the environment. Much human behavior directed towards the environment--including exploitation and abuse--can be traced directly to cultural attitudes and values that have persisted and dominated our thinking for many generations. This interplay of values, attitudes, and behavior is an appropriate foundation for the discussion of the typical and traditional American disregard for the wilderness [including attitudes concerning energy] and the wildlife of this country. The cowboy attitude involves the notion that the bounty of the frontier is infinite; that after we have ravished and depleted natural resources here, we can always move on and find more.

The effects of our values and attitudes on our environment can readily be seen in the pollution related problems we must face each day. Not only do we read about these problems in the newspapers, we even have daily reports

of the smog index on the evening television news. As suggested in the introduction, the primary source of the most significant types of pollution come from the production and consumption of energy.

If our world is to reach sustainability within the next 40 years, as Lester Brown Suggests (Brown, 1990), then our values and attitudes must be altered away from the Cowboy Attitude of casual carelessness, exploitation, and abuse.

The Family. Melvin Kohn's multiple studies of the relationships between social class standing and the values instilled through parent child socialization indicate the significance of the socialization process (Kohn, 1977).

The School. Other than the direct influence of the family, other socializing institutions instill values. George Ritzer et al. suggest that the school is responsible for the values of our school age children:

> Because schools transmit a society's norms and values, the student is likely to internalize and accept as proper most of the values and rules that guide the larger society (Ritzer, et al., 1987: 325).

The concept of socialization seems intimately tied to the acquisition of values and attitudes.

The Mass Media. A variety of studies have been conducted on the effects of the mass media and socialization. Among them, a release from the National Institute of Mental Health (Douglas Cater and Stephan Strickland, 1982: 87) concluded that there is now "overwhelming evidence that excessive violence on television leads directly to aggression

and violent behavior among children and teenagers." Thus, we can see the effects of institutions on the socialization process.

Summary

Although a variety of many related studies have been conducted, none have indicated that the focus of this study is a duplicate of other studies. For this reason, the review of literature has been denied a full literary background tied to the specific focus taken with this study.

However, the proliferation of studies (including those mentioned herein) dealing with socialization, values, attitudes, energy, etc. demonstrate the interest and significance of such studies.

CHAPTER IV

METHODOLOGY

The data for this study were acquired through the development of a 14 page questionnaire (See Appendix A) designed to obtain specific responses in harmony with the research objectives:

Objective One was to survey 400 Oklahoma State University students concerning energy beliefs and practices.

Objective two was to determine the common elements of energy related aspects of socialization among those respondents who demonstrate a correlation between their energy related beliefs and their actions.

Objective three sought to gain an understanding of the energy related socialization process, so that new educational programs, policies, techniques, or methods may be implemented to establish a belief based system supportive of energy aware practices.

The population sample was drawn from Oklahoma State University students. A target sample size was set at 400. Several measures of validity and reliability were incorporated throughout the study. Validity, defined as the ability of an indicator to accurately measure what it intends to measure (Carmines and Zeller,1979:12), was determined in several ways. A pre-test of 56 questionnaires was conducted.

The respondents were asked to complete the questionnaire and comment on any questions which seemed unclear in purpose. This produced no initial problems.

To increase validity, questionnaire administration precautions were taken and respondent instructions were provided. Both techniques were utilized to increase the likelihood of the respondents answering honestly. These instructions and precautions included the following:

1. The respondents should not put their name or any identifying marks of any kind on the questionnaire.
2. Although all questionnaires were administered in university classes, participation is voluntary, and no repercussions from the course instructor will occur in the event the student does not wish to participate as a respondent.
3. Honest responses are of more importance than anticipated desired responses.
4. The focus of the study was not revealed.
5. Pre-test interaction between the administrator and the respondent were minimized.
6. The announcement of a question and answer session to take place after the administration of the questionnaire was made to reduce conveying any possible desired expectations of the respondents answers.
7. All questionnaires administered were supervised. 8. Supervisors were only those individuals fully aware of the design, goals, and methods to be utilized in the administering of the questionnaire.

The statistical analysis included a correlation check of the primary variables of Energy Practices and Energy Beliefs, and response to multiple questions inferring similar qualities, indicator questions of actual energy consumption patterns, and indicator questions focused on energy related values.

In the final analysis, the Pearson product moment association showed strong correlation between types of indicators. Reliability, defined as whether the test applied repeatedly would supply similar results (Carmines and Zeller,1979:12), was supplied by the large sampling size (N = 406).

Additionally, when the frequency of pre-test responses (by category) were compared to the frequency of total test responses (by category), less than 5% average variation (with one exception) was observed. In the pre-test, 100% of the respondents were upper level or graduate students, in the full questionnaire a division of 48% upper and 52% lower classification was demonstrated. This is explained by the pre-test being given to graduate or upper level classes.

The survey responses were coded and recorded into a computerized database. The structure of the coding procedure allowed for internal error checks which were corrected by referencing the original questionnaires.

A SAS (Statistical Analysis System) program was written to further check the accuracy of the coding procedure and to summarize and analyze the data. The results and conclusion were drawn from that computer analysis.

The Sample

The population sample consisted of OSU students ranging from first semester freshman to last year Ph.D. students and were divided into two categories, lower division level (freshman and sophomore students) and upper division (junior, senior) plus graduate students. The lower division sample (209 respondents) was obtained from Introductory Sociology courses. The upper division sample (196 respondents) was obtained from upper division and graduate level sociology courses.

There are several limitations based on this population sample. The unavoidable limitations and biases of this study include the following:

1. The respondents were from the southwestern area of the United States, and most probably from the state of Oklahoma. Therefore, the results cannot be generalized to depict the socialization patterns, beliefs, or attitudes of college students beyond this region.
2. Only college students were sampled. Therefore, the results cannot be generalized to reflect the results which would be obtained from a true random sample of the general population.
3. A cross sectional study of this type examines only the information supplied by students who choose to take introductory sociology over introductory psychology as a required course. Also, the majority of upper division students are from the social sciences, thus analysis of

upper division students may indicate more influence of their major study than their academic level.

Although the limitations and biases which apply to this research project curb the ability to generalize the results of this study to the entire population of the United States, the results should be satisfactorily applicable to the mid-western median level educated population.

Hopefully, this study will serve as a useful reference for the other researchers and future inquiries into this important topic of energy related socialization.

Content of Survey Instrument

The questionnaire was designed to elicit from respondents a variety of data in several categories. The categories were energy, demographics, and socialization. The energy questions consisted of two areas, Actual Energy Use (20 questions) and Energy Related Beliefs (14 questions).

The "actual use questions" sought to indicate energy use practices such as the amount of hot water used. The "belief questions" asked for opinions of energy statements based on the Likert scale of responses (strongly agree, agree, no opinion, disagree, and strongly disagree) and open ended questions.

The demographics section (33 questions) included the variables of age; birth order; sex; residential background (urban or rural); income levels, religious and political affiliations and activities (of both the respondents and

their parents); race or ethnic origins; college major; number and sex of siblings; and membership or identification with particular groups not specifically mentioned above.

The socialization information (15 questions) was based on the respondents' memory of their upbringing; such as; "How often did your parents tell you (as a child) to turn off the lights as you leave the room?"; "At what age (if at all) do you remember becoming aware of environmental issues?"; "What influence (mass media, parents, or school) do you believe is most responsible for the adoption of your energy related values and actions?"

Statistical Analysis

The SAS program used a variety of techniques in analysis of the data. Specifically, all responses regarding energy practices were analyzed to determine consistency. Once significant correlation was established, a total mean of energy practices scores was determined and used as representative of energy practices. This same procedure was utilized for energy beliefs.

In evaluating the various aspects of demographics, each category was reduced to sub-classifications. For example, race was divided into White, Black, American Indian, Oriental, Hispanic, and other (6 categories). Analysis of the responses to race indicated that reducing the subdivisions to White and Non-white (2 categories) produced simpler, but significant results. Most other demographic variables were handled in like manner.

However, the subjects' occupation and life goals were reviewed and analyzed from a different perspective. Specifically, each respondent's occupation was categorized according to Robert W. Hodge's "Occupational Prestige in the United States" (Hodge, et al.,1964: 286-302). Also, occupation and income were based on the respondent's "primary care parent" (in cases of parental divorce, death, or other intervening situations). Occupational prestige and income were statistically analyzed independent, thus, neither was presumed as an indicator of social status. If statistical analysis of these variables were to indicate significant correlation, then social status groupings would be identified utilizing a combination of occupational prestige and income.

Life goals of each respondent were a combined result of "major course of study" and "desired occupation", divided into two categories. The two categories were "exact goals" and "inexact goals". Exact and inexact refer major areas of study. Exact majors are comprised of those sciences often labeled as hard sciences and inexact refers to those social sciences, arts, and humanities often labeled as soft sciences. Although these are incorrect labels by definition they serve to categorize the majors into fewer classes. There is no implied or intended conceptualization that either area is more or less significant or consequential in their importance.

Once all the above was determined and implemented into the SAS program, the program was examined by a University SAS specialist for procedural, syntactic, and statistical

correctness. Following this examination the data was analyzed in order of the variable level and the variable type (nominal, ordinal, interval, and ratio). The variable levels were designated in accordance to the following descriptions:

1. Primary variables included the mean energy practices score and the mean energy beliefs score.
2. Secondary variables included the cumulative mean scores of all socializing influences and each of the individual demographics.
3. Tertiary variables consisted of each individual variable within each Energy Practices, Energy Beliefs, and socializing influences scores.

Although the variable type (nominal, ordinal, interval, and ratio) differed and was accounted for between various questions, all variables were subject to the tests outlined below. The knowledge of the variable type was used primarily in gaining an understanding of the resulting analyses.

For instance although Sex as divided in 2 groups is a nominal level concept (1 = Male, 2 = female), for the purposes of analysis, it was useful to treat these as interval data with the understanding that a mean closer to "1" reflected a greater male response while a mean closer to "2" reflected a female response*. With this breakdown of all variables the following sequence of statistical procedures were used:

1. Pearson Product Moment Correlation Coefficient: to determine if there is significant relationships between two variables. This measure of association indicates if

one variable moves up or down while the other variable moves accordingly with respect to the correlation coefficient. This procedure was used on all primary, secondary, and tertiary variables.

2. ANOVA (Analysis of Variance): to determine the significance of explained variation between influencing variables.

This procedure assumes a null hypothesis. The null hypothesis assumes there is no statistically significant differences (below the .05 level) between the observed and expected frequencies. Difference above the .05 level are viewed as being statistically different, suggesting the null hypothesis should not be accepted and that there is significant difference in the sample group means. When the Null hypothesis is not rejected we must be aware that 5% of the time this decision to not reject the null hypothesis is chance error.

If the null hypothesis is not accepted, then further testing procedures are called for to determine more specifically the relationship(s) between the population sample variables which are under scrutiny.

3. Tukey's Studentized Range Test: to specify the order of significance between the statistical means ($\bar{X}$) of two variables. This allows for indications of order as to which variable means are different from one another and in what direction they vary.

4. Additional runs of all the above procedures to determine significance of all unsuspected correlations and

interactions between primary and secondary variables.

5. Re-examination of program logic to determine satisfactory logical progression when results indicated some type of error. This resulted in only one modification of the program, at which time all analysis procedures were re-applied.

Summary

In summary, the methodology outlined and discussed here were reasonable procedures utilized to provide significantly reliable and valid results.

CHAPTER V

FINDINGS AND DISCUSSION

The findings presented in this chapter will be summarized and interpreted in the next chapter (Chapter VI). In addition, chapter six will develop any conclusions that may be drawn from these findings.

It is important to note that the basis for all findings are the correlations between variables. Although correlation itself is not causation, responses that correlate statistically are also considered with an element of common sense. When statistical correlation and common sense agree, the correlations are considered as indicators of the specified relationships and are statistically evaluated for further statistical relationship. Correlations not in agreement with common sense are also reviewed, but with the objective of determining real or spurious interaction. Due to considerations of space and readability those correlations identified as spurious are not included in this report.

In categorizing the types of majors chosen by the subjects, the collapsing of over 60 reported majors was necessary for a simplified analysis. Therefore, the labels of exact sciences and inexact sciences was utilized. However, these labels do not serve as accurate representations of the majors collapsed into them.

The label *Exact Sciences* implies those majors often referred to as the hard sciences. Those majors labeled *Inexact Sciences* refers to those majors which deal with the social sciences, arts, and humanities. However, although these labels are grossly inaccurate by definition they are not intentionally implying a lower significance or worth of any of the majors respectively categorized.

Demographic Variables

What did the questionnaire reveal, in general, about OSU students in the sample?

The average age was 21.2 years old, 32.3% are majoring in more exact sciences (mathematics, biology, chemistry, engineering, etc.), while 63.7% are majoring in inexact sciences (social sciences, art, English, etc.).

Protestants and Catholics, more than subjects of other religious persuasions in the sample, tend to aspire to professions based on the more exact academic disciplines (e.g. medicine, engineering, etc.). Unmarried respondents, males, and inactive voters also tend to aspire to exact professions. Those respondents with exact profession choices attribute their energy values as being received from parents much more than those with inexact profession choices. The

average family size was four (including mother and father), 85% of the respondents are not married, and 90.8% are Caucasian. Personal annual income was under $5000 for 70% of the respondents, and 96.4% of the respondents' parents are registered voters.

Energy Beliefs and Practices

Energy beliefs are those stated ideals which indicate that the respondent is conscientious about issues of energy production and consumption. Energy practices are those stated indicators of actual energy use that demonstrate a conservative approach in the consumption of energy.

Concerning energy beliefs and practices, student responses were somewhat mixed. Some of the most definitive patterns and findings are listed below. For a complete listing of questions and response frequencies see appendix B.

Several questions related to automobiles revealed the well known American love of the automobile. A total of 90.6% of the subjects have their own automobile and 86.5% use their automobile when they could have walked or used a bicycle.

Out of 406 respondents, 85.2% state that energy waste is not acceptable and that Americans waste more energy than should be allowed. However, out of this same population sample, when asked what type of transportation vehicle they would ideally like to own, 69.8% selected vehicles with poor gas mileage (as opposed to good, or excellent gas mileage).

When asked if they would accept a lower standard of living with less pollution over to a higher standard of living with greater pollution, 62.7% of the respondents agreed. In addition, 89.6% of the respondents agreed the United States should concentrate on energy self sufficiency and 87.4% agreed that, regardless of the costs, it is vitally important to develop new technologies that are less polluting

and are safer for the environment.

On the other hand, these idealistic declarations are tempered by 73.4% disagreing that the U.S. should do without luxuries to lessen our dependence on foreign oil, and only 23% were willing to pay more than $100 in extra taxes to accomplish this goal. Showers were chosen over tub baths by 93.8% of the respondents, but only 47.0% showered for less than 10 minutes (a conservative time). Over two thirds (67.2%) adjust their home heating thermostat setting while away to save energy; however, 65.3% admit they often leave electrical appliances turned on when not using them.

These general results provide some understanding of our present energy situation at the individual level. The respondents varied in their views in many ways. However, this study is focused on those respondents demonstrating a significant correlation between both primary variables (energy practices and stated energy beliefs) and secondary variables (demographics, parental reminders, etc.).

A respondent with high energy ideals may not practice these beliefs and therefore would not represent a population useful for further study if the goal (such as in this study) is to develop programs that result in energy conservation action.

Also, a population demonstrating high levels of conservation, but not high energy conservative ideals may do so for reasons, once again, not useful to the goal of this study. For instance, if a respondent uses very little energy (such as minimal gasoline) because they cannot financially

afford it, then the important factor would likely be income more that conservation ideals. Thus, what might be learned from such a population may not apply to those that are financially more capable.

It is considered that correlations of a secondary variable with only one of the two primary variables (Energy Beliefs or Energy Practices) may prove to contain significant insights not presently considered. Therefore, a complete analysis and discussion of secondary variables that correlate with only one of the primary variables can be found in Appendix C.

Statistical Analysis of Data

The primary focus of this study was to sequester and analyze those secondary variables that significantly correlate with both primary variables (Energy Practices and Energy Beliefs). Again, the findings will be summarized, interpreted, and conclusions drawn in the concluding chapter (Chapter VI).

Table 1 (page 48) shows those significant Pearson correlation coefficients. Below each coefficient is the probability that the correlation is in error. Below the probability value is the sample size (N), indicating how many responses were analyzed in that correlation.

Following Table 1 are tables and explanations that represent the statistical procedures of analysis of variance (which more closely analyzes the relationships of the variables being considered) and Tukey's Studentized Range

Test (which indicates the direction and meaning of the relationship).

TABLE 1

SIGNIFICANT PEARSON CORRELATION ANALYSIS OF SECONDARY AND PRIMARY VARIABLES

Variable	Energy Beliefs	Energy Practices
Goal Choice (Profession)	-0.13951 0.0050 404	-0.16833 0.0007 404
Academic Level	0.26237 0.0001 405	0.28138 0.0001 405
Voter Activity	-0.15086 0.0023 406	-0.21038 0.0001 406
Parents Told respondents' to set home heating conservatively	0.16606 0.0009 398	0.16191 0.0012 398
Parents told respondents' to use air conditioner conservatively	0.14221 0.0046 396	0.17192 0.0006 396
Parents told respondents' to use hot water conservatively	0.14610 0.0034 401	0.18424 0.0002 401

Type of Goal, Energy Beliefs, and Practices

The goal of the respondent, which is categorized into one of two areas, More Exact Sciences (mathematics, biology, chemistry, engineering, etc.) and Inexact Sciences (social sciences, art, English, etc.) show significant correlation with respect to both primary variables as indicated by the Pearson Correlation Coefficients of -0.13951 for Energy Beliefs and -0.16833 for Energy Practices.

This indicates that a relationship does likely exist between the chosen goal of the respondent and their scores on the primary variables. To verify this relationship, the statistical procedure, analysis of variance, was utilized. To determine the type of relationship, Tukey's Studentized Range Test was also utilized.

The analysis of variance procedure, when ran on the Goal of the respondent with Energy Beliefs scores (See Table 2, page 50), result in an F-Ratio of 11.72. This is considerably above the Critical F of 3.84 and indicates that the null hypothesis (with a possible error rate of 5%) should not be accepted. Therefore, Energy Beliefs do show significant relationship to the aspired goal of the respondent.

TABLE 2

ANALYSIS OF VARIANCE - EDUCATIONAL GOAL OF RESPONDENT AND ENERGY BELIEFS

	Sum of Squares	Degrees Freedom	Mean Square	F-Ratio	Critical F (5% Level)
Between Groups	1.7369	1	1.7369	11.72	3.84
Within Groups	59.5611	402	0.1482		
Total	61.2980	403			

In like manner, the analysis of variance, when used to analyze the Goal of the respondent and Energy Practice scores (See Table 3, page 51) resulted in an F-Ratio of 7.98. This, also, is above the Critical F of 3.84 and indicates that the null hypothesis (at the 5% error rate) not be accepted. Therefore, Energy Practices also show a significant relationship to the aspired goal of the respondent.

TABLE 3

ANALYSIS OF VARIANCE - EDUCATIONAL GOAL OF RESPONDENT AND ENERGY PRACTICES

	Sum of Squares	Degrees Freedom	Mean Square	F-Ratio	Critical F (5% Level)
Between Groups	0.8157	1	0.8157	7.98	3.84
Within Groups	41.0974	402	0.1022		
Total	41.9132	403			

The results of the Tukey Studentized Range Test (See Tables 4 and 5, page 52) show that the difference in the means is greater that the minimum significance difference as listed in the tables. Because the values of the Inexact goals are larger than the Exact, we can determine that respondents with inexact goals tend to score higher on both primary variables.

TABLE 4

TUKEY'S STUDENTIZED RANGE TEST
EDUCATIONAL GOAL OF RESPONDENT
AND ENERGY BELIEFS

Variable	Alpha Level	df	Critical Value	Minimum Sig.Dif.	N	Mean
Inexact	0.05	402	2.780	.0784	258	2.8756
Exact					146	2.7391
Actual Difference						0.1365

TABLE 5

TUKEY'S STUDENTIZED RANGE TEST
EDUCATIONAL GOAL OF RESPONDENT
AND ENERGY PRACTICES

Variable	Alpha Level	df	Critical Value	Minimum Sig.Dif.	N	Mean
Inexact	0.05	402	2.780	.0651	258	1.1292
Exact					146	1.0356
Actual Difference						0.0936

College Level, Energy Beliefs and Energy Practices

The level that the respondent has achieved in college

was divided into two categories, lower division (freshman and sophomores) and upper division (juniors and above). The Pearson Correlation Coefficient between the academic level of the respondent and each primary variable was significant, Energy Beliefs (0.26237) and Energy Practices (0.28138).

This indicates that a relationship exists between the respondents' academic level (lower or upper) scores on the primary variables. To verify this relationship the statistical procedure analysis of variance was again utilized. Once the analysis of variance further verified the relationship, Tukey's Studentized Range Test was used. The analysis of variance procedure, when ran on the college level of the respondent with Energy Beliefs scores (See Table 6, page 54), result in an F-Ratio of 29.79. This is above the Critical F of 3.84 and indicates that the null hypothesis (with a possible error rate of 5%) not be accepted. Therefore, Energy Beliefs do show significant relationship to the college level of the respondent.

TABLE 6

ANALYSIS OF VARIANCE - RESPONDENTS' COLLEGE LEVEL STATUS AND ENERGY BELIEFS

	Sum of Squares	Degrees Freedom	Mean Square	F-Ratio	Critical F (5% Level)
Between Groups	4.2169	1	4.2169	29.79	3.84
Within Groups	57.0421	403	0.1415		
Total	61.2590	404			

In like manner, the analysis of variance, when used to analyze the college level of the respondent with Energy Practice scores (See Table 7, page 55), resulted in an F-Ratio of 34.65. This, also, is considerably above the Critical F of 3.84 and indicates that the null hypothesis (at the 5% error rate) not be accepted. Therefore, Energy Practices also show a significant relationship to the college level of the respondent.

TABLE 7

ANALYSIS OF VARIANCE - RESPONDENTS' COLLEGE LEVEL STATUS AND ENERGY PRACTICES

	Sum of Squares	Degrees Freedom	Mean Square	F-Ratio	Critical F (5% Level)
Between Groups	3.3115	1	3.3115	34.65	3.84
Within Groups	38.5137	403	0.0956		
Total	41.8252	404			

The results of the Tukey Studentized Range Test (See Tables 8 and 9, page 56) show that the difference in the means is greater that the minimum significance difference as listed in the tables. Because the values of the Upper Level are larger than the Lower Level, we determine that Upper Level respondents tend to score higher on both primary variables.

TABLE 8

TUKEY'S STUDENTIZED RANGE TEST
COLLEGE LEVEL STATUS AND
ENERGY BELIEFS

Variable	Alpha Level	df	Critical Value	Minimum Sig.Dif.	N	Mean
Upper					196	2.9306
———	0.05	403	2.780	0.0735		
Lower					209	2.7264
Actual Difference						0.2042

TABLE 9

TUKEY'S STUDENTIZED RANGE TEST
COLLEGE LEVEL STATUS AND
ENERGY PRACTICES

Variable	Alpha Level	df	Critical Value	Minimum Sig.Dif.	N	Mean
Upper					196	1.1872
———	0.05	403	2.780	.0604		
Lower					209	1.0062
Actual Difference						0.1810

Voting Activity, Energy Beliefs, and Energy Practices

The Pearson Correlation Coefficients of the respondents' actions as a voter and both primary variable scores, Energy Beliefs (-0.15086) and Energy Practices (-0.21038) was significant.

This indicates that a relationship exists between the respondents' voting activity and the scores on the primary variables. To verify this relationship the statistical procedure analysis of variance was utilized. Once analysis of variance verified the relationship, Tukey's Studentized Range Test was used. The analysis of variance procedure, when ran on the Voting Activity of the respondent with Energy Beliefs scores (See Table 10, page 58), result in an F-Ratio of 29.79. This is quite above the Critical F of 3.84 and indicates that the null hypothesis (at .05 error level) not be accepted. Therefore, Energy Beliefs show significant relationship to the college level of the respondent.

TABLE 10

ANALYSIS OF VARIANCE - RESPONDENTS' VOTING ACTIVITY AND ENERGY BELIEFS

	Sum of Squares	Degrees Freedom	Mean Square	F-Ratio	Critical F (5% Level)
Between Groups	1.3979	1	1.3979	9.41	3.84
Within Groups	60.0252	404	0.1486		
Total	61.4231	405			

In like manner, the analysis of variance, when used to analyze the voting activity of the respondent with Energy Practice scores (See Table 11, page 59), resulted in an F-Ratio of 18.71. This, also, is considerably above the Critical F of 3.84 and indicates that the null hypothesis (at the 5% error rate) not be accepted. Therefore, Energy Practices also show a significant relationship to the voting activity of the respondent.

TABLE 11

ANALYSIS OF VARIANCE - RESPONDENTS' VOTING ACTIVITY AND ENERGY PRACTICES

	Sum of Squares	Degrees Freedom	Mean Square	F-Ratio	Critical F (5% Level)
Between Groups	1.8606	1	1.8606	18.71	3.84
Within Groups	40.1772	404	0.0994		
Total	42.0379	405			

The results of the Tukey Studentized Range Test (See Tables 12 and 13, page 60) show that the difference in the means is greater that the minimum significance difference as listed in the tables. The values of the Active Voter respondents were larger than that of the Non-active Voter respondents, thus, we determine that Active Voter respondents tend to score higher on both of the primary variables.

TABLE 12

TUKEY'S STUDENTIZED RANGE TEST
RESPONDENTS' VOTING ACTIVITY
AND ENERGY BELIEFS

Variable	Alpha Level	df	Critical Value	Minimum Sig.Dif.	N	Mean
Voter					223	2.8794
————	0.05	404	2.780	.0756		
Non-Voter					183	2.7615
Actual Difference						0.1179

TABLE 13

TUKEY'S STUDENTIZED RANGE TEST
RESPONDENTS' VOTING ACTIVITY
AND ENERGY PRACTICES

Variable	Alpha Level	df	Critical Value	Minimum Sig.Dif.	N	Mean
Voter					223	1.1563
————	0.05	404	2.780	.0618		
Non-Voter					183	1.0202
Actual Difference						0.1361

Frequency of Parental Reminders on the Home Heating Thermostat Setting as a Child, Energy Beliefs, and Energy Practices

Respondents were asked to score how often (never, sometimes, or often) their parents reminded the respondent (as a child in the home) to set the home heating thermostat conservatively. The incidence of such reminders by the parent, indicates a significant or relationship according to Pearson Correlation Coefficients of 0.16606 for Energy Beliefs and 0.16191 for Energy Practices.

This indicates that a relationship exists between the frequency of respondents reminded by their parents to be conservative in setting the thermostat and the scores on the primary variables. To verify this relationship, analysis of variance was utilized. Once analysis of variance verified the relationship, Tukey's Studentized Range Test was used.

The analysis of variance procedure of such reminders by the parents (conservative home heating thermostat settings) with Energy Belief scores (See Table 14, page 60), result in an F-Ratio of 7.18. This is considerably above the Critical F of 3.00 and indicates that the null hypothesis (with a possible error rate of 5%) should not be accepted. Therefore, Energy Beliefs do show significant relationship to the frequency of the respondents being reminded by their parents to be conservative in setting the home heating thermostat as a child.

TABLE 14

ANALYSIS OF VARIANCE - PARENT INSTRUCTION
FOR HOME HEATING THERMOSTAT SETTING
AND ENERGY BELIEFS

	Sum of Squares	Degrees Freedom	Mean Square	F-Ratio	Critical F (5% Level)
Between Groups	2.0876	2	1.0438	7.18	3.00
Within Groups	57.4605	395	0.1455		
Total	59.5482	397			

In like manner, the analysis of variance, when used to analyze the frequency of the respondents' being reminded (when they were children) by their parents to be conservative in setting the home heating thermostat with Energy Practice scores (See Table 15, page 63), resulted in an F-Ratio of 18.71. This, also, is considerably above the Critical F of 3.84 and indicates that the null hypothesis (at the 5% error rate) not be accepted.

Therefore, Energy Practices also show a significant relationship to the frequency of the respondents' being reminded by their parents to be conservative in setting the home heating thermostat as a child.

TABLE 15

ANALYSIS OF VARIANCE - PARENT INSTRUCTION
FOR HOME HEATING THERMOSTAT SETTING
AND ENERGY PRACTICES

	Sum of Squares	Degrees Freedom	Mean Square	F-Ratio	Critical F (5% Level)
Between Groups	1.1779	2	0.5890	5.79	3.00
Within Groups	40.1866	395	0.1017		
Total	41.3645	397			

The results of the Tukey Studentized Range Test (See Tables 16 and 17, page 64) show that the difference in the means is greater that the minimum significance difference as listed in the tables. The more frequent the respondent was reminded by the parents to be conservative in setting the home heating thermostat as a child, the larger their score of Energy Beliefs and Energy Practices were. Thus, we can determine that the frequency of reminders on being conservative in setting the home heating thermostat, the higher the scores on both of the primary variables.

TABLE 16

TUKEY'S STUDENTIZED RANGE TEST - PARENT INSTRUCTION FOR SETTING HOME HEATING THERMOSTAT AND ENERGY BELIEFS

Variable	Alpha Level	df	Critical Value	Minimum Sig.Dif.	Actual Difference
Told Often ——— Never Told	0.05	395	3.327	0.0584	0.1736

TABLE 17

TUKEY'S STUDENTIZED RANGE TEST - PARENT INSTRUCTION FOR SETTING HOME HEATING THERMOSTAT AND ENERGY PRACTICES

Variable	Alpha Level	df	Critical Value	Minimum Sig.Dif.	Actual Difference
Told Often ——— Never Told	0.05	395	3.327	0.0430	0.1393

Frequency of Parental Reminders on Air Conditioner Conservation as a Child, Energy Beliefs and Energy Practices

Respondents were asked to score how often (never, sometimes, or often) their parents reminded the respondent (as a child in the home) to use the air conditioner conservatively. The incidence of such reminders indicates a significant relationship based on the Pearson Correlation Coefficient with respect to both primary variables, Energy Beliefs (0.1422) and Energy Practices (0.1719).

This indicates that a statistical relationship does probably exists between the frequency of respondents being reminded by their parents to use the air conditioner conservatively and the scores on the primary variables. To verify this relationship the statistical procedure analysis of variance was utilized. Once analysis of variance verified the relationship, Tukey's Studentized Range Test was used.

The analysis of variance procedure, when ran on the frequency of the respondents being reminded by their parents to use the air conditioner conservatively with Energy Beliefs scores (See Table 18, page 64), result in an F-Ratio of 6.95. This is above the Critical F of 3.00 and indicates that the null hypothesis (possible error - 5%) not be accepted.

Therefore, Energy Beliefs show significant relationship to the frequency of the respondents being reminded by their parents to use the air conditioner conservatively.

TABLE 18

ANALYSIS OF VARIANCE - PARENTS' INSTRUCTION OF CONSERVATIVE AIR CONDITIONER USE AND ENERGY BELIEFS

	Sum of Squares	Degrees Freedom	Mean Square	F-Ratio	Critical F (5% Level)
Between Groups	1.9974	2	0.9987	6.95	3.00
Within Groups	56.4655	393	0.1437		
Total	58.4629	395			

In like manner, the analysis of variance, when used to analyze the frequency of the respondents being reminded by their parents to use the air conditioner conservatively as a child with Energy Practice scores (See Table 19, page 67), resulted in an F-Ratio of 18.71. This, also, is considerably above the Critical F of 3.84 and indicates that the null hypothesis (at the 5% error rate) not be accepted.

Therefore, Energy Practices also show a significant relationship to the frequency of the respondents being reminded by their parents to be conservative in using the air conditioner as a child.

TABLE 19

ANALYSIS OF VARIANCE - PARENTS' INSTRUCTION OF CONSERVATIVE AIR CONDITIONER USE AND ENERGY PRACTICES

	Sum of Squares	Degrees Freedom	Mean Square	F-Ratio	Critical F (5% Level)
Between Groups	0.8657	2	0.4329	4.26	3.00
Within Groups	39.9502	393	0.1016		
Total	40.8160	395			

The results of the Tukey Studentized Range Test (See Tables 20 and 21, pages 68) show that the difference in the means is greater that the minimum significance difference as listed in the tables. Because the more often the respondent (as a child) was reminded by the parents to be conservative in using the air conditioner as a child, the larger their score of Energy Beliefs and Energy Practices were, we can determine that the frequency of reminders on being conservative in using the air conditioner as a child, the higher the scores on both of the primary variables.

TABLE 20

TUKEY'S STUDENTIZED RANGE TEST - PARENTS' INSTRUCTION OF CONSERVATIVE AIR CONDITIONER USE AND ENERGY BELIEFS

Variable	Alpha Level	df	Critical Value	Minimum Sig.Dif.	Actual Difference
Told Often ———— 0.1489 Told Some	0.05	393	3.327		0.0273
Told Often ———— 0.1884 Never Told	0.05	393	3.327		0.0678

TABLE 21

TUKEY'S STUDENTIZED RANGE TEST - PARENTS' INSTRUCTION OF CONSERVATIVE AIR CONDITIONER USE AND ENERGY PRACTICES

Variable	Alpha Level	df	Critical Value	Minimum Sig.Dif.	Actual Difference
Told Often ———— Never Told	0.05	393	3.327	0.0244	0.2273

Frequency of Parental Reminders on Hot Water Conservation as a Child, Energy Beliefs, and Energy Practices

Respondents were asked to score how often (never, sometimes, or often) their parents had reminded the respondent (as a child in the home) to use of hot water conservatively. The different frequencies of being reminded by the parent, indicates a significant Pearson Correlation Coefficient with respect to both primary variables, Energy Beliefs (0.14610) and Energy Practices (0.18424).

This indicates that a relationship does probably exists between the frequency of respondents being reminded by their parents to use of hot water conservatively and the scores on the primary variables. To verify this relationship, the statistical procedure analysis of variance was utilized. Once the analysis of variance verified the relationship, Tukey's Studentized Range Test was used.

The analysis of variance procedure, when ran on the frequency of the respondents being reminded by their parents to use of hot water conservatively with Energy Beliefs scores (See Table 22, page 68), result in an F-Ratio of 6.95. This is considerably above the Critical F of 3.00 and indicates that the null hypothesis (with a possible error rate of 5%) not be accepted. Therefore, Energy Beliefs show significant relationship to the frequency of the respondents' being reminded by their parents to use hot water conservatively.

TABLE 22

ANALYSIS OF VARIANCE - PARENTS' INSTRUCTION OF CONSERVATIVE HOT WATER USE AND ENERGY BELIEFS

	Sum of Squares	Degrees Freedom	Mean Square	F-Ratio	Critical F (5% Level)
Between Groups	2.1096	2	1.0548	7.22	3.00
Within Groups	58.1235	398	0.1460		
Total	60.2331	400			

Also, the analysis of variance, when used to analyze the frequency of the respondents' being reminded by their parents to use hot water conservatively as a child with Energy Practice scores (See Table 23, page 71), resulted in an F-Ratio of 18.71. This, also, is considerably above the Critical F of 3.84 and indicates that the null hypothesis (at the 5% error rate) not be accepted.

Therefore, Energy Practices also show a significant relationship to the frequency of the respondents' being reminded by their parents to be conservative in using the hot water as a child.

TABLE 23

ANALYSIS OF VARIANCE - PARENTS' INSTRUCTION OF CONSERVATIVE HOT WATER USE AND ENERGY PRACTICES

	Sum of Squares	Degrees Freedom	Mean Square	F-Ratio	Critical F (5% Level)
Between Groups	0.8952	2	0.4476	4.36	3.00
Within Groups	40.8630	398	0.1027		
Total	41.7581	400			

The results of the Tukey Studentized Range Test (See Tables 24 and 25, pages 72) show that the difference in the means is greater that the minimum significance difference as listed in the tables. Because the more frequent the respondent was reminded by the parents to be conservative in using hot water as a child, the larger their score of Energy Beliefs and Energy Practices were, we can determine that the frequency of reminders on being conservative in using hot water as a child, the higher the scores on both of the primary variables.

TABLE 24

TUKEY'S STUDENTIZED RANGE TEST - PARENTS' INSTRUCTION OF CONSERVATIVE HOT WATER USE AND ENERGY BELIEFS

Variable	Alpha Level	df	Critical Value	Minimum Sig.Dif.	Actual Difference
Told Often ——— Never Told	0.05	398	3.327	0.0545	0.2985

TABLE 25

TUKEY'S STUDENTIZED RANGE TEST - PARENTS' INSTRUCTION OF CONSERVATIVE HOT WATER USE AND ENERGY PRACTICES

Variable	Alpha Level	df	Critical Value	Minimum Sig.Dif.	Actual Difference
Told Often ——— Never Told	0.05	398	3.327	0.0230	0.2276

Of all the possible sources that the respondent could choose from as most influencing energy beliefs and behavior, school related influences alone show a significant correlation to Energy Beliefs as shown in Table 26 (page 73).

TABLE 26

ANALYSIS OF VARIANCE - SCHOOL AS SOURCE OF ENERGY BELIEFS

	Sum of Squares	Degrees Freedom	Mean Square	F-Ratio	Critical F (5% Level)
Between Groups	1.2472	1	1.2472	8.37	3.84
Within Groups	60.1759	404	0.1489		
Total	61.4231	405			

Those correlations of the following may prove to be of significance if further studies are made to determine causality of the primary (energy beliefs and energy practices) and the secondary variables (demographics, parental reminders etc.) are made.

1. Freshman and sophomores tend to have inexact professions (social sciences, art, English, etc.) in mind.
2. Respondents with exact profession choices attribute their energy values as being received from parents much more than those with inexact profession choices.
3. Those of other religions (not Protestant or Catholic) tend to choose inexact professions.
4. Those that pay their own bills tend to score higher in energy practices.

5. The majority agree (based on three questions with the following majorities - 28.8%, 59.4%, and 54.4%) that the age at which they first began forming their own opinions on energy and related issues (even in opposition to parental views) occurred between the ages 15 and 18.
6. Although the devices of home heating, air conditioning, and water heating consume the majority of home energy, the majority of respondents reported that they were rarely instructed by their parents to be concerned about their use. On the other hand, keeping the refrigerator and the outside house doors closed were often reinforced by the parents in the majority of cases.

The overall amount of significant correlations shown indicate that the findings presented here are of usable value. Chapter VI will summarize, interpret, and provide what conclusions have resulted from these findings.

CHAPTER VI

SUMMARY AND CONCLUSIONS

This study was initiated to gain some understanding of our attitudes and viewpoints regarding energy consumption and insight into the socialization of energy related values and practices. This was distilled into three research objectives.

The first objective consisted of surveying 406 Oklahoma State University students to answer the following questions.

1. What are the respondents' beliefs about energy issues?
2. What are the respondents' actual energy practices and patterns in everyday use?
3. What are the demographic characteristics of the respondents?
4. To What source(s) do the respondents attribute their energy views and actions?

The second objective was to identify the common elements of energy related socialization among those respondents who demonstrate a correlation between their energy related beliefs and their actions.

The third objective was to gain an understanding of the energy related socialization process, so that educational policies, programs, and techniques may be implemented to establish or reinforce energy awareness practices.

The three research objectives can now be analyzed based on the obtained data designed to fulfill each one.

Research Objective One

In harmony with Research Objective number One, four questions were raised. The first was concerned with identifying the respondents' level of energy conservative views. The results are somewhat contradictory. For instance, many respondents stated they would support more environmentally safe energy technology, but few stated they would be willing to pay significant higher taxes to do so.

The second question under Research Objective One was concerned with determining the subjects' energy use and practices. The responses concerning the energy views and practices of the respondents are also contradictory. The majority suggest they are willing to make sacrifices for energy conservation, but state that they are unwilling to give up their standard of living or pay extra taxes to support these views. Their patterns of day to day living show conservative beliefs which are intermixed with non-conservation routines.

Overall, a conclusion here is that the respondents are inconsistent in both their beliefs and their practices of energy usage with disparity between idealized pronouncements and actual practice.

The third question of Research Objective One was concerned with discovering the demographic composition of the population sample. Partial demographic results are listed in

chapter 4 and are listed in full in appendix C.

What are some of the specific demographics of the respondent population? The average age of the respondents was 21.2 years old. Males made up 40.4% of the sample and females made up 59.6%. The division of academic class standing was (purposely) fairly even, 51.6% lower division (Freshman and Sophomore), and 48.4% upper division (Junior and above).

Only 15% were married and 90.8% were Caucasian. When looking at the home town size of the sample population, 16.1% came from towns of less than 2,500, 24.3% came from towns of 2,500 to 20,000, 31.4% claimed a home town size of 20,000 to 100,000, and 28.2% stated they originated from cities with a population greater than 100,000.

The religious makeup was 47.5% Protestant, 15.6% Catholic, and 36.9% all others (including uncommitted and undecided). A surprisingly large number (70%) were registered voters, with 47.1% Republican, 32.8% Democrat, and 20.1% Other.

Not surprising, however (because of student status), was the income level, with 88.5% earning under $10,000 annually. In categorizing the types of majors chosen by the subjects, 32.3% are majoring in more exact sciences (mathematics, biology, chemistry, engineering, etc.), while 63.7% are majoring in inexact sciences (social sciences, art, English, etc.).

The fourth question addressed by Research Objective One was the determination of the original source(s) or agents of

socialization to which the respondents attributed their energy views and actions. Mass media was listed 63.1% of the time as the primary socializing influence of the respondent's energy values and actions. "Other Influences" (friends, church, significant other, etc.) were the second most common source (29.1% of the subjects), and "parental influence" was chosen by only 8.1% of the subjects.

Research Objective Two

The second research objective was to determine the common elements of energy related socialization among those respondents who demonstrate a correlation between their energy related beliefs and their actions. Here a few significant results emerged.

Although several correlations were made with either beliefs or practices, few were significantly correlated with both. Although correlations are not necessarily causations, they can act as good indicators of relationships between variables that are causative. If correlations are combined with common sense, good judgement, and the reasonably accepted (and expected) practices of statistical analysis then correlations as an indicator may be useful in the determination of variables as probably causative in effect.

Energy Belief correlations alone were not evaluated as significant because it was believed that concepts not put into practice are not functional in relation to the purpose of this study. However, it is important to note that these beliefs do offer a likely foundation for a resocialization

program designed to elicit desired behavior. Also, energy practice correlations alone were not evaluated as significant because reasons other than those this study is examining, might cause energy conservative actions. For example, married students probably show a higher Energy Practices score due to economic situations instead of environmentally related beliefs or sensitivity.

Those areas demonstrating significant correlations between beliefs and practices are as follows:

Activity as a Voter

If the respondent is an active voter, we see an increased level of energy awareness and practice. The present research does not address the possible causative actions of voting behaviors, however, from a theoretical viewpoint some possibilities are possible that additional research might evolve. For instance, it can be suggested that active voters are more in tune with world situations and/or have a keener sense of social responsibility and action.

Academic and Career Choice

Subjects indicating that they had made their choices of academic majors and future careers also correlated with both primary variables of Energy Beliefs and Energy Practices.

Statistical analysis was conducted to correlate this finding with possible influences related to the other findings below, with no significant results. For instance,

because higher levels of college education relate to more energy awareness, the consideration that the level of education might also relate to career choice was analyzed. In fact, not only was there was no significant correlation to this, if anything, there was a negative correlation (although at a level that was considered insignificant).

Thus, it appears the choice of career objectives are independently in line with the energy values and practices. It is possible that the early socialization of these individuals is related to both the energy aspects and the career decisions, although this study did not address that particular relationship.

Class Level in College

The college class standing of the respondents were correlated to both the primary variables, Energy Beliefs and Energy Practices. This is not surprising, because of two factors. First, the popular viewpoint on energy among college students is one of awareness and concern. Based on this the more educated an individual, the more likely he/she will be aware of the seriousness of the world energy situation. Second, the theoretical research suggests that as an agent of socialization, the school is an important factor in the socialization process. As George Ritzer suggested in the Review of Literature (see Chapter 3), "the school is responsible for the values of our school age children [and] . . . schools transmit a society's norms and values." Thus, the conclusion is that the school (especially the higher

levels within this particular university) fosters socialization that encourages an increased energy awareness among students.

Parental Instruction of
Home Energy Devices

This category of questions, which relate to the use of hot water, the use of the home air conditioner, and the home heating thermostat settings, indicate the relationships between the family as a socializing agent and the affective socialization of the child. The purpose is to discover if the energy related values and behaviors of the sample populations parents reflect on the sample populations energy related values and actions.

Conclusions on these Relationships

These categories all correlate with an increased awareness of energy issues and practices that support this awareness. With all but one of the categories (that of active voting), socialization can easily be implicated as a partial causative agent responsible for these correlated attitudes and behaviors. It is also possible that the active voter may also show a similar relationship, but support for that is not at present available.

With respect to the demonstrated statistical correlation between high energy beliefs and practices scores and those of voter activity, the indications are that those individuals who actively vote in elections are also energy conscious.

One explanation is that those individuals who are adequately socially integrated to vote are also sufficiently socially integrated to be aware of the importance of energy to us as a society. A second explanation might be that voting is an indicator of an individual having a desire to look forward in time and understand that actions now will result in effects at a later time.

With respect to academic career choice as correlated to the two variables of energy beliefs and energy practices, the same explanation as above may be an apt description of reasoning. These individuals have developed the practice of looking ahead in an effort to maximize the quality of their personal academic and career futures. Thus, these individuals may also consider their energy related values and actions as yet another way in which to effect the quality of their future.

In regard to academic standing (class level) as correlated to energy practices and energy beliefs only one explanation is apparent. Higher education encourages the individual to think and critically explore the world around him/her. The significance of energy is not likely to be overlooked by anyone that is examining the issues of the world around them, as do college students. However, to qualify this correlation, it is necessary to suggest that only the higher levels of academic standing have expanded their scope of investigations to encompass areas not specific to their respective majors.

Finally with respect to parental instruction of home

energy devices and the energy beliefs and energy practices, two explanations are considered likely enough to suggest additional study. The parents have instilled a practice by their actions in the home, while the individual is in the early socialization stages. The parents may not value the overall picture in regard to the energy situation, however, they may have behaviors based on economic concepts. Specifically, if the parents are concerned with raising energy bills, then they may enforce energy conservation in the home as a means to conserve finances.

It is important to note that in some instances the use of binary nominal data (e.g. male = 1, female = 2) was treated as interval data and therefore resulted in abnormally high F-Scores. This result has indicated not only statistical significance between the two variables, but has also indicated a very homogeneous sample. Thus, the indications suggest that the population sampled is a highly homogeneous population, and therefore must be understood as such. The implications of this finding for future research utilizing college students is important in the analysis of any data that may result.

Research Objective Three

The third research objective was to gain an understanding of the energy related socialization process, so that new policies, programs, or educational techniques may be developed and implemented to establish social values and a beliefs system supportive of energy awareness practices.

This objective must begin with the understanding that due to the complexity of the variables involved, no one approach will be a total solution to the energy socialization problem. However, a visit to Europe and a conversation with children in Germany has demonstrated to many Americans that instilling in youth the values and practices of energy conservation is not only possible, it has been accomplished in some parts of the world. To begin the development of such a program as this study will propose, each correlation among variables offers information and insight that can be applied to the population through a formatted socialization program.

The three most significant agents involved in the socialization of the respondent are effects of schooling programs in the public school system, the parental re-enforcement of economic aspects of the household use of appliances, and the influence of the mass media. These three elements in the socialization process are usable in developing a stronger belief/practice pattern result. Although the school is more correlated with energy beliefs, it alone demonstrated significance in respondents scoring high on Energy Beliefs.

Implications, Contributions and Suggestions from this Research

Suggestion One

This study suggests the following program as a method to increase the energy beliefs and practices of young children

and subsequent generations. As was determined, education is one of the primary keys to an increased energy awareness and practices program. The NEED project (chapter 3) demonstrated that the education system is presently not very encouraging in this area. Many administrators and teachers were shown to be lacking in support for this type of education.

We must encourage this type of energy education at all levels, nationally (possibly through letters to our representatives, our voting actions, and lobbying groups), by state (using the same practices long operationalized by political candidates) and at the grassroots level with the individual schools, by addressing the school board, the individual school administrative staff, and through encouraging our children and their individual teachers.

One method of improving the education of energy issues would be to provide more environmental/energy public school education programs. For example a required course in environmental education at regular intervals during the formal education process. For instance, one course every three years of each persons formal educational experience focusing on the global, national, and regional effects and interrelationships of energy and the environment would be a step in the right direction. Also, because teachers normally continue updating their education (often an administrative requirement), a specific environmental emphasis component could be added into the continuing educational programs in which educators often participate.

Suggestion Two

Develop a parent/teacher program utilizing the combined socializing effects of parents and school. The use of assignments which would require parent/child involvement for home energy evaluation assignments to encourage energy utilization awareness already found in many families (parental instruction in conservative energy usage around the home and the economic impact of energy use on the family).

One specific course design would be to combine environmentally related school field trips for the students in conjunction with required home assignments.

Each student would be given a prepared energy evaluation sheet with which they are to record the energy usage of various devices in the home. In class the teacher would assist the students in calculating two aspects of the energy usage recorded. One calculation would focus on analyzing the resulting effects on the environment for each increment of energy used. The second calculation would be a monetary assessment of the energy used by each device. Once the actual costs of the energy usage is computed, the teacher and student would then review energy usage and energy waste within each student's home. The last step would be to have each student obtain the signature of his or her parents on the energy evaluation sheet the student prepared in class.

The goal of the above course design is two-fold. First, the values of energy conservation will be provided with the teacher/student evaluation of the environmental effects and

associated field trips. Second, the parents will be given evidence based on possible monetary savings if energy conservation is practiced in the home. Each aspects mentioned has been shown to be statistically supported as a means to instill both beliefs and values associated with energy conservation by the analysis of the questionnaire this study is based on.

Suggestion Three

A program focusing on increased environmental awareness and environmental ethics for beginning college students would effect the energy awareness of college students. Even those not completing a degree program would have early exposure to the concepts of energy awareness. As previously suggested, widening a student's exposure to world issues may encourage them to accept and internalize the significance of those issues and eventually act on them.

Other Suggestions

Beyond the program outlined above, other recommendations are also of importance in the socialization of energy beliefs and practices. Nearly two thirds of the respondents claimed that the mass media was the source of their present energy beliefs.

The mass media is virtually an untapped source of socializing influence in the areas of energy awareness. However, to access the power of the mass media's socializing influence, specific research focused on the mass media and

its positive socializing influences must be performed. This is possibly the most significant tool available for changing the energy awareness of an entire society.

Suggestions for the utilization of the mass media as a socializing influence must incorporate two spheres of investigation: What are the most effective techniques and how can these techniques be operationalized.

In determining the most effective techniques, many studies have researched the influencing of the mass media on the public. For instance, many researchers have studied the effects of television on youth. These studies provide an already existing data base for televised media evaluation.

However, a specific suggestion is to incorporate stronger support for energy conservation in regular television programming. For instance, have actors who portray well known and accepted characters show concern for energy wastefulness as an additional side to their character. In this manner the message is incorporated into all types of already existing video programming.

A second suggestion is to develop programs that are specifically focused on encouraging energy awareness and conservation. One such program is already operational. Turner Broadcasting System has marketed and presently syndicates a children's cartoon by the name, "Captain Planet". This program utilizes the concept of a cartoon superhero to express environmental problems, concerns, and actions. Other forms of mass media, such as radio, magazines, etc. could be manipulated in a similar fashion.

Active voters were also one of the stronger correlations emerging from the statistical analysis, thus additional research into procedures encouraging non-voters to develop the social consciousness and foresight of the active voters would be of importance. If the non-voter could be encouraged to accept the attitude of the voter then the non-voter may become more energy aware.

Final Comments and Conclusion

Previously mentioned (chapter 4) is the possibility that the reported F-scores on the ANOVA analysis of nominal data in the statistical analysis are the result from one of two possible explanations. Either they are indicative of this type of statistical treatment or more importantly they indicate a largely homogeneous sample population. If the latter is true, then it is significant to note that this research project, as well as many other research projects that use university students as the sample population, may be dealing with a statistical anomaly of an extremely homogeneous population sample. That is, most of the sample are composed of individuals with similar regional attitudes, upbringing, values, demographics, etc. Thus, future researchers may desire to further investigate this situation.

It is important to study the active voter further to determine the connection between voting and this study. Voting is an especially important aspect of causing a change in the energy situation.

The United States' system of government is a

representative democracy. This form of government relies on the people who, acting as voters, choose those individuals who will be responsible for reflecting (representing) the values and beliefs of the voters. Values and beliefs are those concepts which the individual or group accept as true and are learned (and internalized) through socialization.

Because the effects of socialization are likely to exhibit themselves through the voting behavior of the individual, and voting behavior correlates specifically with energy beliefs and practices, it is important that the voting public be knowledgeable concerning energy issues and how the political candidates may or may not support their views.

If the voters' possess misinformation and base their values concerning the issues on this misinformation, then they may elect representatives which support views other than those the voter might have preferred. If this occurs then the representatives may, either purposefully or unknowingly, be shaping the public's values rather than representing them.

If the voters have been properly and correctly informed concerning these issues and reflect this correct information in their values and thus their voting decisions, then they should vote for the representatives which will best support their values.

Since national energy policies, which can exert an influence on the world's energy resources and usages, are representative of choices made by the American voter, then a study of the how Americans are socialized concerning their energy beliefs is of global importance.

Finally, this study must be viewed as an initial investigation into the energy/environment issue. Unless further studies are carried out with immediacy then Lester Brown's may be correct in his prediction:

> If the world is to achieve sustainability, it will need to do so within the next 40 years. If not, environmental deterioration and economic decline are likely to pull us into a downward spiral of social disintegration (Brown, 1990: 174).

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APPENDIXES

APPENDIX A

SURVEY INSTRUMENT

Questionnaire

INSTRUCTIONS: The following questionnaire is designed to obtain information about your background and your personal opinions concerning the use of energy, energy issues, and the sources of your opinions. There are no correct or incorrect answers. Please answer each question honestly and unless otherwise directed, choose only one answer for each question. All answers are confidential. Answer every question. Do not put your name anywhere on this questionnaire.

Energy Practices

INSTRUCTIONS: The following questions concern how you use energy. There are no correct or incorrect answers. Check the answer which is most accurate in your situation. Choose only one answer per question.

1. Do you have an automobile?
   [ ] Yes
   [ ] No

2. If yes, what gas mileage do you usually average?
   [ ] Under 20 Mpg
   [ ] 20 - 30 Mpg
   [ ] More than 30 Mpg
   [ ] Does not apply

3. Who usually pays for your gasoline?
   [ ] Self
   [ ] Parents
   [ ] Other
   If other, specify _____
   [ ] Does not apply

4. How often do you drive to locations you could easily walk or ride a bicycle to? For example, going to a store only a few blocks away or to class if you live near campus.
   [ ] Never
   [ ] Occasionally
   [ ] Often
   [ ] All the time
   [ ] Does not apply

INSTRUCTIONS: Check the answer which is most accurate in your situation. Unless otherwise instructed, choose only one answer for each question.

5. How often do you wash your car?
   [ ] Rarely (once a month or less)
   [ ] Occasionally (one to three times per month)
   [ ] Often (at least once a week)
   [ ] Does not apply

6. What kind of car would you like to own?
   _____

7. What temperature do you set your home thermostat on? Please answer for both winter and summer.
   _____ Winter
   _____ Summer
   _____ Does not apply

8. Do you leave the temperature on the same setting when you are away from home for part of a day?
   [ ] Yes
   [ ] No
   [ ] Does not apply (live in dorms, parents set temperature, no adjustment possible, etc.)

9. Do you leave the temperature on the same setting when you are away from home for more than one day?
   [ ] Yes
   [ ] No
   [ ] Does not apply

10. Which do you take most often, baths or showers?
    [ ] Baths
    [ ] Showers

11. If you take showers more often than bathes, how long are your showers?
    [ ] Under 10 minutes
    [ ] 10 - 20 minutes
    [ ] 20 - 30 minutes
    [ ] More than 30 minutes
    [ ] Does not apply

INSTRUCTIONS: Check the answer which is most accurate in your situation. Unless otherwise instructed, choose only one answer for each question.

12. How often do you wash clothes?
    [ ] Daily
    [ ] Twice or more per week
    [ ] Once a week
    [ ] Less than once per week

13. Do you usually wash small, medium, or full loads of clothes?
    [ ] Small
    [ ] Medium
    [ ] Full

14. Do you mostly wash your clothes in hot, warm, or cold water?
    [ ] Hot
    [ ] Warm
    [ ] Cold

15. Do you wash dishes by hand or use a dishwasher?
    [ ] Hand
    [ ] Dishwasher
    [ ] Does not apply

16. If you wash the dishes by hand, do you fill the sink with water or do you wash the dishes with the water running?
    [ ] Fill the sink
    [ ] Wash (or rinse) with running water
    [ ] Does not apply

17. How often do you leave things like the radio, lights, television, fans, or other appliances on when you are not using them?
    [ ] Very Often (several times a day)
    [ ] Often (about once a day)
    [ ] Sometimes (a couple of times per week)
    [ ] Rarely (less than once a week)

18. Do you pay your own utility bills?
    [ ] Yes
    [ ] No
    [ ] Does not apply

Personal Demographics

INSTRUCTIONS: Each of the following questions ask for information concerning you and your background. Fill in each blank space with the appropriate information.

1. How old are you? _____

2. What is (or is likely to be) your college major?
   _____

3. What career do you wish to enter after college?
   _____

4. How many brothers and sisters do you have?
   _____ Brothers
   _____ Sisters

5. If you were going to join or otherwise support an organization you do not belong to, which organization or what type of organization would it be? Do not include student organizations.
   _____

INSTRUCTIONS: Check one answer for each question.

6. What is your sex?
   [ ] Male
   [ ] Female

7. Were you raised in the United States?
   [ ] Yes
   [ ] No

8. What is the approximate size of the community in which you were raised in? If more than one, what size community did you live in the longest?
   Check only one.
   [ ] 1 Farm or open country
   [ ] 2. Town of less than 2,500
   [ ] 3. Town of between 2,500 and 10,000
   [ ] 4. Town of 10,000 to 20,000
   [ ] 5. Town of 20,000 to 50,000
   [ ] 6. City of 50,000 to 100,000
   [ ] 7. City of greater than 100,000

INSTRUCTIONS: Check one answer for each question.

9. Were you the:
   [ ] First born
   [ ] Second born
   [ ] Third born
   [ ] Other

10. What is your present marital status?
   [ ] Single
   [ ] Married
   [ ] Separated
   [ ] Divorced
   [ ] Living as Married

11. Assuming all things work out for you, career and otherwise, How many children would you like to have?
   [ ] None
   [ ] 1
   [ ] 2
   [ ] 3 or more

12. What is your racial or ethnic background?
   [ ] White/Caucasian
   [ ] Black/Afro-American
   [ ] American Indian
   [ ] Oriental
   [ ] Hispanic
   [ ] Other

13. What is your religious preference?
   [ ] Catholic
   [ ] Protestant
   [ ] Jewish
   [ ] Other

14. Do you actively participate in your religion of choice?
   [ ] Yes
   [ ] No
   [ ] Does not apply

15. Are you a registered voter?
   [ ] Yes
   [ ] No

INSTRUCTIONS: Check one answer for each question.

16. What is your political affiliation?
    [ ] Democrat
    [ ] Republican
    [ ] Independent
    [ ] Uncertain
    [ ] Other

17. Have you ever voted in an election?
    [ ] Yes
    [ ] No

18. Do you belong to any clubs or organizations other than religious organizations? For example - Greek organizations, anti-nuclear group, animal rights organization, etc.
    [ ] No
    [ ] Yes
        If yes, what_____

19. What was your personal income level last year?
    [ ] Under $5000
    [ ] 5,001 - 10,000
    [ ] 10,001 - 15,000
    [ ] 15,001 - 20,000
    [ ] 20,001 - 30,000
    [ ] 30,001 - 50,000
    [ ] More than 50,000

Parents Demographics

INSTRUCTIONS: Each of the following questions ask information concerning your parents. Please choose the answer closest to what you believe to be accurate. Choose <u>one answer</u> for <u>each</u> parent.

1. What is (or was) your father's and mother's main career work or occupation?
   Father_____
   Mother_____

2. What is the highest level of education your parents have completed?

FATHER		MOTHER
[ ]	Elementary	[ ]
[ ]	High School	[ ]
[ ]	1-2 years college	[ ]
[ ]	College Graduate	[ ]
[ ]	Master Degree	[ ]
[ ]	Doctorate (Phd, DDS, MD, etc.)	[ ]

3. Are (or were) your parents registered voters?

FATHER		MOTHER
[ ]	Yes	[ ]
[ ]	No	[ ]

4. What is (or was) your parents' political affiliation.

FATHER		MOTHER
[ ]	Democrat	[ ]
[ ]	Republican	[ ]
[ ]	Independent	[ ]
[ ]	Uncertain	[ ]
[ ]	Other	[ ]

5. Have your parents ever voted in an election?

FATHER		MOTHER
[ ]	Yes	[ ]
[ ]	No	[ ]

6. What is (or was) your parents' religious preference?

FATHER		MOTHER
[ ]	Catholic	[ ]
[ ]	Protestant	[ ]
[ ]	Jewish	[ ]
[ ]	Other	[ ]

INSTRUCTIONS: Please choose the answer closest to what you believe to be accurate.

7. Overall, would you say that your parents were active in their religions? Answer for both your mother and your father. Choose one answer for <u>each</u> parent.

FATHER		MOTHER
[ ]	Yes	[ ]
[ ]	No	[ ]

8. What was the approximate income level of your parents last year? Check only one.

[ ] Under $5000
[ ] 5,001 - 10,000
[ ] 10,001 - 15,000
[ ] 15,001 - 20,000
[ ] 20,001 - 30,000
[ ] 30,001 - 50,000
[ ] More than 50,000

Energy Values

INSTRUCTIONS: Each of the following statements ask for information concerning your opinion of energy issues. There are no correct or incorrect answers. Circle the letter which best represents your personal opinion.

A = (SA) Strongly agree
B = (A) Agree
C = (UN) Undecided
D = (D) Disagree
E = (SD) Strongly disagree

	SA	A	UN	D	SD
1. The U.S. should use military power, necessary, to maintain the flow of oil in order to maintain our quality of life.	A	B	C	D	E
2. The United States should concentrate money and technology on being energy self sufficient and less dependent on foreign oil and other foreign sources of energy.	A	B	C	D	E
3. The U.S. should do without luxuries such as individual automobiles and home air conditioning to lessen our dependence on foreign oil.	A	B	C	D	E
4. It is vitally important, regardless of cost, to develop new technologies which are less polluting and safer for the environment.	A	B	C	D	E
5. If it were easily available to me, I would use public (mass) transportation instead of an individual automobile for most of my travel needs.	A	B	C	D	E

INSTRUCTIONS: Circle the letter which best represents your personal opinion.

A = (SA) Strongly agree
B = (A) Agree
C = (UN) Undecided
D = (D) Disagree
E = (SD) Strongly disagree

	SA	A	UN	D	SD
6. It is more important to spend money on the welfare system than to spend money on research and development of safer and cleaner energy sources.	A	B	C	D	E
7. Americans waste more energy than should be allowed.	A	B	C	D	E
8. There is a genuine shortage of the traditional fuels such as oil, gas, and coal.	A	B	C	D	E
9. I believe that I do not significantly waste energy.	A	B	C	D	E
10. Americans have the right to waste as much energy as they want if they can financially afford it.	A	B	C	D	E
11. Energy wasters, by law, should pay for their irresponsibility with expensive fines or volunteer time in community service work.	A	B	C	D	E

INSTRUCTIONS: Circle the letter which best represents your personal opinion.

A = (SA) Strongly agree
B = (A) Agree
C = (UN) Undecided
D = (D) Disagree
E = (SD) Strongly disagree

	SA	A	UN	D	SD
6. It is more important to spend money on the welfare system than to spend money on research and development of safer and cleaner energy sources.	A	B	C	D	E
7. Americans waste more energy than should be allowed.	A	B	C	D	E
8. There is a genuine shortage of the traditional fuels such as oil, gas, and coal.	A	B	C	D	E
9. I believe that I do not significantly waste energy.	A	B	C	D	E
10. Americans have the right to waste as much energy as they want if they can financially afford it.	A	B	C	D	E
11. Energy wasters, by law, should pay for their irresponsibility with expensive fines or volunteer time in community service work.	A	B	C	D	E

INSTRUCTIONS: Check the answer you believe is most accurate in relation to your values and your situation.

15. Check the answer you most agree with.

Which would you prefer:

[ ] a. A higher standard of living (higher incomes, individual automobiles, electrical appliances, etc.) with the greater pollution problems that come with these conveniences (e.g. air, water, and noise pollution).

OR

[ ] b. A lower standard of living (lower incomes, fewer automobiles, fewer conveniences) but with a cleaner environment, less pollution, and less pollution related problems.

16. What school grade were you in when you first became aware of energy issues such as gas or oil shortages, oil spills or related pollution etc.
[ ] 1 - 4
[ ] 5 - 7
[ ] 8 - 9
[ ] 10 - 12
[ ] After high school

17. Do you generally agree with your parents on energy issues?
[ ] Yes
[ ] No

18. Have you ever disagreed with your parents on an energy issue?
[ ] Yes
[ ] No

19. If so, at what age was the first time you remember disagreing on this issue.
[ ] 5 - 10
[ ] 11 - 14
[ ] 15 - 18
[ ] 19 +
[ ] Does not apply

INSTRUCTIONS: Check the answer you believe is most accurate in relation to your values and your situation.

20. How old were you the first time you remember agreeing or disagreeing with a political candidate on issues concerning things such as oil prices, nuclear energy, or pollution?
    [ ] 5 - 10
    [ ] 11 - 14
    [ ] 15 - 18
    [ ] 19 +

21. If you have a chosen preference of political views, at what age did you first decide on these energy view?
    [ ] 5 - 10
    [ ] 11 - 14
    [ ] 15 - 18
    [ ] 19 +
    [ ] Does not apply

INSTRUCTIONS: Finish the sentence below by checking the appropriate answer as it applies to you. Check only one box for each question.

N = Never
S = Sometimes
O = Often

When you were a child, how often did your parents remind you to:

22. Turn off the lights each time you leave the room.

	N	S	O

23. Turn off any appliance as soon as you finished using it.

	N	S	O

INSTRUCTIONS: Finish the sentence below by checking the appropriate answer as it applies to you. Check only one box for each question.

N = Never
S = Sometimes
O = Often

When you were a child how often did your parents remind you to:

24. Keep the thermostat set at a very cool temperature in the winter time.

N	S	O

25. Refrain from using the air conditioner.

N	S	O

26. Keep the refrigerator door closed.

N	S	O

27. Use as little hot water as possible.

N	S	O

28. Keep the doors closed to the house. To keep out the cold or the heat (depending on the outside weather at the time).

N	S	O

APPENDIX B

SURVEY INSTRUMENT AND RESPONSE FREQUENCIES

Questionnaire

Energy Practices

1. Do you have an automobile?

90.6%	**Yes**
9.4%	No

2. If yes, what gas mileage do you usually average?

19.2%	Under 20 Mpg
57.7%	**20 - 30 Mpg**
16.2%	More than 30 Mpg

3. Who usually pays for your gasoline?

50.6%	**Self**
42.6%	Other
6.7%	DNA

4. How often do you drive to locations you could easily walk or ride a bicycle to?

13.8%	NO
86.5%	**YES**

5. How often do you wash your car?

50.6%	**Rarely** (once a month or less)
34.8%	Occasionally (one to three times per month)
8.3%	Often (at least once a week)
6.3%	Does not apply

6. What kind of car would you like to own?

2.2%	Good gas mileage
28.0%	Medium gas mileage
69.8%	**Poor** gas mileage

7. What temperature do you set your home thermostat on?

Winter

32.3%	High temp
49.5%	**Medium**
18.2%	Low

Summer

38.4%	Low temp
43.8%	**Medium**
17.7%	High

8. Do you leave the temperature on the same setting when you are away from home for part of a day?

37.1%	Yes
39.1%	**No**
23.8%	Does not apply (live in dorms, parents set temperature, no adjustment possible, etc.)

9. Do you leave the temperature on the same setting when you are away from home for more than one day?

12.6%	Yes
67.2%	**No**
20.2%	Does not apply

10. Which do you take most often, baths or showers?

6.2%	Baths
93.8%	**Showers**

11. If you take showers more often than bathes, how long are your showers?

47.0%	**Under 10 minutes**
45.7%	10 - 20 minutes
3.5%	20 - 30 minutes
0.2%	More than 30 minutes
3.5%	Does not apply

12. How often do you wash clothes?

3.0%	Daily
11.6%	Twice or more per week
65.9%	**Once a week**
19.5%	Less than once per week

13. Do you usually wash small, medium, or full loads of clothes?

0.2%	Small
31.1%	Medium
68.6%	**Full**

14. Do you mostly wash your clothes in hot, warm, or cold water?

6.7%	Hot
55.7%	**Warm**
37.6%	Cold

15. Do you wash dishes by hand or use a dishwasher?

43.6%	Hand
46.4%	**Dishwasher**
10.0%	Does not apply

16. If you wash the dishes by hand, do you fill the sink with water or do you wash the dishes with the water running?

39.1%	**Fill the sink**
26.7%	Wash (or rinse) with running water
34.2%	Does not apply

17. How often do you leave things like the radio, lights, television, fans, or other appliances on when you are not using them?

65.3%	More than once a week
34.7%	**Rarely (less than once a week)**

18. Do you pay your own utility bills?

43.8%	Yes
45.8%	**No**
10.4%	Does not apply

Personal Demographics

1. How old are you?

61.8%	**under 21**
38.2%	21 or over
21.2%	**mean age**

2. What is (or is likely to be) your college major?

63.7%	**inexact**
32.3%	exact

3. What career do you wish to enter after college?

68.3%	**inexact**
31.7%	exact

4. How many brothers and sisters do you have?

	Brothers
35.5%	0
41.6%	**1**
16.2%	2
6.2%	more

	Sisters
38.7%	**0**
38.7%	**1**
14.8%	2
7.8%	more

5. If you were going to join or otherwise support an organization you do not belong to, which organization or what type of organization would it be?

19.2%	Environmental
80.8%	**Not Environmental**

6. What is your sex?

40.4%	Male
59.6%	**Female**

7. Were you raised in the United States?

96.1%	**Yes**
3.9%	No

8. What is the approximate size of the community in which you were raised in?

16.1%	1. Country or small town less than 2,500
44.3%	**2. Town of 2,500 and 50,000**
39.6%	3. City greater than 100,000

9. Were you the:

40.9%	First born
59.1%	**Other**

10. What is your present marital status?

85.0%	**Not married**
15.0%	Married

11. Assuming all things work out for you, career and otherwise, How many children would you like to have?

23.6%	None
63.3%	**1**
8.7%	2
4.5%	3 or more

12. What is your racial or ethnic background?

90.8%	**White/Caucasian**
9.2 %	Other

13. What is your religious preference?

15.6%	Catholic
47.5%	**Protestant**
36.9%	Other

14. Do you actively participate in your religion of choice?

56.9%	**Yes**
43.1%	No

15. Are you a registered voter?

70.0%	**Yes**
30.0%	No

16. What is your political affiliation?

32.8%	Democrat
47.1%	**Republican**
20.1%	Other

17. Have you ever voted in an election?

54.9%	**Yes**
45.1%	No

18. Do you belong to any clubs or organizations other than religious organizations?

3%	Environmental
97%	**Not Environmental**

19. What was your personal income level last year?

75.4%	**Under $5000**
13.1%	5,001 - 10,000
5.2%	10,001 - 15,000
2.2%	15,001 - 20,000
2.0%	20,001 - 30,000
1.5%	30,001 - 50,000
0.2%	More than 50,000

Parents Demographics

1. What is (or was) your father's and mother's main career work or occupation?

Father (prestige)		**Mother**
18.7%	Hi	26.7%
37.0%	Medium	16.6%
44.3%	**Lo**	**56.7%**

2. What is the highest level of education your parents have completed?

FATHER		**MOTHER**
27.6%	High school or less	32.2%
44.5%	Some college or Bach degree	**51.9%**
27.9%	Above Bach Degree	16.0%

3. Are (or were) your parents registered voters?

FATHER		**MOTHER**
97.5%	**Yes**	**95.3%**
2.5%	No	4.7%

4. What is (or was) your parents' political affiliation.

FATHER		**MOTHER**
40.2%	Democrat	40.3 %
44.0%	**Republican**	**45.3%**
15.9%	Other	14.4%

5. Have your parents ever voted in an election?

FATHER		**MOTHER**
94.3%	**Yes**	**95.1%**
5.7%	No	4.9%

6. What is (or was) your parents' religious preference?

FATHER		MOTHER
15.8%	Catholic	17.6%
50.4%	**Protestant**	**50.4%**
33.8%	Other	32.0%

7. Overall, would you say that your parents were active in their religions?

FATHER		MOTHER
48.6%	Yes	**66.4%**
51.4%	No	33.6%

8. What was the approximate income level of your parents last year? Check only one.

7.0 %	Under $15000
21.4%	15,001 - 30,000
25.8%	30,001 - 50,000
45.7%	**More than 50,000**

Energy Values

Percentages	A	UN	D

1. The U.S. should use military power, necessary, to maintain the flow of oil in order to maintain our quality of life.

	A	UN	D
%	44.8	28	27.2

2. The United States should concentrate money and technology on being energy self sufficient and less dependent on foreign oil and other foreign sources of energy.

	A	UN	D
%	89.6	7.7	2.7

3. The U.S. should do without luxuries such as individual automobiles and home air conditioning to lessen our dependence on foreign oil.

	A	UN	D
%	12.4	14.1	73.4

4. It is vitally important, regardless of cost, to develop new technologies which are less polluting and safer for the environment.

	A	UN	D
%	87.4	8.6	4.0

5. If it were easily available to me, I would use public (mass) transportation instead of an individual automobile for most of my travel needs.

	A	UN	D
%	50.5	19	30.6

6. It is more important to spend money on the welfare system than to spend money on research and development of safer and cleaner energy sources.

	A	UN	D
%	9.6	38.9	51.2

7. Americans waste more energy than should be allowed.

	A	UN	D
%	85.4	10.1	4.5

8. There is a genuine shortage of the traditional fuels such as oil, gas, and coal.

	A	UN	D
%	55.1	24.7	20.2

9. I believe that I do not significantly waste energy.

	A	UN	D
%	37.2	15.3	47.4

10. Americans have the right to waste as much energy as they want if they can financially afford it.

	A	UN	D
%	7.6	7.1	85.2

11. Energy wasters, by law, should pay for their irresponsibility with expensive fines or volunteer time in community service work.

	A	UN	D
%	28.1	36	35.8

12. In your opinion, which two of the choices listed below had the greatest influence in the way you presently think about energy issues (pollution, politics, oil prices, oil spills etc.)? Select only two.

7.0%	1.	Parents
71.7%	**2.**	**Media**
21.3%	3.	Other

13. In the question above (# 12) which one of the two choices do you believe had the greatest influence in your present energy beliefs. Print the number in the space provided.

8.1%	1.	Parents
63.1%	**2.**	**Media**
29.1%	3.	Other

14. If the result were to create less pollution and still maintain our present standard of living, the most I would be willing to pay per year in extra taxes would be:

26.9%	**$25 or less**
25.1%	$26 - $50
25.1%	$51 - $100
15.6%	$101 - $250
7.4%	$251 - $500
0.0%	More than $500

15. Check the answer you would most prefer.

37.3% a. A higher standard of living (higher incomes, individual automobiles, electrical appliances, etc.) with the greater pollution problems that come with these conveniences (e.g. air, water, and noise pollution).

62.7% **b.** A lower standard of living (lower incomes, fewer automobiles, fewer conveniences) but with a cleaner environment, less pollution, and less pollution related problems.

16. What school grade were you in when you first became aware of energy issues such as gas or oil shortages, oil spills or related pollution etc.

13.1%	1 - 4
26.4%	5 - 7
23.2%	8 - 9
27.8%	**10 - 12**
9.6%	After high school

17. Do you generally agree with your parents on energy issues?

87.6%	**Yes**
12.4%	No

18. Have you ever disagreed with your parents on an energy issue?

50.5%	**Yes**
46.8%	No

19. If so, at what age was the first time you remember disagreing on this issue.

2.2%	5 - 10
8.4%	11 - 14
28.8%	15 - 18
10.8%	19 +
41.6%	**Does not apply**

20. How old were you the first time you remember agreeing or disagreing with a political candidate on issues concerning things such as oil prices, nuclear energy, or pollution?

2.5 %	5 - 10
18.2%	11 - 14
59.4%	**15 - 18**
17.0%	19 +

21. If you have a chosen preference of political views, at what age did you first decide on these energy view?

1%	5 - 10
13.8%	11 - 14
54.4%	**15 - 18**
19.5%	19 +
8.9 %	Does not apply

When you were a child, how often did your parents remind you to:

22. Turn off the lights each time you leave the room.

1.7%	N
29.9%	S
68.6%	**O**

23. Turn off any appliance as soon as you finished using it.

7.4%	N	
24.3%	S	**68.3%** **O**

24. Keep the thermostat set at a very cool temperature in the winter time.

42.2%	**N**
33.9%	S
23.9%	O

25. Refrain from using the air conditioner.

40.4%	**N**
38.6%	S
21.0%	O

26. Keep the refrigerator door closed.

10.3%	N
15.8%	S
74.0%	**O**

27. Use as little hot water as possible.

50.9%	**N**
30.7%	S
18.5%	O

28. Keep the doors closed to the house. To keep out the cold or the heat (depending on the outside weather at the time).

4.0%	N
20.9%	S
75.1%	**O**

College Level

51.6%	**Freshman and Sophomore**
48.4%	Junior and up.

APPENDIX C

UNITARY CORRELATION ANALYSIS

CORRELATIONS WITH ONLY ONE PRIMARY VARIABLE

This appendix presents those secondary variables that correlate with only one of the two primary variables. These correlations are included as further analysis may demonstrate some importance not presently realized. In Table 27 (page 126) significant Pearson correlation coefficients between the Primary variables (Energy Beliefs or Energy Practices) and the secondary variables are presented. Following Table 27, are tables that representing statistical procedures and their explanations that more closely analyze the relationships between the variables.

Variables That Correlate With Energy Beliefs

Sex and Energy Beliefs

The sex of the respondent shows significant correlation with respect to the primary variable Energy Beliefs. To verify the relationship indicated by the correlation, the procedure Analysis of Variance (See Table 28, page 127) was again utilized and also indicated a significant difference in Energy Beliefs when controlled for the sex of the respondent.

The F-Ratio of 15.39, which is considerably above the Critical F of 3.84, indicates significance in the difference between the Energy Belief score means when sex is considered.

TABLE 27

SIGNIFICANT PEARSON CORRELATION ANALYSIS
WHERE ONE PRIMARY VARIABLE CORRELATES
WITH THE SECONDARY VARIABLE

Variable	Energy Beliefs	Energy Practices
Sex Male/Female (1) (2)	0.19158 0.0001 406	Insignificant Relationship
Religiosity	0.10310 0.0419 390	Insignificant Relationship
Marital Status	Insignificant Relationship	0.19432 0.0001 406
Mother's Education	Insignificant Relationship	-0.17618 0.0004 401
Community Size	Insignificant Relationship	-0.13618 0.0061 404

TABLE 28

ANALYSIS OF VARIANCE TABLE
RESPONDENT'S SEX AND
ENERGY BELIEFS

	Sum of Squares	Degrees Freedom	Mean Square	F-Ratio	Critical F (5% Level)
Between Groups	2.2543	1	2.2543	15.39	3.84
Within Groups	59.1688	404	0.1465		
Total	61.4231	405			

Tukey's Studentized Range Test, which gives direction to the differences found in the above statistical procedures, indicate that females score higher on the variable Energy Beliefs than do males (See Table 29, page 128).

TABLE 29

TUKEY'S STUDENTIZED RANGE TEST
FOR SEX AND ENERGY BELIEFS

Variable	Alpha Level	df	Critical Value	Minimum Sig.Dif.	N	Mean
Female	.05	404	2.780	0.0761	242	2.8876
Male					164	2.7357
Actual Difference						0.1519

Religiosity and Energy Beliefs

The religiosity of the respondent also shows significant correlation with respect to the primary variable Energy Beliefs. Verifying statistical investigation utilizing the procedure Analysis of Variance (See Table 30, page 129) also indicates a significant difference in Energy Beliefs when controlled for the respondent's religiosity.

TABLE 30

ANALYSIS OF VARIANCE TABLE
RELIGIOSITY AND ENERGY
BELIEFS

	Sum of Squares	Degrees Freedom	Mean Square	F-Ratio	Critical F (5% Level)
Between Groups	0.6227	1	0.6227	4.17	3.84
Within Groups	57.9625	388	0.1494		
Total	58.5852	389			

The F-Ratio of 4.17 which is above the Critical F of 3.84, indicates significance in the difference between the Energy Belief score means when religiosity is considered.

Tukey's Studentized Range Test indicates that those respondents religiously active score higher on Energy Beliefs than those not religiously active (See Table 31, page 130).

TABLE 31

TUKEY'S STUDENTIZED RANGE TEST
RELIGIOSITY AND ENERGY
BELIEFS

Variable	Alpha Level	df	Critical Value	Minimum Sig.Dif.	N	Mean
Inactive	0.05	388	2.780	0.0777	168	2.8677
Active					222	2.7870
Actual Difference						0.0807

Variables That Correlate With

Energy Practices

Marital Status and Energy Practices

The marital status of the respondent shows significant correlation with respect to the primary variable Energy Practices. Additional statistical support for this correlation was produced by utilizing the procedure, Analysis of Variance (See Table 32, page 131).

TABLE 32

ANALYSIS OF VARIANCE TABLE
MARITAL STATUS AND
ENERGY PRACTICES

	Sum of Squares	Degrees Freedom	Mean Square	F-Ratio	Critical F (5% Level)
Between Groups	1.5874	1	1.5874	15.85	3.84
Within Groups	40.4542	404	0.1001		
Total	42.0379	403			

The F-Ratio of 15.85, which is above the Critical F of 3.84, indicates significance in the difference between the Energy Practices score means when marital status is considered. Tukey's Studentized Range Test indicate that those presently married score higher on Energy Practices than those presently not married (See Table 33, page 132).

TABLE 33

TUKEY'S STUDENTIZED RANGE TEST
MARITAL STATUS AND
ENERGY PRACTICES

df	Alpha Value	Sig.Dif.	Critical N	Minimum Mean	Variable	Level
Married					61	1.2437
	0.05	404	2.780	.0864		
Unmarried					345	1.0687
Actual Difference						0.1750

Mother's Education and Energy Practices

The level of the education of the respondent's mother shows significant correlation with respect to the primary variable Energy Practices. Additional supporting statistical evidence was revealed by using the procedure Analysis of Variance (See Table 34, page 133).

TABLE 34

ANALYSIS OF VARIANCE TABLE - EDUCATIONAL ACHIEVEMENT OF RESPONDENT'S MOTHER AND ENERGY PRACTICES

	Sum of Squares	Degrees Freedom	Mean Square	F-Ratio	Critical F (5% Level)
Between Groups	1.2921	2	0.6461	6.40	3.00
Within Groups	40.1860	398	0.1010		
Total	41.4780	400			

The F-Ratio of 6.40, which is above the Critical F of 3.00, indicates significance in the difference between the Energy Practices score means when the respondent's mother's educational level is considered.

Tukey's Studentized Range Test indicates that those with mothers who have no more than a high school level of education higher on Energy Practices than those whose mother's have educational levels above high school (See Table 35, page 134).

TABLE 35

TUKEY'S STUDENTIZED RANGE TEST
EDUCATIONAL ACHIEVEMENT
OF RESPONDENTS' MOTHER
AND ENERGY PRACTICES

Variable[a]	Alpha Level	df	Critical Value	Minimum Sig.Dif.	Difference in Mean
Educ L-1 / Educ L-2	0.05	398	3.327	0.0060	0.0897
Educ L-1 / Educ L-3	0.05	398	3.327	0.0511	0.1654

a: L-1 = high school diploma or less education
L-2 = Above high school diploma but less than a baccalaureate degree
L-3 = Above a baccalaureate degree

Respondents' Home Community and Energy Practices

The size of the respondent's home community shows significant correlation with respect to the primary variable Energy Practices. Additional statistical evidence was revealed by utilizing the procedure Analysis of Variance (See Table 36, page 135).

TABLE 36

ANALYSIS OF VARIANCE TABLE - SIZE OF RESPONDENT'S HOME COMMUNITY AND ENERGY PRACTICES

	Sum of Squares	Degrees Freedom	Mean Square	F-Ratio	Critical F (5% Level)
Between Groups	0.8105	2	0.4052	3.96	3.00
Within Groups	41.0884	401	0.1025		
Total	41.8989	403			

The F-Ratio of 3.96 which is above the Critical F of 3.00, indicates significance in the difference between the Energy Practices score means when the size of the respondent's home community is considered.

Tukey's Studentized Range Test (See Table 37, page 136), indicates that those from smaller communities (2500 population or less) score higher on Energy Practices than those from large home communities (50,000 population or greater) however those with communities between these two extremes demonstrate no significant differences.

TABLE 37

TUKEY'S STUDENTIZED RANGE TEST - SIZE OF RESPONDENTS' COMMUNITY AND ENERGY PRACTICES

Variable	Alpha Level	df	Critical Value	Minimum Sig.Dif.	Actual Difference
Small ——— Large	0.05	401	3.327	0.0210	0.1318

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