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**SUBURBAN LAWNS: DIMENSIONS OF MEANING,
ACTIVITIES, AND ENVIRONMENTAL CONCERNS REPORTED BY
HOMEOWNING COUPLES IN GEORGIA AND MICHIGAN**

By

Lois Carol Shern

AN ABSTRACT OF A DISSERTATION

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ABSTRACT

SUBURBAN LAWNS: DIMENSIONS OF MEANING, ACTIVITIES, AND ENVIRONMENTAL CONCERNS REPORTED BY HOMEOWNING COUPLES IN GEORGIA AND MICHIGAN

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Mounting evidence points to detrimental effects to the environment and human health from the overuse and misuse of fertilizers and pesticides. Of increasing concern in the United States is the use of these chemicals on the lawn.

A biohistorical, ecological conceptual approach provided the framework for pursuing the objectives of the study. Differences and commonalities of meaning, use, and care of the suburban lawn were explored through in-depth interviews with husbands and wives who currently used or did not use a chemical lawn care service. Responses revealed many commonalities and few differences between spouses, geographic location, and chemical lawn service use-nonuse. They support the view that contemporary American values, attitudes, and practices regarding the lawn are deeply rooted in historical antecedents and unquestioned by homeowners.

Very few family activities were reported occurring on the lawn. The primary activity related to the lawn was maintenance. Respondents value their lawns for aesthetic, psychological, normative, and economic reasons. A lawn is considered a source of beauty, pleasure, and economic value; an integral part of one's home, sending a clear message to others about the kind of people who live

Lois Carol Shern

in the house. Respondents consider the use of lawn chemicals to be necessary to maintain an ideal lawn. The use of lawn chemicals is not perceived as a threat to the environment because one's lawn is so small and minimal amounts of chemicals are used. None of the respondents had ever considered their lawn as a potential source of environmental pollution.

A second objective of this study was to determine homeowners' reactions to protective clothing and equipment that could be worn when applying pesticides. Respondents did not perceive a need to wear protective clothing themselves. However, while respondents viewed the respirator and the total protective clothing outfits as "scary," when asked what a lawn service technician should wear, the majority of them chose outfits affording maximum protection. Respondents reasoned that these employees worked with chemicals for extended periods of time and should be protected.

Recommendations and implications for further research and educational efforts are addressed.

TO

My Mother, Carolyn Rem Jacobson

**for instilling in all of us a love of learning,
love for one another, and love for the Lord.**

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CHAPTER I

INTRODUCTION

Public concern about the environment has evolved sporadically and slowly over the past quarter century. Growing world population, finite natural resources, and technological advances that offer both benefits and risks are creating an increasing awareness that environmental deterioration is accelerating and portends serious problems for future human life (Brown, 1981; Milbrath, 1989). Recent environmental accidents, such as oil spills, water contamination from toxic chemicals, and nuclear accidents are directly impacting the lives of individuals. There is a growing realization that everyday human activities, when multiplied by millions, have a profound, irreversible effect on the natural environment.

Iozzi (1989) states that environmental problems are largely social problems. Advances in science and technology cannot solve the environmental crisis without taking in consideration the mediating effects of existing societal attitudes, values, and lifestyles. Devall and Sessions (1985), two leaders in the deep ecology movement, describe the continuing environmental crisis as a crisis of character and of culture.

Environmental issues and problems demand that society choose from among various alternatives what "should" be done, not just what can be done.

A critical ingredient of the cultural orientation of people toward their environment is the values that form part of their world view (Hutterer & Rambo, 1985).

Americans share a strong anthropocentric tradition in western culture that views humans as being apart from nature and somehow immune from ecological constraints. This set of values and beliefs has been called the Dominant Social Paradigm (Pirages & Ehrlich, 1974). This paradigm entails the belief that resources are limitless, continuous growth and progress are necessary and good, science and technology will solve all problems, and private property and a laissez-faire economy are inalienable rights.

There is increasing evidence to suggest that there is a paradigmatic shift occurring in the orientations of Americans toward the natural environment. Dunlap and Scarce (1991), in a detailed review of all known longitudinal data, reported that public concern for the environment has "reached an all-time high...a growing majority of Americans see environmental problems as serious, worsening, and increasingly threatening to human well-being" (p. 657). While the strength of this environmental concern remains unclear, this trend offers additional support for the idea that a new environmental paradigm is steadily growing.

Dunlap and Van Liere (1978) were among the first to identify the New Environmental Paradigm. This alternative set of beliefs and values asserts that

restricting growth is desirable and the integrity of ecosystems must be protected. It rejects the anthropocentric notion that nature exists solely for human use. However, a 1990 Roper survey (Miller & Keller, 1991) reported that 6 in 10 Americans said that protecting human health from pollution is one of the most important reasons for protecting the environment. About 4 in 10 believed that protecting natural resources for future generations is one of the best reasons. When asked which one, human health or ecology, is the major reason for protecting the environment, nearly three-quarters said it was to protect people's health.

An important environmental health issue is that of the safety of chemicals. In the past 25 years, concern has arisen around the world over the extent to which chemicals in the environment are affecting human health. Humans are exposed to thousands of environmental chemicals and their short-term and long-term impact on health, reproduction, and development are poorly understood (Blair, 1989; Dunnette, 1989; Huff, 1993).

The publication of Silent Spring by Rachel Carson (1962) alerted the public to the fact that pesticides were affecting nontarget organisms and damaging the natural environment. Dunnette (1989) states that "community public health risks from exposure to environmental chemicals appear to be small relative to other public health risks..." (p. 169). Yet a growing number of human exposure studies document acute and chronic health problems resulting from pesticide exposure and the need to explore the consequences of their continued use (Davis, Brownson, Garcia, Bentz, & Turner, 1993; Fenske et al., 1990; Geiger, 1993;

Jeyaratnam, 1990; Olson, Sax, Gunderson, & Sioris, 1991; Savage et al., 1988).

American farmers have long believed that chemicals, e.g. fertilizers and pesticides, are beneficial to agricultural production. However, the nonfarm public appears to be more likely to focus on the perceived risks of chemicals rather than the benefits. An area of growing concern is the use of chemicals for lawn care.

Strong voices are heard addressing both sides of the chemical lawn care use issue. In many issues dealing with opposing viewpoints, a resolution evolves from the analysis of facts. However, as with so many environmental issues, here the facts only seem to confuse. Environmental activists and pesticide advocates interpret scientific data (often the same data) to support their particular viewpoint. Currently the U.S. Environmental Protection Agency has been charged with the task of weighing data from both sides and trying to effect some resolution that protects public health while allowing chemicals to be used on lawns.

The main purpose of this study is to explore and further the understanding of the meanings and values American homeowners hold regarding the lawn and what actions they take with regard to the use of lawn care products and services. A second goal is to investigate the perceptions of homeowners with regard to protective clothing which can be worn when applying lawn pesticides.

Background of the Problem

The single-family detached home is still the residence of choice for most Americans (McAndrew, 1993). Cultural and aesthetic perceptions of the

landscape place real and perceived benefits on a green, weed free residential lawn. This grassy expanse surrounding the house is viewed as providing a setting for the home, linking together the trees, shrubs, and flower beds, as well as the surrounding neighborhood yards, into a harmonious whole. It also provides an open expanse on which family outdoor activities can take place.

The yard, with its grass, trees, shrubs and flowers, is a homeowner's personal piece of nature. For some, this setting may fulfill an emotional need for peace and tranquility. It can provide a refuge from the congestion and crowding of the city. For others, the manicured, green grass is viewed as symbol of status and class.

Whichever the case may be, Americans lavish time, attention and money on keeping their lawns green, thick, and weed free. If a homeowner does not have the time to care personally for the lawn, a lawn care company can be hired to do the job. The use of chemicals to produce healthy (disease free) and attractive lawns, trees, and shrubs is commonplace. It is estimated that the average American homeowner uses ten times more chemicals per acre than do farmers (U.S. Senate, 1990).

The studies that have looked at residential homeowners' use of lawn chemicals report that individuals seldom use any kind of safety precautions (Grieshop & Stiles, 1989). Rarely do homeowners report using any kind of protective clothing or equipment.

The use of protective clothing and equipment has been recognized as a major strategy for protecting workers from chemical exposure since the 1970's.

A new EPA regulation issued in 1992 to limit exposure of agricultural workers to pesticides mandates that employers must train workers to use protective equipment, like gloves or goggles. Recommendations listed on the product label in regard to personal protective equipment (PPE) are to be used to guide the choice of what is to be worn. Currently the new rules do not apply to government-sponsored pest control, home gardens or lawns, or the lawn care industry. Many lawn care companies use various kinds of personal protective equipment but there are no industry wide standards. A Canadian study of homeowners reported that there was significant reduction in exposure to the herbicide 2,4-D by wearing protective clothing but few wear it (Harris, Solomon, & Stephenson, 1992).

Today's residential lawn may well be a suburban family's most direct interaction with nature. In an age of increasing concern related to the natural environment, residential homeowners holding the traditional American values related to lawns and landscape may find themselves in an uncomfortable situation. The need to use a wide array of chemicals and precious water to maintain the idealized American lawn is at odds with the growing environmental and health related concerns about pollution and the use of limited natural resources. In a recent Better Homes and Gardens survey, 62% of more than 10,000 respondents reported that they were cutting back on lawn chemicals in order to help the environment (Cooper, 1994).

It is recognized today that human actions are causing many global environmental changes (Turner, Clark, Kates, Richards, & Mathews, 1991).

Stern, Young, & Druckman (1991) write that global environmental change matters to people because it has the potential to harm what they value. Stern and his colleagues identify two main classes of responses that people make in anticipation of environmental change

Mitigation which includes all actions that prevent, limit, delay or slow the rate of undesired impacts by acting directly or indirectly on environmental systems. For example, they can intervene directly in the proximate causes of global warming by limiting the use of certain nitrogen fertilizers to reduce nitrous oxide emissions. And adaptations which are responses that do not alter the rate of environmental change but limit the effect on what people value. For example, the use of a drought resistant crops so that if climate change produces drought, crop failure and famine do not result (p. 105).

Stern (1992) argues that the consequences of global change depend upon how society changes while its environment is changing. How society changes depends on individual responses.

Rationale

In order to understand how to encourage environmentally responsible behavior, it is necessary to identify factors that influence the behavior. Identifying attitudes, perceptions, and actions of homeowners with regard to the residential lawn and exploring beliefs that underlie lawn-environment-chemical attitudes can provide valuable insight into the perceived meanings and values that individuals associate with their lawns. An awareness of these perceived meanings may lead to an understanding of why individuals and society find the ideal lawn so important and highlight the impact that individual actions can have on both local and global environmental problems.

Meanings, beliefs, and values are incredibly difficult to define and quantify but they are at the heart of this investigation. Friedel (1993) suggests that there are some fairly clear sources for many values. These include scarcity, functionality, aesthetic appreciation, and association. In this study aesthetic appreciation and associative qualities have been identified as being of primary importance to understanding the value placed on the lawn. For a variety of reasons people make associations between an object, in this study the lawn, and various feelings, beliefs, concerns, and attitudes. Coming to understand these associations, which are rarely stated, includes a historical approach as well a systems perspective.

Biohistory: A Conceptual Framework

Understanding the human causes and consequences of environmental change requires a systems perspective which allows a researcher to consider the full physical, social, and psychological environmental context of a situation while trying to understand the specifics of a unique experience. This approach offers a means by which the researcher can attempt to clarify the reciprocal interactions between smaller and larger systems so that influences from both directions can be considered.

Ecosystem models propose that larger systems provide a context, meaning, and significant influence for the subsystems which are part of the larger system. Interactions of the systems and subsystems illustrate the interdependence of parts and wholes and the influence that system components have on the greater whole.

Human ecology is concerned with interaction and interdependence of humans with the environment (Bubolz & Sontag, 1993). Boyden (1979) states that

the aim of human ecology is to improve understanding of the patterns of interaction between different aspects, or components, of human situations, and thus to contribute to the ability of societies to formulate prudent and effective policies for the future (pp. 11).

This study will utilize the biohistorical approach to studying the interrelationships between human beings and the other components and processes of the ecosystem. This approach has been used by Boyden and his colleagues in UNESCO's Programme on Man and the Biosphere (Boyden 1970, 1979, 1986, 1987, 1992; Boyden, Dovers, & Shirlow, 1990; Boyden, Millar, Newcombe, & O'Neill, 1981). Biohistory provides a rational framework for integrative research on human situations, all of which involve continual interplay, over time, between cultural and biophysical processes, and all of which are the product of such interplay in the past. Boyden emphasizes the importance of historical data in order to achieve a sense of perspective and an understanding of how events in the past influence the realities of today.

This framework, while being concerned with the properties of the whole system, also focuses attention of the life conditions and well-being of the individual human being. The two main orientations of this approach include (a) interrelationships between the biosphere and society and (b) interrelationships between humans and society.

Interrelationships between the Biosphere and Society

Humans live in a biosphere (nature) made up of the atmosphere, soil, energy from the sun, plants, animals, water. Human culture has grown out of, interacted with, and is totally dependent upon the biosphere. Boyden presents a subset of variables (Figure 1, center) that can be combined in two ways.

Boyden uses the terms Human Society and Nature (Figure 1, top) to describe the sub-sets of variables from his first perspective. In this perspective, Human Society includes all institutions and organizations, artifacts or products of labor, societal arrangements, societal activities as well as the products of culture such as knowledge, technology, belief and value systems, and societal aspirations. Human Society, in turn, impacts on the various kinds of biological or natural systems, the Biosphere.

The interrelationships between the Biosphere and Human Society include flows of energy, renewable and non-renewable resources, organic and inorganic wastes, and the impacts of societal activities on soil, the atmosphere, the oceans, and on populations of plants and animals. These are identified as biometabolism (organic material and energy that flow through humans themselves), technometabolism (inputs and outputs of materials and energy that result from technological process), and other (energy from things like volcanoes).

Boyden then takes the same sub-sets of variables that comprise Nature and Human Society and changes their orientation by combining them in a different manner (Figure 1, bottom labels). Abstract Culture is defined as the intangible aspects of human situations comprising culture and cultural arrangements.

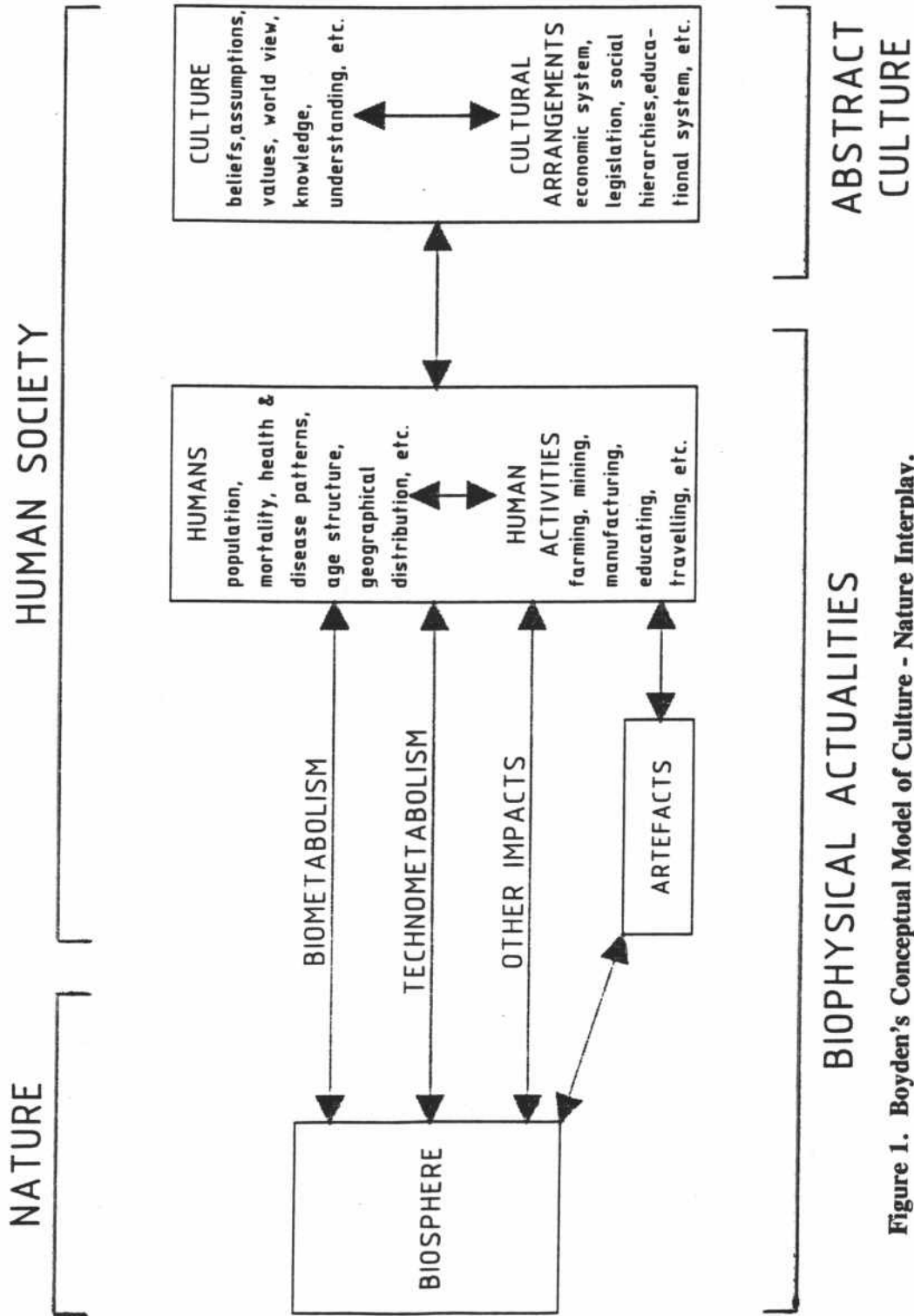


Figure 1. Boyden's Conceptual Model of Culture - Nature Interplay.
Boyden, S. (1992). *Biohistory: The interplay between human society and the biosphere*.
Paris France: UNESCO and Park Ridge, NJ: Parthenon Publishing Group. (p. 98).

Culture includes beliefs, assumptions, attitudes, and values. Cultural arrangements include such things as the economic, political, and institutional structures of humans. Biophysical Actualities include all other aspects of the system, including the ecosystems and organisms of the biosphere, human artifacts, and humans themselves and their activities.

Abstract Culture and Biophysical Activities are linked in many ways. For example, the value system of a society has important connections with its economic and political arrangements, and these in turn influence human activities which then have impacts on the biosphere.

Interrelationships between Humans and Society

The second focus of Biohistory is on individual humans (or groups of humans) and their experience of life. The life experience of humans can be viewed as being made up of two sets of variables: total environment and human experience (Figure 2).

Individuals can be regarded as being separated from the total environment by a series of filters which determine what aspects of the total environment impinge directly on them and become part of their immediate environments. These filters may be cultural or economic.

Human experience includes life conditions and the biopsychic state. Life conditions include the personal (immediate) environment and the behavior pattern. The immediate environment is that part of the total environment which impinges directly on individuals and which is experienced directly by them. The immediate environment includes both material variables (e.g., air quality, noise

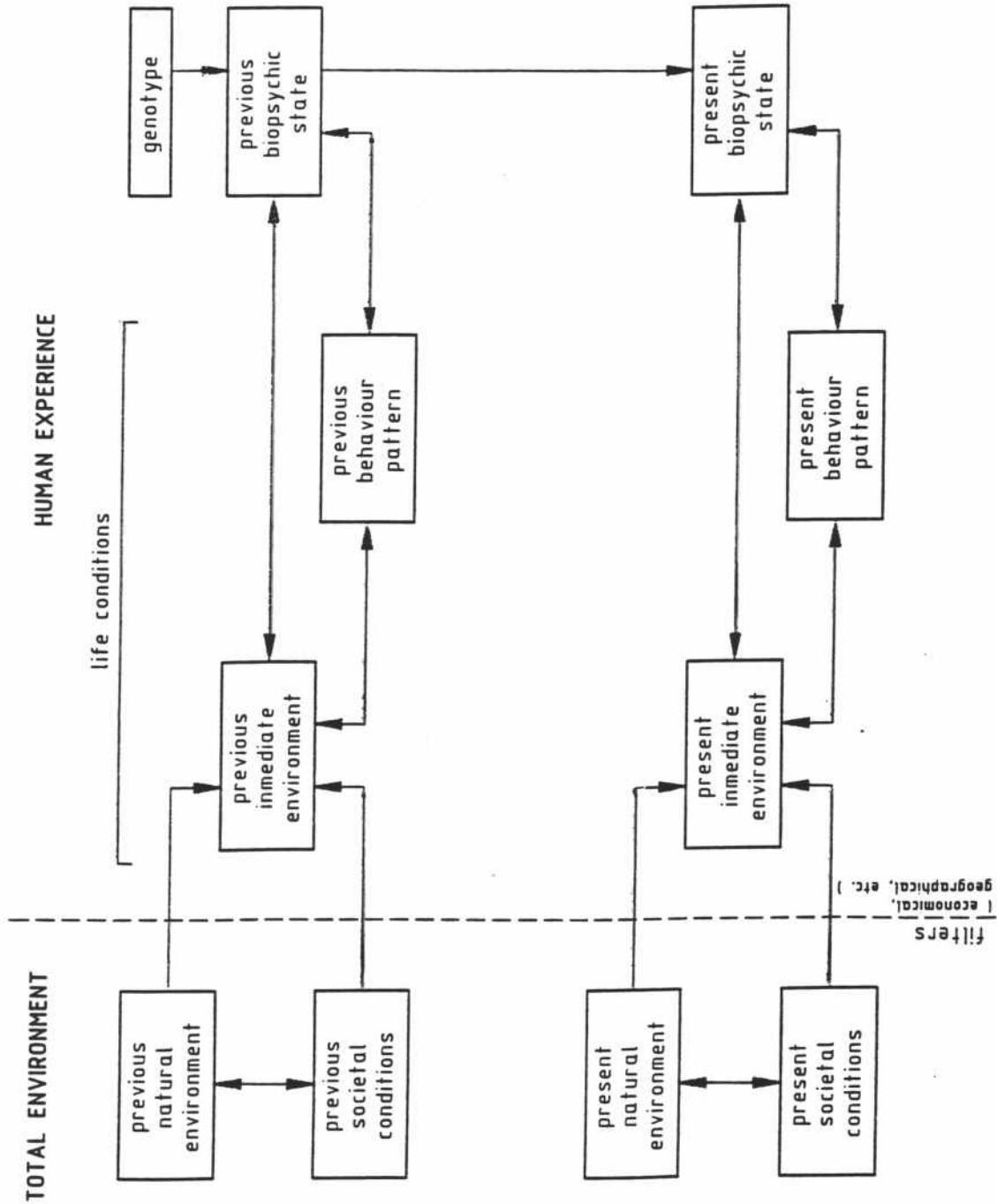


Figure 2. Boyden's Presentation of Interrelations between Total Environment and Human Experience. Boyden, S. (1992). *Biohistory: The interplay between human society and the biosphere*. Paris, France: UNESCO and Park Ridge, NJ: Parthenon Publishing Group. (p. 101)

levels) and psychosocial and intangible variables (e.g., family support, messages from society). The behavior pattern is what people do and how they spend their time (e.g., physical work, social interaction, creative behavior). Both real life conditions and perceptions of the components of life conditions have important influences on the biopsychic state. The properties of the total environment also have great influence on human experience.

The biopsychic state, short for biological and psychological, is the actual state of body and mind of individuals at any given time. It incorporates all aspects of the human organism that comprise health and well-being; and it includes both tangible or measurable variables (e.g., blood pressure, body weight) and intangible variables (e.g., sense of personal involvement, pride, feelings of fulfillment). It also includes knowledge and understanding, aspirations, and values. The biopsychic state of an individual is a function of genetic constitution and previous and present life conditions.

Interrelationships between Nature, Culture, and the American Lawn

The interrelationships between nature, culture, and the ideal American lawn will be explored in this study. Grass is a living, growing natural organism that requires nutrients from the soil, atmosphere, energy from the sun, and water. The ideal American lawn, which is comprised of an emerald green, thick, weed free, monoculture grass is an artifact of Human Society. It one of a special class of resources designed and constructed by humans and invested with meaning and symbolic and aesthetic value. In order to maintain the culturally desirable American lawn, substantial amounts of chemicals, water, energy, time, and

money must be expended. Many human activities are necessary to maintain the lawn. Cultural beliefs and values, as well as economic, legal, and social arrangements support its continuing existence. Cultural and economic filters play an important role in determining interactions with the lawn. People who live in apartments generally do not worry about mowing a lawn. In some cultures, walls rather than grass, separate houses from the street.

In American culture the lawn is part of the immediate natural environment which impinges directly on individuals and is experienced directly by them. Human activities related to the lawn influence, for better or worse, the biosphere.

Life conditions related to the lawn include variables such as climate, topography, and water, air, and noise quality. Psychosocial intangible variables include societal and neighborhood norms and cultural messages about the importance of the lawn. Behavior patterns encompass activities related to lawn care and family activities that take place on the lawn.

Both real life conditions and perceptions are important influences on the biopsychic state of an individual. The biopsychic state is influenced by the lawn in both physical and mental ways. Physical variables can include rest and relaxation as well as illness from strained muscles or pesticide exposure. Mental variables can include pride in the lawn, fear of ridicule, a need to belong, appreciation of nature, perceptions of costs and benefits, and preferences related protective clothing. Knowledge and values are important components of the biopsychic state.

Research Objectives

This research is qualitative in nature and as such the objective is not to test hypotheses. The objectives of the research are to:

- 1. Identify Georgia and Michigan suburban homeowners' activities related to lawn maintenance and family use and perceived meaning of the lawn.**
- 2. Compare spousal lawn activities and perceived meaning of the lawn.**
- 3. Explore homeowners' beliefs about environmental and health concerns related to the use of lawn chemicals.**
- 4. Investigate the role of clothing as a nonverbal clue in the perception of danger related to the use of lawn chemicals.**

Research Questions

The research questions for each objective are stated below:

Research Question for Objective 1:

Are there differences and commonalities between Georgia and Michigan homeowners with regard to (a) demographic characteristics, (b) lawn maintenance activities, (c) family usage activities, and (d) perceived meaning of the lawn.

Research Question for Objective 2:

Are there differences and commonalities between spouses with respect to (a) lawn maintenance activities and (b) perceived meaning of the lawn.

Research Question for Objective 3:

What kinds of environmental and health concerns do homeowners have regarding the use of chemicals on their lawns?

Research Questions for Objective 4:

- 1. Do homeowners view any particular type of clothing or personal protective equipment as a nonverbal clue signaling danger about the products and services being used?**

2. What kind of clothing would a homeowner choose for a lawn care technician to wear when applying pesticides?

3. Does clothing worn by lawn care applicators influence the overall perception of the lawn care company?

Theoretical Definitions

Ideal American Lawn. An area of ground surrounding a house on which is grown a weedfree, thick, green, monoculture grass that is kept mowed to a prescribed height.

Pesticides. Chemicals that can kill organisms that humans consider to be undesirable. Pesticides include herbicides that are used to kill undesirable plants (weeds), insecticides that are used to kill undesirable insects, fungicides that are used to kill unwanted fungi, and rodenticide which are used to kill undesirable rodents.

Operational Definitions

Operational definitions were developed at several stages in the research process, some at the inception of the study and others as categories emerged.

The interview guide questions were considered just that, a guide. They provided a departure point for discussion. In analysis, all responses that fit a particular category were included even if they did not occur at the point in the interview where the question was asked.

Environmental Concerns. A person's responses to the Environmental Scale (Appendix A-III, Q. 8) and questions related to environmental concerns (Appendix A-III, Q. 9, Part B, C, D).

Family Activities. A person's responses to the question, "What kind of activities take place on your lawn?" (Appendix A-III, Q. 2).

Health Concerns. A person's responses to the Health Scale (Appendix A-III, Q. 9) and questions related to concerns about pesticides and health (Appendix A-III, Q. 9, Part A).

Lawn Maintenance. A person's responses to the question "What do you, yourself, do to take care of the lawn?" (Appendix A-III, Q. 3).

Perceived Meaning of the Lawn. Perceived meaning of the lawn includes six domains that reflect a person's beliefs, values, attitudes and actions with regard to the lawn that emerged primarily from responses to questions 1, 2, 3, and 4 (Appendix A-III).

Assumptions

The assumptions underlying this research are:

- 1. Qualitative research is an adequate and appropriate method for gaining insights into people's actions and subjective perceptions, preferences, and feelings.**
- 2. Individuals will truthfully report their preferences, actions, and perceptions with regard to the lawn.**
- 3. It is likely that there are differences between attitudes, perceptions, and activities of husbands and wives which preclude considering the couple as a single unit for analysis.**
- 4. There is variation among individuals and groups as to the perceptions of advantages and disadvantages associated with the use or nonuse of products and services necessary for maintenance of the lawn.**