INFORMATION TO USERS

The most advanced technology has been used to photograph and reproduce this manuscript from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book. These are also available as one exposure on a standard 35mm slide or as a 17" x 23" black and white photographic print for an additional charge.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

U·M·I

University Microfilms International
A Bell & Howell Information Company
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
313/761-4700 800/521-0600

Order Number 9009785

The Environmental Contaminants Education Project

Soine, Lynne, D.S.W.

City University of New York, 1989

U·M·I
300 N. Zeeb Rd.
Ann Arbor, MI 48106

THE ENVIRONMENTAL CONTAMINANTS EDUCATION PROJECT

by

LYNNE SOINE

A dissertation submitted to the Graduate Faculty in Social Welfare in partial fulfillment of the requirements for the degree Doctor of Social Welfare, The City University of New York

1989

This manuscript has been read and accepted for the Graduate Faculty in Social Welfare in satisfaction of the dissertation requirement for the degree of Doctor of Social Welfare.

9/5/89
Date

Harold I. Weissman
Chair of Examining Committee

9/5/89
Date

Harold I. Weissman
Executive Officer

Dr. H. Weissman

Dr. R. Salmon

Dr. R. Donovan
Supervisory Committee

The City University of New York

Abstract

THE ENVIRONMENTAL CONTAMINANTS EDUCATION PROJECT

by Lynne Soine

Advisor: Professor Harold Weissman

The Environmental Contaminants Education Project is comprised of two major components. One component consists of the development of the Environmental Contaminants Curriculum Package which presents four pre-tested curriculum modules integrating environmental contaminants content into the foundation curriculum areas of social work education. The development of this curriculum package is intended to expand the conceptualization of the physical environment in social work, advancing the ecological approach to professional practice. Concomitantly, the curriculum package provides the means to operationalize an expanded concept of physical environment by including complete curriculum for use in social work practice courses, social policy courses, and human behavior courses.

The second major component of this project is the development of the Marketing Model for Curriculum Innovation Implementation. Integrating marketing theory and curriculum innovation implementation theory, this model addresses the problem of limited implementation of curriculum innovations. The model was used to implement the Environmental Contaminants Curriculum Modules in a school of social work, demonstrating that curriculum updating, especially in areas of critical and current concern to the profession, can be achieved. The evaluation of the model documented its effectiveness and provided guidelines for further research towards increasing the usefulness of the marketing model for implementing curriculum innovations.

THE ENVIRONMENTAL CONTAMINANTS EDUCATION PROJECT

TABLE OF CONTENTS

CHAPTER 1
INTRODUCTION

Updating a profession is both necessary and difficult. Professions depend on a knowledge base which is unique and shared by members of that profession. The knowledge base needed to enter a profession is presented in the course work required of students in the foundation curriculum. To update a profession, therefore, change in the foundation curriculum is necessary. While such change will not, in and of itself, culminate in a complete update of a profession, it insures that newly entering members will possess the most current, relevant knowledge. Thus begins a process of updating a profession; a process that is so difficult it is rarely undertaken in any regular or systematic way.

The need to update professions emanates from several sources. Societal changes may lead to the need to update a profession. New knowledge, produced almost daily in the post-industrialized society, may lead to the need to update a profession. In some instances, the experiences of practitioners of a profession lead to the need to update that profession. Regardless of the origin of the need to update a profession, all professions face the fact that an ever-changing world places demands on professional practitioners to change accordingly. No profession is exempt from this challenge; nor have any succeeded in meeting it completely.

Evidence that professions recognize the need to update can be found in the burgeoning area of continuing education. Recognizing that emerging knowledge is important, some professions now require practitioners to participate in continuing education activities in order to retain their licenses. Such activities must be sanctioned and provide professional practitioners with the opportunity to keep current

in their field. The requirement to complete a designated number of continuing education units is one way of updating practicing professionals. Without concomitant updating of the core foundation curriculum for entering professionals, however, this is insufficient to assure the update of a profession.

Resistance to updating a profession can be strong. First and foremost, updating involves change. There is inherent resistance to change at every level required to update a profession. Members of the profession depend upon mastery of the knowledge base to assure their expertise and credibility. Practitioners and educators alike are comfortable and secure in the belief that they are experts. Introducing new content areas that neither educators nor practitioners are familiar with challenges the claim to complete professional expertise.

In addition to resistance from members of a profession, resistance from the organizations that underpin the profession can be expected. Professional schools typically have well-established curricula which serve as the major organizing frameworks for the selection and deployment of faculty. Accrediting organizations for professional schools also have well-established curricula mandates and guidelines defining the common knowledge base required for entry into the profession. Introducing new content areas into the professional curriculum challenges the comfortable status quo that most schools have achieved.

In many cases, updating a profession invovles a change in the paradigm that underpins the profession. A paradigm change in the social work profession was begun by Germain and Gitterman (1981), who introduced an ecological practice model. With emphasis placed on both the physical and social environment in the ecological model, a paradigm change, requiring concomitant curricula change, is already underway. Kuhn's work related to paradigm change reflects the

resistance inherent in such an effort (1970). Emphasizing paradigm change as a process, Kuhn notes:

> ...scientific revolutions are inaugurated by a growing sense, again often restricted to a narrow subdivision of the scientific community, that an existing paradigm has ceased to function adequately in the exploration of an aspect of nature to which that paradigm itself had previously led the way. (1970:92)

Once initiated, the process of paradigm change depends upon the opportunity for "persuasive argumentation" among a "community of scientists" (Kuhn, 1970:94). In the process of this professional debate, the values of those members of the profession who must be persuaded to accept paradigm change are preeminent. Kuhn states:

> ...one must understand...the manner in which a particular set of shared values interacts with the particular experiences shared by a community of scientists to ensure that most members of the group will ultimately find one set of arguments rather than another decisive. (1970:100)

It is evident that updating a profession requires careful consideration of, and attention to, potentially lethal resistance. Any planned change in a profession's knowledge base must proceed in accord with the profession's values, commitments, and purposes. Concomitantly, such change must be perceived and accepted by members of the profession as both positive and productive.

UPDATING THE SOCIAL WORK PROFESSION: INCLUSION OF ENVIRONMENTAL CONTAMINANTS CONTENT

The need to update the social work profession to include content about the increasingly contaminated physical environment is based on both the values and commitments of the profession and changes in the nature, number, and knowledge of environmental contaminants. Through recent efforts of social work scholars, the

physical environment has been identified as a necessary component of the profession's concern. Germain and Gitterman have advanced an ecological approach to professional practice which specifically includes the physical environment (1981). Since social workers' primary focus is "at the interface of transactions between people and environments" (German, Gitterman, 1981:44), the need to include the physical environment in the preparation and practice of professional social workers is evident. Less evident, however, is the range and scope of knowledge necessary to prepare social workers to include the physical environment in their preparation and practice.

The physical environment is comprised of many components. Germain delineates, "...two layers, the natural world and the built world, and two textures of physical space and time" (1981:325). Each of these components of the physical environment can be fully defined, researched, and integrated into social work preparation and practice. As the ecological approach to professional practice advances, more and more attention to these aspects of the physical environment can be anticipated. One aspect which demands attention immediately is the increasing chemical contamination of the air, water, and land in today's physical environment. Urgency is indicated both by the pervasiveness of such contamination and the prevalence of adverse affects on human health and well-being which are documented daily in contemporary society.

While the physical environment is full of potential hazards which threaten human health and well-being, one category of hazards responsible for overwhelmingly adverse affects is chemical contamination. Introduced into the environment by a variety of sources from large industrial operations to average homeowners, chemical contaminants are pervasive in the land, water, and air that people encounter daily. Almost eight years ago, the Department of Health and Human Services warned that the lack of training in the area of environmental health

was a serious problem requiring curricula changes such, "that by 1990 health professionals will be receiving training in the health consequences of environmental exposure to toxic agents" (p. 36).

More than four years ago, in December 1984, worldwide attention was focused on the growing threat of environmental contamination as more than two thousand people were killed in Bhopal, India, from toxic gas released into the atmosphere. Far from an isolated incident, this crisis was, however, one of the most major contemporary environmental disasters to date. Less extreme, but equally devastating, daily reports of environmental contamination are now commonplace. Poisonous clouds blow over cities making people ill. Cancer-causing chemicals are discovered in drinking water. Pesticides are found to have penetrated peoples' homes, rendering them uninhabitable. The list is endless and each example reflects harm to human health and well-being.

The increasingly contaminated physical environment poses threats to human health and well-being at many levels. At one level, there is direct physical damage which can occur from exposure to toxins, resulting in a variety of neurological, endocrinological, cardiovascular, and other physiological symptoms. Oftentimes, there are behavioral or mental health effects which accompany these physiological effects. At still another level, there are social effects which accrue from actual or suspected exposure to environmental contaminants. In summing up the complexities of the impact of contaminants on mental health, Rene Dubos states:

> The effects of environmental pollution and degradation on mental health are difficult to document, not because they are minor, but because they are ill defined and...range from the fairly direct damage done to the nervous system by toxic substances...to the indirect and delayed consequences of the misguided adaptive responses made...to traumatic environmental situations (Williams *et al.*, 1973:iv).

Thus, while it is clear that environmental contaminants are often causally related to physical, mental, and social dysfunction, it is not clear how each contaminant effects each individual. Research in this area is relatively recent and sparce. A 1977 United States Government publication, Human Health and the Environment, noted that some heavy metals, pesticides, organic solvents, and carbon monoxide are environmental hazards for which behavioral and neurologic toxicity is known (United States Department of Health and Human Services, 1977:331-334). Furthermore, the document suggests that mental health workers "should explore CNS [central nervous system] toxicants as the possible source of common behavioral symptoms" (332). In 1980, the United States Department of Health and Human Services published Promoting Health/Preventing Disease, stating that, "new evidence unfolds regularly, revealing previously unsuspected associations between specific environmental agents and diseases" (32). Thus, while sufficient evidence exists to consider the increasingly contaminated environment as hazardous to human health and well-being, insufficient information is available to fully document the exact effects of each contaminant.

In light of the mounting evidence of adverse physical, mental, and social consequences of environmental contaminants, it is only logical for the social work profession to take the next step in fulfilling its commitment to help people in transaction with their environments. As stated by the Director of the Environmental Health Project at the State University of New York at Stony Brook's School of Social Welfare:

> The need to extend the conceptual and empirical boundaries of professional education and practice to include the emerging new knowledge from the field of environmental science is a professional imperative for a profession that prides itself on its concern with the environment of the people it serves. This seems increasingly appropriate when it is realized that exposure to toxic materials is systematically higher among lower income workers, Blacks, and the poor. (Lefferts, 1982:13)

Crucial to the effort to update the profession of social work to include recognition of the contaminated enviroment is the identification of those conditions contributing to the current lack of attention to this issue. First, it is clear that the contaminated environment has not yet been acknowledged as a major social problem. Despite the plethora of evidence available to document the problem, other prerequisites to "social problem" status have not occurred. The media has not chosen to clearly and consistently portray environmental hazards as a critical concern. Concomitantly, public perception has not yet formed any firm position in relation to environmental contamination. Reasons for the lack of a clearly articulated public position against environmental contamination are varied. Such a position implies the willingness to accept the consequences of advocating for a clean environment, especially the economic consequences. As noted recently by Verespej in an industry publication,

> It's not that we're stupid,... It's just that American decision-makers -- whether in industry or government -- have made a conscious decision to make decisions on hazardous wastes based primarily on economics (Finsterbusch, 1982:205).

Along with the conflict raised by the economic factors involved in advocating for a cleaner environment, many people feel that nothing can be done; that the contamination is so pervasive that efforts to redress it are futile. These factors impede acknowledgement of environmental contamination as a major social problem and help to explain the profession's inattention to this issue. With clearly agreed-upon social problems such as childhood sexual abuse and homelessness facing the profession, it is easy to see why environmental contamination has not yet become a priority of the profession.

Another condition contributing to the lack of social work attention to the issue of the contaminated environment is the complexity of the issue itself. There

are more than 63,000 chemicals currently in use in this country, and countless other sources of actual or potential contamination are documented daily. It is only recently that regulatory agencies, scientists, the public, and industry have begun to investigate the potential danger to the health and welfare of people posed by the growing list of contaminants. Thus, this aspect of the issue is overwhelming: there are more contaminants than can even be counted, named, and researched at this point. Complicating the matter beyond comprehension is the knowledge that there are interactive effects among many contaminants, producing even greater threats to human health and well-being. Investigation of the interactive effects of environmental contaminants is only in its infancy, impeded by the lack of fundamental knowledge about each of the contaminants as a prerequisite to understanding their impact in combinations.

Another aspect of the complexity of the issue of environmental contamination is the lack of scientific, causal data demonstrating the exact impact of contaminants on human beings. The emerging evidence is often at a correlational level which has been insufficient to influence regulatory change, industrial change, or professional change. Furthermore, this lack of precise knowledge about the bio-psychosocial effects of contaminants leads to a lack of clarity about expected symptomatology. Physicians, nurses, psychologists, and social workers use "presenting problems" and "symptoms" as the basis of assessment which informs their decisions about intervention. Without precise knowledge of the symptoms or presenting problems to be expected from exposure to specific contaminants, helping professionals are severely handicapped. Concomitantly, the absence of clearly identified physical and mental consequences of environmental contaminants contributes to the complexity of preparing helping professionals to begin to address the issue in either education or practice. Thus, the overall complexity of the issue of environmental contamination

and its consequences is a real barrier to its incorporation into the profession of social work.

A final contributing condition that inhibits social work attention to the issue of environmental contamination derives from the conditions described previously. The lack of social problem status combined with the complexity of the issue of environmental contamination renders it difficult to develop appropriate curriculum for use in preparing professional social workers. Answers to questions about the appropriate content, depth and breadth of coverage, and location of content in overall curriculum are clearly prerequisites to updating the profesison to include attention to environmental contaminants. Finally, once developed, environmental contaminants curriculum must be used by social work educators in the classroom in order to begin to fulfill the goal of updating the profesion.

The Environmental Contaminants Education Project has been designed to begin the process of updating the professional social work foundation curriculum. The Project addresses the two necessary tasks: developing appropriate curriculum and designing a process to persuade social work educators to integrate the environmental curriculum into their courses. Experiences in implementing curriculum change suggest that the more difficult task of the two is to secure the support and commitment of those individuals who will actually teach the curriculum in the classroom (Leithwood, 1981). The Project begins by reviewing relevant literature from the field of organizational change. This review is presented in Chapter Two. Chapter Three presents a model for implementing environmental contaminants curriculum which is based on marketing. Subsequent chapters describe and analyze the empirical test of the marketing model for the implementation of environmental contaminants curriculum. The concluding chapter discusses the potential usefulness of marketing models for the implementation of other curriculum

innovations, contributing to more effective means to update curricula in professional schools of social work.

CHAPTER 1: REFERENCES

Germain, C.B., Gitterman, A. (1981) "Education for practice: Teaching about the environment" Journal of Education for Social Work, 17:3, 44-51.

Germain, C.B. (1981) "The ecological approach to people-environment transactions" Social Casework, 62:6, 323-331.

Kuhn, T.S. (1970) The Structure of Scientific Revolutions. Chicago, University of Chicago Press.

Lefferts, R.B. (1982) Environmental hazards and mental health, Environmental Health Project, State University of New York at Stony Brook (unpublished).

Leithwood, K.A. (1981) "Managing the implementation of curriculum innovations" Knowledge: Creation, Diffusion, Utilization vol. 2, no. 3, 341-360.

United States Department of Health and Human Services (1980) Promoting Health/Preventing Disease. Washington, D.C., United States Government Printing Office.

United States Department of Health and Human Services (1977) Human Health and the Environment. Washington, D.C., United States Government Printing Office.

Verespej, M.A. (1981) "Time for decisions on hazardous wastes" Industry Week, as found in: Finsterbusch, K., ed., Social Problems 82/83. Guilford, CT, Dushkin.

Williams, J.S.; Leyman, E.; Karp, S.A.; Wilson, P.T. (1973) Environmental Pollution and Mental Health. Washington, D.C., Information Resources Press.

CHAPTER 2

ORGANIZATIONAL CHANGE: CURRICULUM INNOVATION

In order to update a profession by means of including new content in the foundation curriculum, change is obviously required. Change must be made in the curriculum. Concomitantly, change in the curriculum requires change on the part of the people who teach the curriculum. Since the curriculum and the people who teach it are major parts of an organization, it is evident that updating a profession in this way depends upon organizational change. Much has been written about organizational change, concluding that it is a complex process, oftentimes unpredictable, and frequently unsatisfactory. Despite substantial study and scholarly attention, no formula or model to achieve organizational change has emerged as universally successful.

This effort to update a profession by changing the foundation curriculum of a professional school represents a limited organizational change. Some authors differentiate between organizational change and organizational innovation, as in the following:

> ...organizational change refers to the transformation of both the internal polity and the economy of the organization, while innovation is limited to alterations in the product and technology components of the internal economy (Hasenfeld, 1983:220).

Other authors do not differentiate. Brager and Holloway explain:

> We use the terms "change" and "innovation" as synonymous... Our meaning relates to something that is new or different to the unit that adopts the change, rather than to a discovery or invention per se (1978:18).

The effort to differentiate types of organizational change reflects the reality of differences in scope, complexity, and target of organizational change goals. Since each of these characteristics has been shown to be critically important to planning and implementing organizational changes, it is likely that such differentiation can contribute to clearer, more specific models for specific changes.

One unifying element of all organizational changes is that they ultimately require changes in the human beings who work in the organization. Regardless of the particular goal of organizational change, people will eventually be impacted. Brager and Holloway note that,

> Although the goal of all change is the behavior patterns of people, the primary focus of intervention varies...these modifications in behavior result from alterations in the people themselves, in the organization's technology, or in its structure (1978:18).

Thus, regardless of the nature of organizational change, individuals will ultimately be the implementers of the change. This reality has encouraged much investigation into the concept of resistance. Hasenfeld states, "...professionals...attempt to promote their own interests and resist any change that affects their status" (1983:219). Exploration of individual resistance to organizational change can be found as early as 1957, with the publication of Argyris' Personality and Organization: The Conflict Between System and the Individual. Almost thirty years later, organizational change literature continues to focus on individual resistance, as follows:

> The change agent can expect people to resist change...the key to managing resistance to change is to expect it and to approach it analytically and directly (Kettner *et al.*, 1985:216).

It is evident that any organizational change, including those of a limited nature such as organizational innovations, will encounter resistance on the part of the people who must implement the requisite changes. Since implementation is the key

to any successful organizational change effort, substantial attention must be paid to personal/professional resistance for change efforts to succeed.

Another aspect of organizational change which is emphasized in the literature is values. Values of both the organization and people who work in the organization are critical factors in the extent to which a change/innovation is accepted. Any change which is consistent with the values espoused by the organization and the values held by members of the organization is more likely to be received favorably. Any change/innovation portrayed as central to an organization's mission is inherently powerful and alluring (Brager and Holloway, 1978). Simply stated, this "fact" is important, but insufficient to explain reactions to changes/innovations on the part of organizational members. While it may be reasonable to assume that organizational members hold values that are consistent with the organization's, it is unreasonable to assume that these values are preeminent in the individual's decision to support or oppose a particular change/innovation. Values held by individuals may be much more complex, even contradictory, than values espoused by the organization. Brager and Holloway note that, "Autonomy, control, and power constitute the pillars of professional self-interest and as such will be fiercely protected when challenged" (1978:83). It is likely that changes/innovations which are completely compatible with organizational values will clash with individual values. Thus, any change/innovation which is consistent with organizational mission and values must also be addressed according to individually held values to fully understand the extent of value compatibility.

Turning to the literature on organizational innovations, factors in addition to resistance and value compatibility are identified as important. Defining an innovation as "an idea, practice, or object perceived as new by an individual" (Rogers, Shoemaker, 1971:19), certain characteristics or attributes of innovations have

been identified. One such characteristic is "relative advantage". Simply stated, this is the extent to which the innovation seems to be superior to that which precedes it. This is also expressed by Brager and Holloway's assertion, "the more directly a [change] goal impinges on a generally recognized problem and the more obvious its advantages over current practice, the easier it is to win adoption" (1978:114).

A second characteristic to be considered is complexity. If an innovation is perceived to be difficult, hard to understand or use, adoption of the innovation is hindered. This is illustrated by the slowness with which many organizations have adopted the use of computers. As computers have become less complex and easier to use, more organizations are moving towards computerization.

A third characteristic of innovations to be considered is referred to as "trialability", defined as, "the degree to which an innovation may be experimented with on a limited basis" (Rogers and Shoemaker, 1971:23). This characteristic is closely related to the extent of risk perceived by potential users of the innovation. If the opportunity to "go back to the way things were" is present as individuals consider an innovation, they will be more willing to "experiment". Brager and Holloway use the term "reversibility" to explain the same phenomena: "...the more likely it is that the goal can be implemented on a limited basis or that its implementatiion can be reversed..., the greater are its chances of acceptance" (1978:114-115).

Another characteristic of innovations cited in the literature is termed "observability...the degree to which the results of an innovation are visible to others" (Rogers and Shoemaker, 1971:23). Obviously, this is a positive characteristic to the extent that the visible results are positive. Brager and Holloway identify a similar characteristic of change goals: "When a goal's impact on a problem is immediate and direct, the goal is easier to implement..." (1978:114). Another way of stating this is

the familiar adage, "nothing succeeds like success". When people observe and/or experience more positive results from an innovation, they are more willing, perhaps even eager, to use it themselves.

A final characteristic of innovations is implicit in each of the preceding characteristics. There is a cost associated with an innovation. There may be costs to develop the innovation and costs to implement the innovation. Ultimately, the perception of the cost of the innovation compared to the perception of the gain to be realized may be the determining characteristic as suggested by Hasenfeld: "...the various attributes of an innovation can be reduced to one basic issue: the costs and benefits, both political and economic, an organization expects to accrue from an innovation" (1983:220).

Organizational innovation requires two distinct processes: development and implementation. Almost all authors agree that the implementation process is the most problematic. Defined by Brager and Holloway, "Implementation is a complex subprocess of a change effort" (1978:206). This process was studied by Pressman and Wildavsky (1973), and their results indicate that, "the probability of successful change implementation is quite low" (Hansenfeld, 1983:240). Interestingly, most of the literature on organizational innovations assumes that the decision to "adopt" an innovation is first made by the organization. Some authors see "attainment of a mandate from the organizational elite", as necessary to successful organizational innovation (Delbecq, 1978, cited in Hasenfeld, 1983:236). In order to differentiate between the "adoption" of an innovation by an organization and the actual use of the innovation by individuals within the organization, various stages of the innovation process have been conceptualized. Ranging from a relatively simple two-stage process including (1) initiation and (2) implementation, to an eight-stage process, Rogers and Shoemaker note that,

> Past diffusion literature indicates there is little agreement on the number of stages in the process, although researchers generally recognize that adoption is the result of a sequence of events and not random behavior (1971:101).

Regardless of the number of stages postulated, the process always includes a decision; a decision to either accept or reject the innovation. In fact, some authors refer to the process as "the innovation-decision process" (Rogers and Shoemaker, 1971). Hasenfeld emphasizes and explains the role of decisions in the innovation process:

> the adoption of an innovation...is typically a complex process involving numerous participants over a long time. It is a process that calls for decision making about such issues as the need to innovate, the participants in the process, the attractiveness of new ideas and programs, the receptivity and resistance..., the costs and payoffs...and the ease or difficulty of implementation (1983:234).

Thus, the dominant conceptualization of organizational innovation, consistent with that which underpinned organizational change literature for a long time, is that innovation is a top-down process. Kettner, Daley, and Nichols note:

> One view, widely supported in the literature on human service administration, is that the manager is responsible for recognizing the need for change and initiating it (1985:8).

Brager and Holloway's book, Changing Human Service Organizations (1978:IX), begins by citing "two major emphases" of organizational change literature: "how top-level managers can induce lower-ranking members to comply with adminsitratively inspired innovation" and, how consultants "can assist top management in creating a more open organizational system". The influence of Brager and Holloway's work, along with the works of Resnick and Patti (1980), among others, has resulted in the legitimacy, in educational institutions, of a "bottom-up" model of organizational change. The term "change agent" is now common in the literature,

indicating that anyone can initiate change. In their 1985 text, Kettner, Daley, and Nichols define the term broadly, as follows:

> a change agent -- a human service professional who facilitates the successful completion of the change effort. The change agent may come from any level within an organization...the change agent may be a direct service professional, a planner, an administrator, a manager, or a community worker (1985:9).

The question of who initiates a change effort in an organization is inextricably related to the implementation process. As discussed previously, implementation is widely regarded as the most difficult phase of a change process. Depending upon who is initiating the change, the implementation process requires influencing either subordinates or superiors in the organization. Influencing either superiors or subordinates to accept an organizational change or innovation requires a process of persuasion. Each individual in the organization impacted by the change or innovation must eventually be persuaded to "accept" or "adopt" the change and behave accordingly. The assumption that organizational leaders must accept or adopt an innovation first is not only unsubstantiated, but somewhat contradicted by studies of the implementation process in particular organizations. Leithwood notes that, "Substantial evidence has demonstrated that while schools have adopted many curricular innovations in the past two decades, the degree of their actual use in classrooms has been very limited" (1981:341). Contemporary literature, drawing heavily from human relations management theory, emphasizes early inclusion and participation of those organizational members who must actually implement the innovation. Such participation is intended to persuade organizational members to accept the change by minimizing the authoritative aura of the "top-down" process. Merely including individuals in the early stages of the implementation process is

insufficient, however, to insure their support. Bennis (1966:176) notes that effective implementation requires that organizational members have:

> ...as much understanding of the change and its consequences, as much influence in developing and controlling the fate of the change, and as much trust in the initiator of the change as possible (1966:176).

In addition, Bennis explains that the process of persuasion that must occur cannot depend "...solely on rational persuasion (expert power)..." (1966:176). Consideration of value issues and emotional reactions of organizational members is critical. Brager and Holloway present yet another factor to consider relevant to persuading individuals to accept/adopt an innovation by means of early inclusion in the implementation process:

> ...one could also argue that participation in making a decision with which a member disagrees or which he perceives as contrary to his interests will not bind him to the decision. It could instead strengthen his resistance... (1978:221).

It is clear from this review that the implementation process depends upon securing the support of relevant organizational members. It is also clear that no model or prescription exists to persuade organizational members to accept/adopt an innovation. Whether the initiation of the innovation is with top organizational leaders or with someone located elsewhere in the organization, a process to persuade those individuals impacted by the innovation must be developed. Such a process can be built upon the literature related to the decision to accept or reject an innovation. Since every single individual in the organization asked to make some change in order to implement an innovation will eventually make an individual decision to adopt or reject the innovation, the implementation strategy must seek to persuade each. Whether top officials are persuaded first or last, or somewhere in between, the persuasion process must include people at all hierarchical levels of the organization.

In addition to a process to persuade members of the organization to adopt an innovation, implementation requires leadership and resources. Regardless of the change agent's location in the organization, access to resources and the ability to exercise leadership are essential elements in the implementation of an innovation. The change agent's position in the organization may have implications for the strategy employed to secure resources and establish recognized leadershp capacity. Brager and Holloway state:

> Some resources are potentially available for use by individuals regardless of structure. Among them are knowledge and expertise, social appeal, social rewards, shared norms and collegial relationships, energy, tenure, and the backing of solidary groups (1978:95).

Other resources may not be so readily available, regardless of the change agent's position in the organization. Hasenfeld notes:

> ...every significant organizational innovation requires the availability of uncommitted organizational resources that can bear the costs of the innovation (Thompson, 1965). These resources must include money, personnel, time, skill, and tolerance for initial failures (1974:681).

The nature and number of resources actually required to implement an innovation is dependent upon the particular innovation. Necessary resources can be acquired internally or externally. An individual can seek the allocation of existing organizational resources to implement an innovation and/or seek funding from outside sources. Any assumption that organizations rich in resources are, therefore, more apt to implement innovations is contradicted by the research of Hage and Aiken. In studying the rate of program change, they found organizational properties to be of primary importance (1967:720). Properties such as organizational complexity, degree of centralization, degree of formalization, as well as contextual variables, all impact on the implementation of an innovation (Hage and Aiken, 1967).

Resource acquisition is relatively easy and more open to all organizational members than most of the other properties cited as relevant to organizational innovation.

Leadership necessary to an organizational innovation can emanate from any level of the organization. In 1966, Bennis noted that leadership theory had moved away from focus on "coercive, autocratic, and arbitrary forms of power" and toward "...democratic-humanitarian values..." (197). In addition, Bennis identified the emerging ideas of "mutual influence between leaders and followers...ways and means by which superiors and subordinates can develop a consensus" (1966:197) as the latest in leadership theory. The focus is on "contacts or political debtors, particularly those relevant to the change goal"; and establishing "one's reputation or legitimacy relative to the area of the proposed change" (Brager and Holloway, 1978:159). Thus, the leadership required to influence organizational members, whether subordinate or superordinate, is potentially available to almost all members of the organization seeking to implement an organizational innovation.

This review of organizational innovation literature suggests that the extent of successful implementation of innovations in the human services is limited. Limitations derive from numerous sources. One obvious limitation is the lack of a model by which the implementation of an innovation could be undertaken by anyone, anywhere within the organization. As noted in the preceding, theory has advanced to acknowledging the feasibility of organizational change from the bottom up. Concomitantly, evidence of the failure of authority-based, top-down organizational innovation and change continues to mount. Consistent with both current theory and empirical experience, the implementation of curriculum innovations has been constrained by a lack of models or strategies (Leithwood, 1981).

IMPLEMENTATION OF CURRICULUM INNOVATIONS

Throughout the contemporary organizational change and innovation literature, emphasis is placed on contextual variables and organization-specific variables. This points to the plausibility of innovation implementation models particularized according to types of organizations. Such efforts have been underway in educational organizations, spurred by federal programs such as Title III of the Elementary and Secondary Education Act: Innovative Projects. Berman and Mc Laughlin report the spending of $150 million annually under this title during the early seventies (1976). Since federal policy is founded on the idea of demonstrating an innovation in a few schools and then encouraging its use by many other schools, the issue of implementation has emerged as a critical concern. Berman and Mc Laughlin note:

> Thus, innovations may result in disappointing outcomes, not because of inadequacies of the innovative idea, but because of the difficult and uncertain process of implementing innovative efforts in an educational system that resists change (1976).

The literature that has evolved from evaluating the many federally-sponsored educational innovation projects has helped to clarify issues involved in the implementation of educational innovation, and specifically, curriculum innovation. Leithwood summarized the "state-of-the-art" in 1981, as follows:

> Substantial evidence has demonstrated that while schools have adopted many curricular innovations in the past two decades, the degree of their actual use in classrooms has been very limited (Berman and Mc Laughlin, 1976; Pincus, 1974; House, 1974; Leightwood, *et al.*, 1974; Smith and Keith, 1971; Gross, *et al.*, 1971; Goodland and Klein, 1970)...the body of research is still small and, in many respects, inconclusive...available literature does not provide a reliable strategy for managing the implementation process consistent with research results and evaluated in field settings (1981:341).

One issue which was identified early in the study of curriculum innovation implementation was that often, innovations were not implemented "according to plan" (Berman and Mc Laughlin, 1976). This factor became an explanation for the failure of innovations, concomitantly focusing attention on the implementation process. Subsequent studies and theoretical advances began to cast doubt on the possibility of designing an implementation process capable of completely "exporting" an innovation from one school to another. Consistent with the organizational change and innovation literature reviewed previously, particular organizational characteristics, combined with differing organizational cultures, conspire to make "common" implementation impossible. Adoption of an innovation, implying identical replication, began to be supplanted by the idea of adaptation. Berman and Mc Laughlin, after evaluating many educational innovations, state: "We believe that a successful implementation strategy is one that promotes mutual adaptation" (1976:360).

Emphasizing the implementation process as interactive, "between the project and its setting", Berman and McLaughlin suggest that adjustments in both the innovation and the organization are necessary for successful implementation (1976:352). Beginning with the actual initial design of an innovation and continuing throughout the planning and operationalization phases, adaptation is required. Alterations in both the innovation and the organization, consistent with contemporary literature on organizational and individual change, are necessary to successfully implement an innovation.

Once established, the concept of mutual adaptation became the focal point for further theoretical and empirical developments in curriculum innovation implementation. Conceptualization of certain alterations in the innovation and the

organization that would be common across most school settings began. Leithwood identifies and addresses one such alteration:

> Implementation of a curriculum innovation involves alterations in instructional practices, usually by teachers in classrooms,... Differences can be minimized by either adapting and modifying the innovation so that it is not essentially different from the current curriculum, or by altering the current curriculum in the directions suggested by the innovation (Leithwood, 1981:344).

Leithwood proposes a model for curriculum innovation implementation which details the stages of the process and "involves determining preferred and actual status, identifying discrepancies betwen the two and defining manageable stages of growth toward eliminating such discrepancies" (1981:343). The model focuses on the actual user of the curriculum innovation, the teacher. Founded on the idea that each individual teacher must make a decision as to his/her actual desire and/or commitment to make the change(s) required by the curriculum innovation, emphasis is placed on the norms and reward system of teachers, as explained by Leithwood:

> Since changing involves a cost to the user, payoff will be maximized to the extent that the perceived benefits of the innovation can be gained with the least possible change and without significant threats to the benefits derived from existing instructional practices (1981:344).

Benefits of the innovation are those results which are rewarding to teachers. Research indicates that, "...the most significant rewards are based on perceptions of change in students during the teaching/learning process" (Leithwood, 1981:353). Thus, the teacher's decision will ultimately be an individual one, based on the extent to which using the innovative curriculum provides for positive, professionally rewarding experiences with students.

These advances toward a model for curriculum innovation implementation focus on persuading the "user" that benefits will accrue from adopting the innovation.

Stated this way, similarities to the burgeoning field of marketing are striking. Fine defines marketing as, "a process of planning and movement of a product offering from the supplier...to those who are to use it" (1981:18). He goes on to note that, "the marketing concept is the philosophy that the consumer's interest is the starting point, if not the major focus, from which all planning takes place" (Fine, 1981:20). Within this context, a marketing model for implementing curriculum innovation can be designed. The following chapter presents such a model, evolving from the theoretical and empirical underpinnings reviewed in this chapter.

CHAPTER 2: REFERENCES

Argyris, C. (1957) Personality and Organization. New York, NY, Harper and Row.

Bennis, W.G. (1966) Changing Organizations. New York, NY, McGr

Berman, P.; Mc Laughlin, M. (1976) "Implementation of educational innovation" Educational Forum, March:345-370.

Brager, G.; Holloway, S. (1978) Changing Human Service Organizations. New York, NY, Free Press.

Fine, S. (1981) The Marketing of Ideas and Social Issues. New York, NY, Praeger.

Hage, J.; Aiken, M. (1967) "Program change and organizational properties" American Journal of Sociology, 72(March):503-518.

Hasenfeld, Y. (1983) Human Service Organizations. Englewood Cliffs, NJ, Prentice-Hall.

Hasenfeld, Y.; English, R., eds. (1983) Human Service Organizations. Englewood Cliffs, NJ, Prentice-Hall.

Kettner, P.; Daley, J.; Nichols, A. (1985) Initiating Change in Organizations and Communities. Monterey, CA, Brooks/Cole.

Leithwood, K.A. (1981) "Managing the implementation of curriculum innovations" Knowledge: Creation, Diffusion, Utilization, vol. 2, no. 3, (March):341-360.

Pressman, J.; Wildavsky, A. (1973) Implementation. Berkeley, CA, University of California Press.

Resnick, H.; Patti, R.J., eds. (1980) Change from Within. Philadelphia, PA, Temple University Press.

Rogers, E.M.; Shoemaker, F. (1971) Communication of Innovations. New York, NY, The Free Press.

Thompson, V. (1965) "Bureaucracy and innovation" Administrative Science Quarterly, 1:1-20.

CHAPTER 3

A MARKETING MODEL FOR IMPLEMENTING CURRICULUM INNOVATIONS

Having established the fact that successful implementation of a curriculum innovation depends on persuading individual educators to use the innovation, the relevance of marketing becomes apparent. As stated by Kotler and Andreasen, "...the bottom line of all marketing strategy and tactics is to influence behavior" (1987:68). Marketing has become a major field of study and management method throughout the non-profit sector. The usefulness of marketing strategies has been demonstrated in a myriad of arenas benefitting human health and well-being. Along with advances in the application of marketing to non-profit organizations, advances have also been made in the area of "idea marketing", described as, "...how ideas and issues can be more effectively disseminated through the use of modern marketing concepts and tools" (Kotler, in Fine, 1981:v). In the case of curriculum innovation, there is both an idea and a product to be marketed to teachers.

Since marketing has become so pervasive and popular, a rich literature exists to support the development and use of a marketing model for implementing curriculum innovation. Founded upon the four Ps -- product, promotion, place, and price -- the marketing model enables inclusion of every aspect of organizational innovation discussed in the literature. One example is that focus on product forces attention to the quality of the innovation. In reviewing the literature, Paine, *et al.* note:

> ...this literature generally fails to attend to the product that is being "implemented" or "adopted". ...little attention has been paid to defining the technical adequacy or effectiveness of the innovation itself. There seems to be a general optimism regarding any innovation... (1984:5).

Other aspects of the marketing model mirror that which has already been noted in the organizational change and innovation literature. Promotion, defined by Fine as, "essentially communication" (1981:92), is the fundamental process which persuades people to use a product. Fine states:

> the goal of any promotion campaign is to create a "community of buyers", the goal of idea marketing is to create...a community of convinced adherents to some cause or plan of action (1981:92).

Similarities between "promotion" and strategies and tactics to achieve organizational change/innovation cited in the literature are apparent. Brager and Holloway's description of "collaborative" and "campaign" tactics includes attention to persuasion and communication (1978:131-132). The relevance of "place" and "price" to organizational innovation literature is also apparent. Particular contextual variables, unique to the organization, or "place", in which innovation is to be implemented have been emphasized in the literature (Hage and Aiken, 1970; Corwin, 1972). The cost or "price" of an innovation has, likewise, been addressed in the literature as a critical factor in successful implementation of an innovation.

An inherent advantage to using a marketing model to implement curriculum innovation is that it unifies the typically separate processes of planning and development, concomitantly encouraging the mutual adaptation proven necessary to successful curriculum innovation. Rather than taking a totally unknown "product" and forcing teachers to use it, a marketing model approaches teachers as the "consumers", whose wants, needs, values, and behavior ultimately determine the extent and success of implementation of curriculum innovation. Focusing on teachers as the "target market" for a curriculum innovation is completely consistent with contemporary literature. Leithwood identifies teachers as "the final arbitrators" in the process of implementing curriculum innovations (1981:343-344). Marketing

forces attention, at the earliest point possible in product development, to satisfying the consumer so that the consumer will be more likely to want the product. Underlying marketing is the concept of exchange. Kotler and Andreasen summarize this as follows:

> 1. Marketing is a set of activities designed to influence behavior.
>
> 2. Behavior by a target consumer is carried out at the end of an exchange process.
>
> 3. An exchange will result in a transaction whenever the target consumer perceives the benefits of the behavior the marketer seeks to exceed the costs or sacrifices the behavior entails...
>
> 4. Behavior by the target consumer yields benefits to the marketer (which was the reason for the marketing in the first place), while most of the benefits the consumer receives will involve costs for the marketer... (1987:72).

The type of exchange necessary to implement a curriculum innovation has been defined in the literature. Benefits, as perceived by teachers, have been found to be related to the classroom and students (Leithwood, 1981). Research reflects that teachers' "most sought-after rewards" derive from:

> (a) providing students with more of the same experiences traditionally available within the boundaries of the classroom.
>
> (b) apparently improving the cognitive competencies of individuals...and groups of students, and
>
> (c) apparently increasing student interest and enthusiasm and decreasing classroom management problems (Leithwood, 1981:353).

In addition, it is important to connect the value and belief system of teachers to the issue of perceived benefits or rewards. As a non-hierarchical profession, priding itself on the maintenance of "academic freedom", teaching does not typically attract

those who value financial rewards or seek administrative sanction. In fact, money and "other tangible rewards" have been found not to be effective inducements to change teacher behavior (Berman and Mc Laughlin, 1976:370). Clearly, any effort to persuade teachers to use a curriculum innovation needs to be related to the reward system and value system of those teachers. Certain commonalities in these systems can be identified, as noted above. Differences will also be important as each individual represents a unique set of values and experiences within the role of teacher. In order for an exchange to take place between teacher and curriculum innovation marketer, an appropriate set of benefits must be available to the teacher.

Once teachers are identified as the market, defined as, "...the set of all people who have an actual or potential interest in an exchange and the ability to complete it" (Kotler and Andreasen, 1987:191), the concepts of marketing can be directly applied to the implementation of a curriculum innovation. As implied above, thorough knowledge and understanding of those who comprise the market is essential. Beginning with the identification of teachers as the target market, the marketing model to implement curriculum innovations is based on the aforementioned: product, promotion, price, and place. The meaning and implications of each of these elements of a marketing model for curriculum implementation follows.

Product

Curriculum innovations may rarely be viewed as products. However, such a view is completely consistent with the meaning of product in marketing, as follows: "For something to be considered a product in the marketing sense, the prerequisite is that it be capable of being exchanged for some scarce resource (the price), an exchange that satisfies" (Fine, 1981:61). Viewing curriculum innovations as products leads to considerations such as: quality, features, options, style, packaging, "brand

name", and positioning. Consideration of each of these factors forces a comprehensive assessment of the curriculum innovation that is directly related to the target market. Such an assessment incorporates that which is known about curriculum innovation and that which is known about innovative products.

Principles, or criteria, derived from the curriculum innovation literature include:

- reducing the number and size of the differences between the curriculum in use and the innovation.
- identifying and insuring teacher capability to implement the innovation.
- minimizing deviation from usual teaching style.
- maximizing rewards to teachers deriving from curriculum implementation (Leithwood, 1981).

Innovations, in general, have attributes which influence receptivity. An innovative product's attributes, as perceived by the target market, are crucial to the target market's decision about the product. Attributes of innovations include:

- relative advantage: the extent to which the innovation is viewed as superior to that which it replaces or supercedes.
- compatibility: the extent to which the innovation is consistent with the values, beliefs, and experiences of those in the target market.
- complexity: the extent to which the innovation is seen as difficult to understand and/or use.
- trialability: the extent to which the innovation may be used on a limited basis; also referred to as "divisibility".
- observability, also referred to as communicability: the extent to which the results of an innovation are obvious and visible and/or describable to others (Rogers and Shoemaker, 1971; Kotler and Andreasen, 1987).

Taking these principles and attributes and applying them to curriculum innovations as products, the following criteria emerge for a curriculum innovation to be marketed:

- a curriculum innovation should be relatively similar in value base, structure, style, and substance to the curriculum that target teachers are already using.
- a curriculum innovation should be relatively easy to comprehend and easy for target teachers to use.
- a curriculum innovation should be introduced on a trial or demonstration basis with target teachers.
- a curriculum innovation should be proven to be effective, especially in relation to desirable student outcomes, before it is introduced to target teachers.

Adherence to these criteria will maximize the product's marketability, and, therefore, they become the criteria by which the curriculum innovation must be assessed.

In the marketing model, product development is an integral part of the process which eventually persuades the target market to adopt the product. Thus, the actual development of the curriculum innovation needs to be conducted in accord with the criteria established above. In some instances, curriculum innovations are developed by people in places apart from the intended teachers. In other instances, a successful curriculum innovation in one school, or by one group of teachers, may be "exported" to another school. Regardless of the origin and history of the curriculum innovation, the criteria established above must be fulfilled. This is analogous to the "mutual adaptation" process cited previously as necessary to successful curriculum innovation implementation. By definition, the marketing model excludes the possibility of complete adoption of an externally developed curriculum innovation by a school. The idea of replicating a seemingly successful

curriculum innovation is contraindicated by both the marketing model and empirical experience (Berman and Mc Laughlin, 1976).

Another advantage to defining a curriculum innovation as a product in accord with the criteria cited is that it legitimizes the involvement of any teacher, or group of teachers, in developing curriculum innovations. As part of the target market, teachers are in a unique position to both design and adapt curriculum innovations according to the requisite criteria. Whether or not the teacher(s) who originates the curriculum innovation becomes the marketer of the curriculum innovation is a separate issue; teacher involvement in developing the product is prescribed by the criteria.

Two other aspects of curriculum innovations as products are "brand name" and packaging. Simply put, what the innovation is called and how it is put together, both conceptually and actually, are important considerations. The name and appearance of products are powerful determinants of consumer behavior (Fine, 1981). Often, however, curriculum innovations are not named in a way which maximizes their appearance or meaning to the target market. A brand name is intended to inspire confidence, insure identification, and encourage recognition. Also, a brand name needs to be consistent with the norms, values, beliefs, and preferences of the target market.

Applying the marketing model's use of brand name to curriculum innovations, the following criteria can be established:

- a curriculum innovation should be named with the target market's particular characteristics, interests, and needs in mind.
- a curriculum innovation's name should communicate the substance of the innovation.
- a curriculum innovation's name should be short enough to be easily remembered and repeated.

As the almost infamous case of "new math" proves, failure to name a curriculum innovation in accord with the above criteria results in the target market naming the innovation. The term "new math" has become a well-recognized, highly negative name for a major curriculum innovation of more than twenty years ago. While the curriculum innovation called "new math" undoubtedly had a name at one time, it apparently failed to meet the criteria established above. The target market's nickname, "new math", reflects the criteria, however, as well as the attitude of teachers toward the innovation. A somewhat similar example from social work education can be cited. When schools of social work were mandated to provide curriculum on racism, sexism, and other "isms", the effort to implement such curriculum innovations became known as "1, 2, 3, a, b, c". The numbers these items were given in the Council on Social Work Education's curriculum standards became the "umbrella" name for curriculum innovations about racism, sexism, and other "isms". Failure to designate another name for this category of curriculum innovations has impeded recognition of relevant curriculum, especially among more recent recruits to social work faculties, for whom "1, 2, 3, a, b, c" is meaningless.

Packaging is a familiar aspect of marketing, which, when applied to a curriculum innovation, has both tangible and intangible elements. The tangible element is obvious. Packaging is the "wrapper or container" (Kotler and Andreasen, 1987:426) in which a product is placed. While curriculum innovations may not literally be placed in a container, the innovation must be "packaged". It must be put into words, on pages, bound together, and covered. This process, if conceived in the context of marketing, is not as simple as it may seem. The process should result in a "package", which minimally is visually appealing and convenient to use.

The intangible element of packaging relates to product conceptualization and communication. The way in which ideas and concepts are connected to each other

and to the target audience are important aspects of packaging. Fine addresses this when he states, "A scholar presents a new theory by packaging carefully written sentences into an article, which is delivered to a consumer audience" (1981:67). This intangible element of packaging a curriculum innovation can be guided by knowledge of the target market. Consistency in style, language, and values is necessary. Taking the tangible and intangible elements of packaging together, the following criteria for packaging a curriculum innovation can be established:

> A curriculum innovation should be presented in a manner which is:
>
> - visually appealing, including cover and text pages.
> - convenient to use, in all aspects of use: easy to carry; read and teach from; all inclusive and/or self-contained, such that everything the teacher needs to use the innovation is included.
> - consistent with the target market's values, belief system, language, and style.

Marketing also involves the two related processes -- product positioning and marget segmentation. Product positioning is an effort to "carve a unique niche for a product" (Fine, 1981:67). Related to the product's attributes, positioning requires knowledge of competing products and their attributes, and understanding of the factors most likely to influence individual choice among members of the target market. In cases where the target market is comprised of subgroups of individuals with different needs, values, and/or desires, it is often useful to segment the market according to the differences. Each segment is then approached differentially. Market segmentation may result in product differentiation such that there is a different version of the product for different users (Fine, 1981). Both product positioning and product differentiation are very pertinent to marketing a curriculum innovation. Typically, a curriculum innovation repalces some existing curriculum.

Thus, there is a competing product: the one that is currently in use. This inherently requires product positioning. Similarly, all schools have organized their curricula according to some criteria which inherently form subgroups. In instances in which a curriculum innovation spans such subgroups, attention to product positioning and market segmentation processes become central to the promotion phase of marketing.

PROMOTION

The promotion of a product is essentially comprised of all communication from the marketer to the target market towards the goal of persuading members to "buy" the product. Promotion incorporates the packaging, the results of product positioning and segmentation processes, and then uses the communication process to persuade the target market to act to acquire the product. Depending on the communication process, promotion requires consideration of the source, the message, the receivers, and the channels of communication (Fine, 1981). In addition, the process by which people make a decision to adopt a product is integral to the ultimate purpose of promotion.

The source of a promotion effort must have credibility with the target market. Efforts are enhanced if the source is seen as having particular expertise or specialization in an area related to the product. Fundamentally, there must be some trust in the source on the part of members of the target market. The message must be "desirable, exclusive, and believable" (Kotler and Andreasen, 1987:531). The receivers, or target market, must be researched sufficiently to predict their responses to both the promotion strategy and the product itself. Market research is defined as:

> ...the planned acquisition and analysis of data measuring some aspect or aspects of the marketing system for the purpose of improving...marketing decisions (Kotler and Andreasen, 1987:201).

There are many forms of market research which can be used by those seeking to market a curriculum innovation. Test marketing is one form which offers particular benefits for curriculum innovations because it enables documentation of student reaction. As noted previously, teachers tend to define curriculum innovation rewards relevant to enhanced student outcomes. The ability to document positive student experience through test marketing of the curriculum can be a powerful factor in the persuasion process. Other forms of market research may also be useful for curriculum innovations, including surveys of the target market, focus groups, and personal interviews. Information and insights gained through market research are used in all phases of the marketing process, especially in the promotional effort.

Fundamental to the communication process are the means by which the sender communicates with the receiver. Many choices exist, from interpersonal to mass media. In general, it is agreed that interpersonal communication is the most influential. Fine asserts, "...word-of-mouth communications must be called into play to complete the job of actual adoption (action)" (1981:99). Interpersonal communication is preferable in the marketing of a curriculum innovation. The personal approach enables interaction between marketer and target market member which can clarify, allay concern, and generally be more convincing. Kotler and Andreasen explain, "where communciation is face to face, feedback can be easily obtained" (1987:538). Typically, interpersonal communciation is quite possible in the promotion phase of marketing a curriculum innovation. The marketer and target market are, or should be, in regular contact with each other by means of their organizational roles. Thus, existing communciation channels can be used in the promotional effort.

The promotional effort seeks to persuade the target market members to acquire and use the product. Much attention has been devoted to understanding the

process by which people decide to accept something new and act on the decision. As early as 1955, an "adoption process" was suggested, consisting of four stages: awareness, interest, evaluation, and trial (Rogers and Shoemaker, 1971:100). Addressing the decision-making process relevant to the marketing of ideas, Fine proposes "the adoption model", consisting of four stages: awareness, interest, desire, and action (1981:99). Each stage depends upon successful completion of the preceding stage. Recognition of these stages is a useful addition to the social change and organizational change literature. By delineating the process by which individuals' minds change, Fine has added an important dimension to understanding and achieving planned change.

PRICE

The price of a product is a central factor in the target market's decision to accept or reject a particular product. In the typical marketing endeavor, price means the amount of money exchanged to acquire the product. Price, or cost, consists of two parts, however: the financial part and the social part (Fine, 1981). The implications of social price in the marketing of a curriculum must be as minimal as possible. "Life-style" changes must be minimized, meaning that changes to the teacher's typical classroom and school routines will be considered costs. Psychic costs involve "self-esteem, pride, identity, self-assertion, privacy, control, freedom from fear or risk..." (Fine, 1981:85). Any perceived loss in any of these categories, on the part of people in the target market, will contribute to the cost. When marketing a curriculum innovation, consideration of psychic costs is critical because of the inherent tendency to view curriculum innovation as imposition. Teachers derive self-esteem, pride, identity, and freedom from risk, in part, by using the curriculum

they have used previously. To market a curriculum innovation successfully, conscious efforts to minimize these inherent psychic costs must be made.

PLACE

The place at which a marketing transaction is completed requires the simultaneous presence of the product and members of the target market. Kotler and Andreasen state, "The marketer's task is to create time and place utility for the customer" (1987:472). In marketing a curriculum innovation, the place is the school which employs the target teachers. The school, as an organization, may have normative processes for the introduction of curriculum changes. The marketer of a curriculum innovation may need to adhere to such normative processes. However, use of such processes may follow a marketing effort mounted directly with target teachers.

Timing of the marketing transaction is less clear-cut than place, in the case of a curriculum innovation. While in one sense there is no "right time" to introduce a curriculum innovation, certain times can be expected to be more favorable than others. Almost all schools have an institutionalized schedule which suggests peak periods of teacher activity. "Taking care of business" will naturally be more important to teachers than considering a curriculum innovation. Trying to market a curriculum innovation while classes are in session is not advisable. That leaves the time prior to the start of classes and after the classes end. In some instances, there may be time between semesters, as well. Choice of time to effectuate the transaction between marketer and target market should be based on when the members of the target market can be receptive. In the case of curriculum innovation, the conclusion of the school year, before any summer recess is recommended. This enables target teachers to familiarize themselves with the new curriculum for a couple of months

before teaching from it. Concomitantly, continuing communication between the marketer and members of the target market can occur over the summer months.

CHAPTER 3: REFERENCES

Berman, P.; Mc Laughlin, M. (1976) "Implementation of educational innovation" Educational Forum (March):345-370.

Brager, G.; Holloway, S. (1978) Changing Human Service Organizations. New York, NY, Free Press.

Corwin, R.G. (1972) "Strategies for organizational innovation" American Sociological Review 37(August):441-454.

Fine, S.H. (1978) The Marketing of Ideas and Social Issues. New York, NY, Praeger.

Hage, J.; Aiken, M. (1970) Social Change in Complex Organizations. New York, NY, Random House.

Kotler, P.; Andreasen, A.R. (1987) Strategic Marketing for Nonprofit Organizations. Englewood Cliffs, NJ, Prentice-Hall.

Leithwood, K.A. (1981) "Managing the implementation of curriculum innovations" Knowledge: Creation, Diffusion, Utilization, vol. 2, no. 3 (March):341-360.

Paine, S.C.; Bellamy, G.T.; Wilcox, B. (1984) Human Services that Work: From Innovation to Standard Practice. Baltimore, MD, Paul H. Brookes Pub.

Rogers, E.M.; Shoemaker, F. (1971) Communication of Innovations. New York, NY, The Free Press.

CHAPTER 4

THE MARKETING MODEL:

THE ENVIRONMENTAL CONTAMINANTS EDUCATION PROJECT

As a project designed to update the social work profession by including environmental contaminants content in foundation curriculum, the Environmental Contaminants Education Project is based on the marketing model developed in the preceding chapter. Each stage of the project has been planned and implemented in accord with the criteria established for marketing a curriculum innovation. This affords an opportunity to analyze and evaluate the use of the maketing model for curriculum innovations. A detailed description of the development and implementation of environmental contaminants curriculum according to a marketing model follows.

PRODUCT DEVELOPMENT/CURRICULUM

In the marketing model, development of environmental contaminants curriculum for use in the professional social work foundation results in a product with the following characteristics:

(1) It should be relatively similar in value base, structure, style, and substance to the curriculum in use.

(2) It should be as easy to use and understand as possible.

(3) It should be empirically tested, evaluated, and revised, if indicated, prior to presentation to target educators.

(4) It should be introduced as a time-limited experiment, to be assessed by target educators after an agreed-upon period of time.

Development of the environmental contaminants curriculum was undertaken in accord with each of these characteristics. To achieve similarity of value base, structure, style, and substance (characteristic 1), the curriculum product was patterned after the Council on Social Work Education's Curriculum Policy Statement and related guidelines. The Council divides the foundation curriculum content into four categories: human behavior and the social environment; social work practice; social welfare policy and services; and research. Most schools of social work have organized their curriculum and faculties in accord with these categories. Thus, it was determined that the environmental contaminants curriculum should be designed with the same differentiation. This resulted in the decision to design curriculum modules in three categories: human behavior and the social environment; social welfare policy; and social work practice. This design not only fulfilled the need for similarity to curriculum currently in use, but also responded to the particular curriculum segments comprising the target market. In addition, an introductory module was developed which could be combined with each of the other modules.

Similarity to value base and substance of curriculum in use was addressed by grounding the curriculum in the current theoretical, empirical, and value base of the profession. Building upon the work of Germain and Gitterman, the ecological approach to social work practice served as the foundation for the curriculum. Since the physical environment is identified and emphasized in the ecological approach, professional legitimacy for the environmental contaminants curriculum was derived by linking it to the ecological approach. Environmental contaminants content was defined as a logical and necessary extension of the profession's concern with the physical environment. This link was documented and detailed in an article published in one of the profession's major educational publications, Journal of Social Work Education, titled, "Expanding the Environment in Social Work: The Case for

Including Environmental Hazards Content". This article was strategically placed as part of the overall marketing plan. Publication preceded implementation of the promotional plan and served to demonstrate the legitimacy and value compatability of environmental contaminants content and social work. Concomitantly, publication established the author's expertise and credibility in the area of environmental contaminants, another factor in the overall marketing plan.

To make the curriculum as easy to use and understand as possible (characteristic 2), several steps were taken. Primary attention to the presentation and substance of the curriculum modules was necessary. A substantial literature exists from which environmental contaminants content could be drawn. Much of this potential knowledge base is found in medical, scientific, and technical fields. Upon review of the available literature, much was assessed to be too complex, too detailed, and too different from typical social work content. Eventually, the curriculum modules were developed by depending upon the emerging literature in the fields of environmental health, environmental policy, and environmental law. In addition, the author drew upon some of the more complex literature to create curriculum content specific to social work. The author's experience, gained over twelve years of teaching in the profession, served to assure the appropriateness of the depth and complexity of content.

Once the actual content was identified and organized, the task of compiling and presenting it was addressed. A standard format, familiar to social work educators was selected. A content overview is presented, educational objectives are specified, and readings and supplementary materials are identified. Following this, the substantive knowledge is presented in a format designed to facilitate use of the curriculum modules. A three-column format is used with a "Quick Reference"/Outline column, a Content column, and a Reference column. Each

module is also divided into units. The entire presentation was also designed to include substantial spacing so as to be visually appealing and easy to follow. Finally, ease of use was the major consideration in choice of binding for the curriculum modules. Since there are handouts included in the modules, ease of reproduction was a concern. A binding which enabled educators to conveniently carry, use, and xerox the curriculum, was required and obtained.

Thus, as described, each step of the curriculum design process was approached from the concept of product development. Most of these steps are reflected in the final packaging of the product.

Another characteristic of curriculum products relates to the choice of name for the product. As specified in the preceding chapter, a name is needed which communicates the substance of the curriculum, is short enough to be easily remembered, and responds to the target market's interests and needs. Many possible names were identified and subjected to assessment according to these criteria. Eventually, a name was selected and presented to a small panel of non-target teachers for reaction. With their positive response, the "Environmental Contaminants Curriculum Package" was chosen as the name for the product.

Product positioning and market segmentation were facilitated by the design of the product, as noted previously. Dividing the curriculum into modules, corresponding to the divisions typical of social work curricula and faculties, enables differential use of the product by different market segments. Concomitantly, each module was designed to be consistent with the particular characteristics of the corresponding segment. This resulted in a product which was responsive to differences in the three market segments identified: human behavior faculty; social welfare policy faculty; and social work practice faculty.

To satisfy the need to prove that the curriculum product is effective, especially in relation to student outcomes (characteristic 3), a curriculum pre-test was undertaken. All four curriculum modules were taught, by the author, to a group of approximately forty-five graduate students. A summary of the curriculum pre-test follows.

PRODUCT PRE-TEST

The four curriculum modules were pre-tested with School of Social Welfare graduate students in the required course, HWC 539: Social and Organizational Change, in the spring of 1987. The course design used in HWC 539 was conducive to the pre-test of the environmental contaminants curriculum since it calls for a unit of the instructor's choice to demonstrate application of course material. Thus, the final four sessions were used to pre-test the environmental contaminants curriculum modules.

The evaluation design depended upon a pre-/post-assessment instrument and session-by-session evaluation instruments. The evaluation was intended to explore students' awareness, attitudes, and receptivity to including environmental contaminants content in their professional preparation, concomitantly assessing the appropriateness of the depth, breadth, and presentation of content.

Description of Students

A total of forty-three students completed the pre-/post-evaluation of the environmental contaminants curriculum modules. Of these forty-three students, 93 percent were women, 7 percent were men. Most of these students (83.7 percent) were completing their second semester of graduate social work education. The remaining 16.3 percent of the students had completed more than two semesters of

graduate study. The students were distributed across both of the school's curriculum concentrations, with 81.4 percent from the Direct Practice concentration and 18.6 percent from the Planning, Administration, and Research concentration. The median age of the student group was 35 years old, with a mean of 33.5 and a mode of 38 years.

Students were predominantly white (95 percent), with two students, or 5 percent, of Hispanic origin. Almost half of the students, or 46 percent, indicated some prior involvement in an issue/problem related to environmental contamination. Overall, this group of students was very representative of the total student body.

Discussion of Results

Overwhelmingly, students were receptive to and interested in environmental contaminants content as part of their professional social work education. This receptivity preceded participation in the curriculum modules, however, as evidenced by the pre-assessment. Before beginning the environmental contaminants curriculum, 100 percent of the students agreed with the following statements:

- Professional practitioners need to know how and why common contaminants in the physical environment threaten the accomplishment of life tasks, cause human distress, and interfere with the realization of individual and collective goals.
- Professional practitioners need to know the effects of common environmental contaminants on human beings, and the health, mental health, legal, educational, and advocacy resources available to known and potential victims of environmental contaminants.

- Professional practitioners need to know how environmental policies are determined and how to influence environmental policy so that it is in the best interests of human health and well-being.

Thus, students came to the environmental contaminants curriculum modules already aware, interested, and receptive.

Session Evaluations

Session evaluations were conducted for each module focusing on student perception of the appropriateness of the content and delivery format. Students were asked about the amount of content, depth, and breadth of content and amount of effort needed to understand the content. In addition, students were asked about three aspects of the delivery format: the amount of time spent on discussion, the amount spent on lecture, and the use of examples.

The majority of the respondents rated all aspects of the content of each module as "just right". Much more variation in response to delivery format questions was noted. Many respondents felt that there was insufficient time for discussion of content. Some respondents expressed the desire for more examples. In many cases, clarifying comments were made in response to the question, "If you could change one aspect of today's session, what change would you make and why?", such as:

- "My responses reflect the reality of the limits -- more time in the semester is needed for this topic."
- "Topic needs more time and emphasis."
- "I would have liked to have more time in the semester to talk about these issues."
- "It would be extremely important and helpful to include a semester on the issue of environmental issues in the future."

The session evaluations generally confirmed that the curriculum modules were of appropriate depth, breadth, and level of content for social work students. While a delivery format which allowed more time for either discussion, additonal examples, and/or more content was desired by many students, the majority still found this format acceptable.

Pre-/Post-Assessment

As noted previously, the pre-assessment resulted in overwhelmingly favorable responses on all items. Not only were students receptive to environmental contaminants content, they also reflected substantial awareness and positive attitudes towards mitigating adverse consequences of environmental contaminants. As a result of this response to the pre-assessment instrument, analysis proceeded to a number of post-assessment items which students were asked to complete only after participating in the curriculum modules.. Again, overwhelmingly positive response was reflected. When asked if the knowledge gained in the environmental contaminants curriculum modules was valuable, 95.3 percent of the students responded with "very much".

To assess student reaction to environmental contaminants content as required in the professional foundation curriculum, they were asked to respond to the following: "Environmental contaminants knowledge is at least as important to me as other required social work course content". A total of 93 percent of the students agreed with this statement, with 47 percent strongly agreeing. Thus, students clearly valued environmental contaminants content as much as other content in the foundation curriculum. Furthermore, 98 percent of the students would consider taking coursework which focused extensively on environmental contaminants, and 82 percent would consider taking a subspecialty in environmental contaminants and

social work. A total of 74 percent of the students also indicated some interest in completing a master's project related to environmental contaminants.

In an effort to assess the extent to which students felt that the environmental contaminants curriculum could be integrated into their practice, they were asked if they thought the knowledge gained could be used in their professional practice. 83.7 percent of the students responded "very much", and 14 percent said "somewhat". These students were placed in a wide variety of practice settings. Thus, overall, students felt that the environmental contaminants content could be readily integrated into their practice, regardless of the particular practice setting.

In addition to the enthusiasm shown by students for the environmental contaminants content, the evaluation also reflected students' willingness to work to mitigate adverse effects of environmental contamination. Consistent with the School's mission, students indicated strong motivation to initiate and/or involve themselves in social change efforts in the arena of environmental contamination. When asked, "To what extent would you consider involving yourself in a change effort towards mitigating the adverse effects of environmental contaminants?", 44 percent responded "very much", while 51 percent responded "somewhat". When asked if they already had, or would consider making changes in their own behaviors or practices as a result of knowledge gained in the curriculum modules, 49 percent responded "very much" and 47 percent responded "somewhat". When asked if they had discussed this content with others, 96 percent answered affirmatively, with such discussions most often occurring with field placement supervisors, family members, and other students. These results support the potential of professional social workers becoming instrumental in social change efforts towards the goal of decreasing adverse consequences of environmental contamination.

PRODUCT PROMOTION/IMPLEMENTATION

Supported by the very positive product pre-test results, a promotional campaign was planned. Using Fine's "adoption model" (1981), a series of activities was designed in accord with each stage of the model. Recognizing the essential role of communication in the promotion process, the promotional campaign was designed to depend on interpersonal communication from the marketer to the members of the target market. The nature of the communication was defined as collegial; one colleague sharing with others. There was no overt persuasion in the message communciated; more covert strategies were planned to persuade colleagues to adopt the environmental contaminants curriculum modules.

As discussed in the previous chapter, the decision to adopt a new product is the result of a process which includes awareness of the product, interest in the product, desire to obtain the product, and action to acquire the product (Fine, 1981). To promote the Environmental Contaminants Curriculum Package, each step of this process was addressed by the plan. Awareness was addressed by two major activities: distribution of the article documenting the reasons for including environmental contaminants content in social work education and discussion of the article with each target faculty member. These activities were also intended to establish the author/marketer's expertise and credibility in the area of environmental contaminants and social work. Since source credibility is critical to marketing communication, the publication by the Council on Social Work Education of the marketer's article afforded professional legitimation. Since the article was designed to persuade the social work education community to include environmental contaminants content, it also provided substantive legitimation. Distribution of the article, followed by discussion with target faculty members, engenders their awareness, concomitantly providing useful feedback to the marketer. Timing of these activities was planned

to coincide with the close of the semester. Once the semester was over, faculty were assumed to be more receptive to considering new curriculum.

The next stage of the adoption model necessitates creating interest in the product on the part of target market members. This was approached in two ways. First, individual meetings were planned with those members of the school's faculty who have formal responsibility for curriculum matters. While these individuals were not part of the target market, they could be potentially influential in the decision of target faculty to adopt, or not adopt, the curriculum innovation. Those with formal responsibility for curriculum matters were to be apprised of, and consulted about, the plan to promote the environmental contaminants curriculum modules. Because the marketer is an untenured faculty member with no formal responsibility for school-wide curriculum matters, organizational norms necessitate this step. To be conducted as collegial exchanges, these mettings are not intended to seek or secure formal approval. Rather, the intent is to gain the goodwill and support to proceed with the promotional plan. At these meetings, a complimentary copy of the product will be presented. In this way, those with formal responsibility for curriculum matters are attended to, neutralizing their potential resistance to the promotional plan. Concomitantly, if necessay or desirable, their support could be used as part of the promotional plan with target faculty.

Once meetings with individuals responsible for school curriculum matters are completed, the task of creating interest among target teachers was planned. Individual meetings with each target faculty member are to be held, at which time specific reaction to the article and general reaction to environmental contaminants curriculum will be assessed. Feedback will be encouraged and fully explored. Once it is clear that there is interest on the part of target teachers, the next stage of the adoption model can be addressed: creating a desire for the product.

Consistent with the interpersonal style of the overall promotional plan, desire is approached by planning small group meetings of each of the target market segments. At these meetings, the product will be distributed and the marketer will make a presentation. The presentation will emphasize the rewards to be gained by using the curriculum innovation. Results of the curriculum pre-test will be presented and discussed. The Environmental Contaminants Curriculum Package will be summarized and explained, as participants review their copies. The intent of these meetings is to develop and reinforce the desire for each target faculty member to use the curriculum. Group process will be used to persuade members of each target segment that the environmental contaminants curriculum can and should be part of the courses that they teach.

The final stage of the adoption model involves action on the part of target teachers to actually adopt the product. The first step is to ascertain whether target teachers feel the need for formal legitimation before including the innovation in their courses. If such formal sanction is desired, the marketer will present the issue at a regularly scheduled meeting of each of the groups with formal responsibility for curriculum matters. If no formal sanction is desired, action in the form of scheduling implementation dates with each target teacher will proceed. The marketer will work with each target faculty member to facilitate implementation.

THE PLACE

This marketing transaction is to take place at a school of social work. This is where the marketer and target market will come together in an effort to complete the transaction. Certain characteristics of the place of the marketing transaction may have an impact on the transaction. The culture, history, values, norms, and current dynamics of an organization influence the members of the organization, and

therefore influence the decision to adopt or not adopt the innovation being marketed. In this respect, use of the marketing model to implement curriculum innovation requires attention to, and integration of, principles of organizational change, as discussed previously.

Generally, academic organizations are characterized by the autonomy, especially in the classroom, of faculty members. Comparatively non-authoritative, these organizations stress a collegial model of decision-making relevant to matters such as curriculum. This characteristic suggests strong compatibility with the marketing model of curriculum innovation implementation. While formal processes are typically in place for decisions about curriculum (such as curriculum committees), these processes may be used after the marketing plan has been implemented to secure formal approval for that which has already been informally agreed to by faculty members. Beyond this general characteristic, particular characteristics of the academic organization in which the Environmental Contaminants Curriculum is to be marketed are described below.

This marketing plan is to be implemented in a suburban school of social work which is a part of a Health Sciences Center including a school of medicine, nursing, allied health professions, and dentistry. The school was established in 1970, and has remained stable in terms of size, consisting of twenty-fwo full-time faculty and approximately three hundred students. Since its inception, the school has maintained a particular mission and perspective of the social work profession. Committed to the development of profesisonal social workers whose primary purposes are to promote social justice, contribute to the empowerment of oppressed and devalued peoples, and contribute to social and institutional change, the school was born in the climate of the sixties and has, at times, been considered radical in its orientation. As the result of an overall movement in the profession towards an advocacy emphasis, expressed in

the "case to cause" approach to professional practice, the School's mission is not nearly as radical as it once was. In addition, mandated attention to groups historically oppressed and devalued in society became part of the Council on Social Work Education's Curriculum Policy Statement. Thus, all schools of social work were required to demonstrate some commitment to the same groups of people that this school was committed to. Within the school, however, there is a clear belief that the mission differentiates this school from most others, and that the extent of commitment to the social change, social justice, and empowerment values underpinning this school will always differentiate it from others.

The structure of the school that serves as the "place" of the marketing transaction is such that two primary groups are formally constituted for purposes of governance and curriculum decisions. These groups are called Concentrations. Each faculty member must belong to a concentration, according to the school's by-laws. Each concentration has responsibility for developing, delivering, monitoring, and revising curriculum for students in that concentration. Since the Environmental Contaminants Curriculum Package consists of content which spans concentration responsibilities, the target market is comprised of members of both concentrations.

The culture of the school is characterized by very informal, collegial, consensus based decision-making. Authoritative, formal processes are deemphasized in favor of collective, informal organizational processes. The overt use of power derived from administrative authority is resisted, and, at times, criticized. Individual faculty interests and scholarly pursuits are highly respected and opportunities to share such work are available, although not formally structured or rewarded.

Coincidental to this project, the building in which the school is permanently quartered has been shown to have significant problems related to air quality and quantity. About six months prior to the implementation of this project, the school

was moved from its permanent quarters as a result of escalating complaints and symptoms from environmental problems. Subsequently, environmental consultants documented serious deficiencies in the building's ventilation system and significant proximate sources of air contamination which infiltrate the building continuously. This problem persists and the school remains relocated. This building-wide environmental problem involved every member of the school to some extent or another. This somewhat unique characteristic of the place of the marketing transaction is obviously related to the content of the curriculum innovation. As such, this place characteristic could become significant.

CHAPTER 4: REFERENCES

Fine, S.H. (1978) The Marketing of Ideas and Social Issues. New York, NY, Praeger.

Soine, L. (1987) "Expanding the environment in social work: The case for including environmental hazards content" Journal of Social Work Education, vol. 23, no. 2, 40-46.

CHAPTER 5

EVALUATING THE MARKETING MODEL FOR CURRICULUM INNOVATION IMPLEMENTATION

The evaluation of the Environmental Contaminants Education Project focuses on the effectiveness of the marketing model of curriculum innovation implementation. The evaluation question is:

> Did the marketing plan result in the adoption of the environmental contaminants curriculum by the core classroom faculty?

The operational definition of adoption is that the faculty member schedule an implementation date for delivery of the environmental contaminants curriculum module in his/her course. In addition to this summative purpose, the evaluation has a formative purpose: why was the curriculum innovation adopted or not adopted? To best fulfill these evaluation purposes, a qualitative research design has been selected. Many authors have cited the value of qualitative designs when in-depth knowledge and understanding is necessary to the research question (Patton, 1980; Bogdan, Taylor, 1975; Murphy, 1980). In-depth information is essential to gaining insight into the issue of why each individual makes the decision to adopt or not adopt the innovation. The full range of factors relevant to such a decision are not known, and the research design must be as inclusive and open as possible to enable identification of all such factors. Patton emphasizes the value of qualitative designs in this regard as they, "allow the important dimensions to emerge from analysis...without presupposing in advance what those important dimensions will be" (1980:41). Since this evaluation of the Environmental Contaminants Education Project seeks to understand the decisions made by faculty members relevant to

adopting curriculum innovations, the qualitative design is best suited to the evaluative purposes.

The primary method to be used in this qualitative evaluation research design is the case study. Most often cited as a method to gain in-depth information, Yin (1984) suggests that the case study is:

> ...the preferred strategy when "how" and "why" questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real life context (13).

Similarly, other authors describe the value of the case study method in, "uncovering the possible existence of cause and effect relationships" (Grinnell, 1981:302). Finally, Schramm notes that, "the essence of case study...is that it tries to illuminate a decision or set of decisions" (Yin, 1984:22). Since the focus of this evaluation is on decisions made by faculty vis-a-vis the adoption of the curriculum innovation, the case study method is clearly indicated. The unit of attention and analysis was determined to be individual faculty members, since prior studies of curriculum innovation implementation emphasized them as the crucial actors.*

EVALUATION RESEARCH DESIGN

This evaluation seeks to answer the question: did the marketing plan result in the adoption of the environmental contaminants curriculum by the core classroom faculty? The evaluation research design is organized according to the stages of the adoption model as this is the underpinning of the marketing plan. Each stage of the

---

* The definition of "case" copuld have been built upon the market segment groups -- practice faculty, HBSE faculty, and policy faculty. In this definition, each subgroup would be a case, focusing attention on the effects of group dynamics in the decision to adopt a curriculum innovation.

adoption model as this is the underpinning of the marketing plan. Each stage of the model has corresponding marketing activities, evaluation questions, and data gathering techniques. An overview of the evaluation research design is presented in Figure 1 on the following page.

The evaluation design can be characterized as a multiple case design, since there are nine individuals in the target market of core curriculum teachers. Each of these nine is considered a case in the evaluation of the marketing model for curriculum innovation implementation. Yin (1984) explains:

> The same study may contain more than a single case. When this occurs, the study has to use a multiple case design,... A common example is a study of school innovations... (47).

The significance of the multiple case study design is related to the underlying methodological differences between sampling and replication. According to Yin (1984), multiple case designs depend on replication logic, not sampling logic. Yin (1984) defined "replication logic" as follows:

> ...replication logic is analogous to that used in multiple experiments...an individual case or subject is considered akin to a single experiment, and the analysis must follow cross-experiment rather than within-experiment design and logic... This is far different from a mistaken analogy in the past, which incorrectly considered multiple cases to be similar to the multiple respondents in a survey (or to the multiple subjects within an experiment) -- that is to follow a "sampling" logic (48).

The issue of replication logic, rather than sampling logic, which Yin emphasizes in case study research design emanates from the rationale underlying the selection of subjects for the research. Sampling logic, depended upon in quantitative research designs, "demands an operational enumeration of the entire universe or pool of potential respondents, and then a statistical procedure for selecting the specific subset of respondents to be surveyed" (Yin, 1984:50). The value of sampling is that

FIGURE 1:

Overview:

Evaluation Research Design

STAGES OF ADOPTION MODEL	MARKETING ACTIVITY	DATA GATHERING TECHNIQUE	EVALUATION QUESTIONS
Awareness	Distribute article to target faculty.	Conversational interviews.	Was article received? Was article read? Reactions? Awareness achieved?
Interest	Meet with target faculty.	Participant observation and conversational interviews.	Interest evident? Why? Why not?
Desire	Distribute promotional package. Meetings with target faculty.	Conversational interviews. Formal interviews.	Package read? Reactions? Desire evident? Why? Why not?
Action	Follow-up meetings with target faculty.	Conversational interviews.	Implementation dates set? Why? Why not?

it enables generalization to the larger universe which the sample represents. Inferential statistics are then employed to, "establish the confidence intervals for which this representation is actually accurate" (Yin, 1984:50). Yin notes that sampling is most useful when the research focuses on the "...prevalence or frequency of a particular phenomenon..." (1984:50). Yin further emphasizes that, "any application of this sampling logic to case studies would be misplaced" (1984:50).

Instead, case study designs select subjects, or cases, on the basis of an existing, well-developed theoretical framework. Selected cases depend upon purposes of the study, but all are assumed to follow the theoretical framework; that is, "...the same results are predicted for each..." (Yin, 1984:50). When a case study design consists of multiple cases, analysis focuses on replication -- the extent to which each case replicates the theoretical framework postulated. Yin explains,

> Each individual case study consists of a "whole" study, in which convergent evidence is sought regarding the facts and consulsions for the case; each case's conclusions are then considered to be the information needing replication by other individual cases (1984:52).

Further refining the definition and methodological implications of replication logic, Yin (1984) identifies two types of replication: "literal" and "theoretical". Literal replication occurs when each case reflects similar results and theoretical replication occurs when different results are obtained for some cases, but for theoretically predictable reasons (Yin, 1984). Closely related to replication is the underlying theory or theoretical framework. A well-developed theoretical framework is necessary in order to specify the conditions under which literal replication and theoretical replication occur (Yin, 1984). Since the marketing model is based on well-developed and researched strategy from marketing theory, this need is satisfied in the Environmental Contaminants Education Project.

THE CASES

This evaluation will include all of the individuals to whom the Environmental Contaminants Education Package was marketed. As described previously, this group represents those faculty members responsible for courses in the core curriculum, to which the environmental contaminants curriculum modules correspond. Faculty teaching social work practice, social welfare policy, and human behavior and the social environment comprise this target market. Of the nine individuals, five are female, four are male. Ages range from the mid-thirties to the mid-fifties. All are full-time members of the faculty who have been teaching the core curriculum courses for a minimum of two years at this school of social work. Each member of this target market participated in the marketing plan to some extent. No cases were excluded from this evaluation. The marketing plan was implemented over a six-month period, from June to December, 1988. A summary of each case is presented later in this chapter.

DATA GATHERING TECHNIQUES

As the evaluator is a colleague of the target faculty members and also the innovator/marketer of the Environmental Contaminants Curriculum Package, participant-observation will be a major data gathering technique. Patton (1980) notes,

> ...the participant observer is fully engaged in experiencing the setting under study while at the same time trying to understand that setting through personal experience, observations, and talking with other participants... (127).

Many authors cite the unique opportunity of the participant observer as an "insider" (Patton, 1980; Schwartz, Jacobs, 1979). Yin states, "Many have argued that such a

perspective is invaluable in producing an accurate portrayal of a case study phenomenon" (1987:87).

Another major data gathering technique to be used in the evaluation is interviewing. Both informal conversational interviews and formal, open-ended interviews will be used. A minimum of one formal interview and four conversational inverviews per target faculty member are scheduled, as indicated in Figure 1, the Evaluation Research Design Overview, presented previously in this chapter. The informal conversational interview is especially useful in this evaluation because, as Patton notes, it relies:

> ...entirely on the spontaneous generation of questions in the natural flow of an interaction, typically an interview that occurs as part of ongoing participant observation fieldwork... The persons being talked to may not even realize they are being interviewed (1980:198).

The usefulness of the informal conversational interview is based on its flexibility and lack of predetermined content, enabling participants to probe into any and all areas. The opportunity to conduct a series of informal conversational interviews with the same individuals over a period of time has been cited as enhancing the usefulness of this data gathering technique for evaluation purposes (Patton, 1980).

Both formal and informal interviewing will be directed at obtaining data relevant to progress along the stages of the adoption model which underpin the promotional plan. As each individual moves through the stages of awareness, interest, desire, and action, interviewing will seek to determine the issues and factors of most significance at each of the stages. Reasons for decisions at each stage of the process will be explored in depth. Guiding the exploration and identification of significant factors is the framework of marketing's fundamental four Ps: product,

promotion, place, and price. Information relevant to each of these aspects of the marketing model for curriculum innovation implementation will be gathered.

Formal interviews, using open-ended questions, will be conducted at the point the target faculty member evidences desire to use the product. An interview guide will be constructed and used in these interviews. The interview guide, defined by Patton (1980), is:

> ...a list of questions or issues that are to be explored in the course of an interview...in order to make sure that basically the same information is obtained from a number of people by covering the same material...it helps make interviewing across a number of different people more systematic and comprehensive... (200-201).

If there are instances in which members of the target market do not reach the stage of desire to use the curriculum innovation, formal interviews will be conducted at the end of the six-month implementation period, regardless of stage reached at that time. A copy of the interview guide is included in the appendix.

After all data are gathered, a case record for each member of the target faculty is compiled. From this case record, a summary of relevant data is recorded. The case summaries of each of the members of the target market of the Environmental Contaminants Education Project follow.

CASE SUMMARIES

After data gathering was completed, the case record for each target faculty member was compiled. The following summaries present relevant data. Cases are identified by letter only, and include the descriptive information and responses to the promotional plan, as detailed in the Case Study Protocol (Appendix A).

Case A

This faculty member has been at this school for about three years. The nature of relationship with the marketer/evaluator is collegial, relatively co-equal in formal organizational status, and not characterized by any particularly significant prior interactions. This individual has been very interested in and attentive to the recent environmental problems of the school. In addition to teaching responsibilities, the individual is moderately engaged in external scholarly endeavors.

This individual's response to the first stage of the promotional plan was positive and proactive. The individual was obviously excited and responded with immediate interest and desire to obtain the product. Upon obtaining and reviewing product, individual immediately initiated a meeting with marketer/evaluator. At the meeting, the curriculum product was praised for ease of use, compatibility with teaching style, and comprehensiveness. Right away, the individual presented tentative scheduling considerations. The decision to adopt had already been made, and questions relevant to the actual use of the product were raised. The question of who would implement the introductory module was raised and various options discussed. A desire for the marketer/evaluator to implement the introductory module was eventually expressed. Dates were established for the marketer/evaluator to teach the introductory module, followed by the target faculty member teaching the course-specific module.

Case B

This faculty member has been at the school for about four years. The nature of the relationship with the marketer/evaluator is collegial, relatively co-equal in formal organizational status, and not characterized by any particularly significant prior interactions. This individual has been very involved in the environmental

problems of the school. In addition to teaching responsibilities, individual is moderately engaged in external scholarly endeavors.

This individual's repsonse to the promotional plan was generally positive. Awareness, interest, and desire were established quickly. Product was praised for ease of use and importance of content. Desire to use the product in a very particular way was expressed. The desire to tailor the product's use to individual style was strongly expressed by this individual. The product was seen as a resource, rather than as a "prescription", and valued because of this. Implementation dates were scheduled.

Case C

This faculty member has been at this school for about two years. The nature of relationship with the marketer/evaluator is collegial, relatively co-equal in organizational status, and not characterized by any particularly significant prior interactions. This individual has been minimally involved in the recent environmental problems of the school. In addition to teaching responsibilities, individual is moderately engaged in external scholarly endeavors.

This individual's response to the promotional plan was positive and proactive. Praise for the product was expressed. The desire to use the produce was expressed. Some hesitancy was expressed related to lack of expertise in the content area of environmental contaminants: "I'm not sure I can answer all the questions that students might ask", commented the individual. The desire for assistance, especially in the implementation of the introductory module, was expressed. The marketer/evaluator was asked if a videotape could be created to facilitate implementation of the introductory module. Implementation dates were scheduled, although creation of a videotape was postponed.

Case D

This individual has been at this school for about six years. The nature of relationship with the marketer/evaluator is collegial, relatively co-equal in organizational status, and characterized by mutually rewarding prior professional interactions. This individual has not been very involved in the school's recent environmental problems. In addition to teaching responsibilities, this individual is heavily engaged in external scholarly endeavors.

This individual's response to the promotional plan was initially minimal. Interest was eventually expressed along with statements indicating that currently overwhelming circumstances precluded immediate implementation of the product. It was clear that the individual was conflicted as reflected by the comment, "I really want to use the curriculum. I just don't have the time now". Follow-up efforts resulted in the individual's expression of desire to use the product in the following semester, but no actual dates were established.

Case E

This individual has been at this school for about nineteen years, since its opening. The individual is tenured and the nature of relationship with the marketer/evaluator is collegial, characterized by predominantly positive interactions. This individual has been somewhat involved in the recent environmental problems of the school. In addition to teaching, individual is moderately engaged in external scholarly endeavors.

This individual's response to the promotional plan was initially very positive. Praise for the product was expressed. Interest was established. Follow-up renewed the individual's interest and desire to use the product was established. Subsequent follow-up resulted in the designation of implementation dates.

Case F

This individual has been at this school for about fifteen years. The nature of relationship with the marketer/evaluator is collegial and not characterized by any particularly significant prior interactions. This individual has been uninvolved in the recent environmental problems of the school. In addition to teaching responsibilities, individual is heavily engaged in external scholarly endeavors.

This individual's response to the promotional plan was initially minimal. Some preliminary interest was expressed eventually. Upon follow-up, individual indicated desire to incorporate product content by having marketer/evaluator actually implement it. The individual commented, "It's great; when do you want to come to my class and teach it?". No implementation dates have been set.

Case G

This individual has been at this school for about nineteen years, since its opening, and is tenured. The nature of relationship with the marketer/evaluator is collegial, characterized by predominantly positive interactions in the past. This individual has been very heavily involved in the recent environmental problems of the school. In addition to teaching responsibilities, this individual is very heavily involved in external scholarly endeavors.

This individual's response to the promotional plan was initially minimal. Follow-up established that there was interest, but insufficient time available to pursue that interest. The pressing and urgent nature of other professional commitments precluded present attention to the product. The individual expressed regret that this was the situation, especially as the curriculum innovation was important. No implementation dates were established.

Case H

This individual has been at this school for about five years. The nature of relationship with the marketer/evaluator is collegial, relatively co-equal in organizational status, and characterized by predominantly positive past interactions. This individual has not been very involved in the recent environmental problems of the school. In addition to teaching responsibilities, individual is moderately engaged in external scholarly endeavors.

This individual's response to the promotional plan was initially tentative, but moved to positive after receipt and review of product. Praise for product emphasized its ease of use and comprehensiveness. "I can't believe you did all this", commented the individual. Some hesitancy about the lack of familiarity with content was expressed, but, after discussion, did not become an obstacle. Implementation dates were designated.

Case I

This individual has been at this school for about two years. The nature of relationship with the marketer/evaluator is cordial, but distant. The individual has not been involved in the recent environmental problems of the school. In addition to teaching responsibilities, individual is very heavily engaged in external scholarly endeavors.

This individual's response to the promotional plan has been extremely minimal. Marketer/evaluator follow-up has also been minimal as a result of conflicting schedules. No expression of interest or desire to use the product have been established.

DATA ANALYSIS

A simple analysis of the data according to the summative evaluation research question, Did the marketing plan result in the adoption of the environmental contaminants curriculum by target faculty?, shows that five individuals did and four did not. This is depicted in Figure 2, on the next page. A more detailed analysis of the data, in accord with the marketing model and its characteristics, was undertaken to identify issues of significance relevant to the use of the marketing model to implement curriculum innovations. Two major data analysis techniques were used: "pattern-matching" and "explanation-building" (Yin, 1984).

Yin (1984) explains "pattern-matching" as follows:

> For case-study analysis, one of the most desirable strategies is the use of a pattern matching logic. Such a logic compares an empirically based pattern with a predicted one (or with several alternative predictions). If the patterns coincide...strong causal inferences can be made (103).

The pattern to be matched in each case is derived from the marketing model for implementing curriculum innovation as presented in Chapter 3. Based on the stages of the decision-making process that precede the adoption of a new product, this model prescribes a pattern of behaviors. The individual who is the target of a successful marketing plan responds by sequentially moving through the following:

(1) becoming aware of the product

(2) developing interest in the product

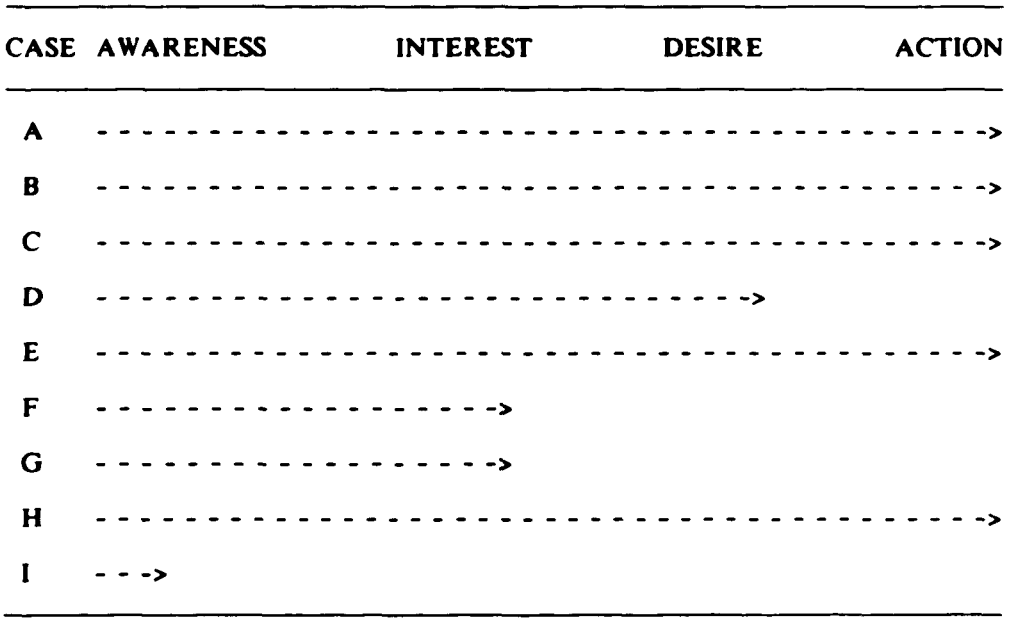
(3) developing a desire to acquire the product

(4) taking action to acquire and use the product

FIGURE 2:

The Environmental Contaminants Education Project

Evaluation Summary



As discussed previously, the product must be developed in accord with the values, reward structure, style, and needs of the consumer. Given such a product, the pattern of behaviors to be expected is clear.

In each of the cases in this evaluation, the predicted pattern was matched, although each individual proceeded through the sequence of predicted behaviors at very different rates. Also, as noted, in several cases the predicted behaviors were matched, but only to a certain stage, not to the point of actual adoption. This, too, is consistent with the assertion, discussed previously, that each stage of the adoption process must be successfully completed before an individual will move to the following stage, eventually deciding to act to adopt a new product.**

As shown in Figure 2, five out of the nine target faculty members actually decided to implement the environmental contaminants curriculum by the end of the data gathering period. One individual was very close to establishing implementation dates. Two other individuals were interested, but had not gone further in the adoption process. One individual had not gone beyond the first stage of product awareness.

The marketing activities associated with each stage of the adoption model included meetings, follow-up discussions, and distribution of materials, including the promotional package (see Figure 1, page 59, for marketing activities according to stages of adoption model). In some cases, meetings were more frequent than planned. This occurred as some individuals were more proactive and initiated contact more often than specified in the marketing plan. This is discussed in a subsequent section.

** It is important to note an inherent limitation of multistage models in that they imply a linear, simplified progression. In reality, movement through the stages of the adoption model is not necessarily linear. People may simultaneously be involved in several stages or they may move back and forth between stages.

The predictability of the model was evidenced early in the implementation process as some individuals were seeking to acquire the product prior to its availability. These individuals moved quickly through the stages of awareness and interest and had developed desire earlier than the marketer/evaluator anticipated. These were among the individuals who did ultimately adopt the product. Other individuals, however, did not move beyond interest or desire.

Having established a generally matching pattern, the cases were analyzed by means of "explanation-building" techniques (Yin, 1984). According to Yin (1984), "explanation-building" is:

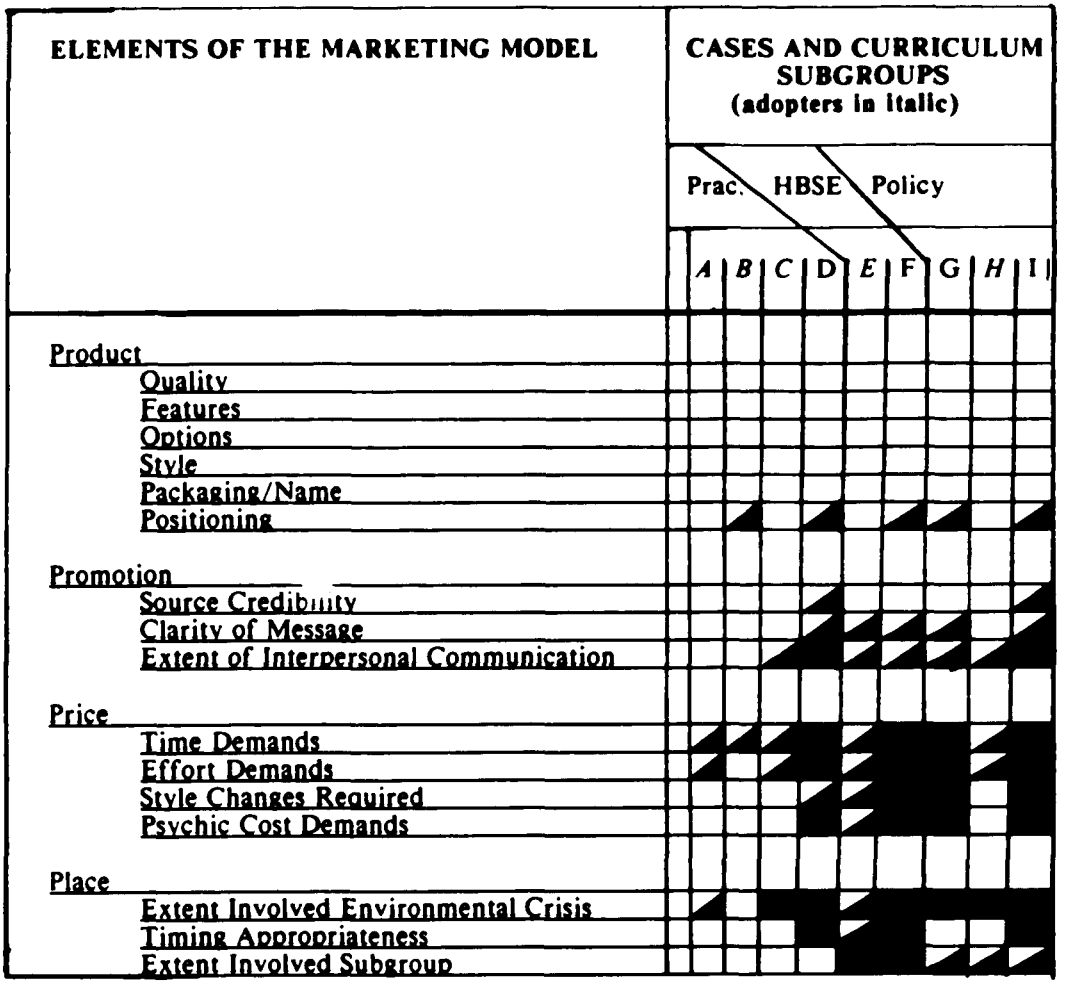
> ...a special type of pattern-matching...the goal is to analyze the case study data by building an explanation about the case...to stipulate a set of causal links about it (107).

Yin notes that "explanation-building" is most useful when based on some "theoretically significant propositions" (1984:107). In this evaluation, the theoretically significant propositions are those derived from marketing theory which underpin the curriculum implementation model. As discussed, the four Ps form the cornerstones of the model: product, promotion, place, and price. Potential consumers consider each of these factors as they move through the adoption process. As detailed in the development of the marketing model for curriculum innovation implementation (Chapter 3), the four Ps and their subcategories comprise criteria by which a marketing effort can be assessed. In order to discern patterns and/or explanations, the data were analyzed according to the major marketing elements: product, promotion, price, and place. The results of this analysis are depicted in Figure 3, on the following page.

As reflected in Figure 3, the product and its characteristics were well received and responded to quite positively. The promotional campaign generally

FIGURE 3:

Individual Cases and Curriculum Subgroups According to Elements of the Marketing Model



Key: ☐ indicates very strong/positive response relevant to marketing variable.

◪ indicates moderate/neutral response relevant to marketing variable.

■ indicates negative response relevant to marketing variable.

fulfilled requisite characteristics, with some exceptions. It is the price/cost category which reflects the most problemmatic characteristics, with time and effort demands universally resisted. Characteristics relevant to place were very differentially responded to, indicating wide variation in the experiences of target faculty within the same place. A detailed analysis of each of these categories follows, providing greater insight into the use of the marketing model to implement curriculum innovations.

PRODUCT

Overwhelmingly favorable response to the product was forthcoming from all target faculty members, whether they adopted the innovation or not. Particular comments were related to overall quality, comprehensiveness, ease of use, appearance, and value compatibility. The inclusion of hand-outs and classroom exercises, especially in the H.B.S.E. and Practice modules, was cited as positive and desirable. One product characteristic which was somewhat less enthusiastically received by some members of the target faculty related to positioning. As discussed previously, a curriculum innovation competes with some existing curriculum. Several target faculty members questioned product positioning to some extent. The issue of what current content would/could be replaced was raised immediately and explicitly. For some individuals, the issue was readily resolved in discussion. Resolutions ranged from reducing time and emphasis on an existing curriculum component to using sessions reserved for class self-evaluation discussion for the curriculum innovation. It is notable that totally eliminating any current curriculum was not chosen as a way to enable inclusion of the innovation. Some current components were abbreviated, but none were eliminated.

Another positioning problem was identified early by members of the target market. Within the Environmental Contaminants Curriculum Package, an

implementation sequence for the modules is implicit. The introductory module is intended to precede other modules. Also, consistent with the structure of social work education, the human behavior module was viewed by most practice faculty as needing to precede the practice module. This raised the issue of a completely coordinated implementation schedule involving every member of the target market, such that each student would experience the modules in the optimal order, regardless of the course section or faculty member. Such a highly coordinated implementation schedule was inconsistent with the marketing model, however. Each target faculty member's pace through the stages of the adoption process was very different. In addition, as the marketing model focuses on individual choice and decision-making, imposing an implementation schedule was inappropriate. After much discussion with early adopters, noting that similar problems permeate the social work curriculum, resolution was reached. With the marketer's assistance, curriculum from several modules was combined. The necessary foundation elements were selected and organized to precede the particular course-specific module. This seemed satisfactory to the members of the target market who were eager to implement the innovation in their courses. There were several notable results of this consideration of coordinated implementation. One result was that target faculty were encouraged to review and use content from other modules in the curriculum package. Some relevant comments included, "I didn't realize I could do that", and, "I feel like that gives me more freedom". Interestingly, no part of the promotional campaign ever restricted attention to the module that corresponded to the courses taught by the target faculty.

Another issue related to the product was identified through positioning discussions and had several dimensions, including: some discomfort with teaching new content, some lack of confidence in the new content area, and consequentially, some concern about the effort required to use the curriculum innovation. In most

instances, these issues were resolved by individuals through discussion with the marketer and with each other. One suggested resolution to this issue was the development of a videotape which would incorporate introductory content and some of the human behavior content. This suggestion was widely supported by members of the target market. Although impossible to implement at that point in this project, the videotape would be an apparently welcomed addition to the curriculum package. In lieu of such a videotape, and in response to some of the issues identified above, the marketer did agree to teach the introductory module in one course, followed by the target faculty member teaching the course-specific module.

PROMOTION

The characteristics of effective promotional campaigns include source credibility, clarity of message, and extent of interpersonal communication which accompanies the promotional effort. In almost every instance, source credibility was acknowledged by members of the target market. As noted previously, activities had been planned to establish source credibility in the area of environmental contaminants. As reports from environmental consultants were received, reviewed, and debated, the marketer's knowledge of environmental contaminants was apparent.

The clarity of the message being marketed and the extent of interpersonal communication are interrelated to some extent. The more frequent the interactions, the more opportunity there is to clarify the message. As reflected in Figure 2, lack of clarity of message and lesser extent of interpersonal communication were characteristics common to those cases that did not result in adoption of the innovation. While the marketer attempted to be clear in every communication, lack of clarity persisted among some members of the target market. Combined with less

frequent interaction and interpersonal communication, the lack of message clarity continued.

Reasons for the variation in interaction and amount of interpersonal communciation, beyond that contained in the promotional plan, were myriad. In some instances, normal organizational processes resulted in more informal interaction between the marketer and some members of the target market. In other instances, individuals who were interested in the product initiated contact with the marketer more often than other members of the target market. Also, as a result of the marketer's position as a member of the faculty, relationships played some part in the variation in frequency of interaction. Although no significant past relationship issues existed between any members of the target market and the marketer, each relationship is different, characterized by variations in length, depth, breadth, complexity, and comfort. These characteristics clearly effected the overall implementation of the promotional plan. The marketer did not pursue some members of the target market with as much tenacity as others. Athough all members of the target market participated in the promotional plan, follow-up and informal contact initiated by the marketer was less frequent with those who have not adopted the product. This result suggests that further effort on the part of the marketer, over a longer period of time, could lead to the decision to adopt the product on the part of more members of the target market.

PRICE/COST

As identified throughout the literature on curriculum innovation implementation, the perceived price or cost is a critical factor in any implementation plan. It is interesting to note that although every effort was taken to minimize cost in the product development stage of this project, no member of the target market

perceived the cost to be minimal or non-consequential. In every case, cost concerns were expressed. A review of Figure 3 shows a pattern wherein non-adopters of the innovation determined that the time demands, effort demands, style change requirements, and psychic cost demands were excessive.

An examination of cost according to common attributes of an innovation, as discussed in Chapter 2, warrants attention to the innovation's relative advantage, complexity, trialability, and observability. The environmental contaminants curriculum did not possess inherent relative advantage; there was no generally recognized problem to which the curriculum responded. Potential relative advantage was emphasized in an effort to persuade target faculty that adoption of the innovation offered advantages over the current curriculum. These advantages were contemporary relevance, professional commitment, and very positive student reaction. These potential advantages had to be communicated through the marketing plan; therefore, in those cases that did not move much beyond awareness, the extent of perceived relative advantage was quite low.

With respect to the attributes of complexity and trialability, the innovation presented very limited costs. All feedback indicated that the innovation was not complicated, and very easy to use. In addition, all members of the target market were aware of the experimental nature of the innovation. Adoption of the innovation could be reversed, if target market members so desired. The attribute of observability played an interesting part in the perceptions of cost among target market members.

Observability refers to the extent to which the results of an innovation are apparent, and seen by others. In a marketing plan such as this, observability is somewhat limited because all target market members are simultaneously addressed. The importance of this attribute emerged when early adopters began to provide

feedback to colleagues about how well the innovation was received by students. It was only after some target teachers had actually implemented the innovation that observability became possible.

Further investigation into these cases reveals many different factors contributing to an individual's perception of cost as excessive. In each instance, individuals in this group were extremely involved in external commitments and/or demanding internal organizational responsibilities. In one case, an individual is extremely involved in another substantive area of concern: homelessness. Involvement includes the development and implementation of an elective course on the topic and fulfilling a publishing contract for a book on the subject. These involvements, combined with a major administrative assignment in the school, render the cost of adopting the environmental contaminants curriculum innovation excessive for this individual. In another case, an individual serves as project director for several contracts related to mental health services and has recently become instrumental in a statewide program to improve mental health services. This individual indicated strong interest in the innovation and expressed regret that it was just not possible to pursue the interest at this time. In two other cases, the individuals fulfill very demanding administrative roles within the school in addition to typical teaching responsibilities and scholarly pursuits. For each, the combined pressures of these responsibilities is considerable. Actions requiring additional time and effort are likely to be resisted by such individuals.

Clearly, perceived cost is a critical determinant in the decision to adopt or not adopt a curriculum innovation. There is evidence to suggest that cost/price is the most significant characteristic to be addressed in the marketing model to increase its effectiveness. As shown in Figure 3, each case in which cost/price was a major negative factor, the curriculum innovation has not been adopted. As reflected in the

preceding examples, origins of the perception that the innovation would be too costly vary by individual. All seem to share the feeling that anything additional would be excessive and unacceptable. This suggests that an individual assessment of target market members could be conducted to ascertain perceptions of costs inherent in curriculum innovation implementation. The results of such an assessment could be used to selectively identify members of the target market, to determine most appropriate timing of an implementation effort, or to arrange for a workload reduction for members of the target market.

PLACE

Characteristics particular to the place at which the marketing transaction is completed are significant to the success or failure of a marketing effort. In the case of the Environmental Contaminants Education Project, three characteristics derived from the school were identified: involvement in the school's environmental problems, the appropriateness of the timing of the marketing effort according to individual organizational roles and responsibilities, and extent of involvement in curriculum subgroups -- practice faculty, H.B.S.E. faculty, and policy faculty.

An analysis of the data according to these place characteristics shows two of the three to be related to the eventual adoption of the curriculum innovation. These are: the appropriateness of the timing of the marketing effort and extent of involvement in a curriculum subgroup. Involvement in the current environmental problems of the school did not show a pattern of relationship relevant to the decision to adopt the innovation. As shown in Figure 3, in each case in which the timing of the marketing effort was inappropriate, the innovation was not adopted. There is a close relationship between perceiving the cost as excessive and identifying the timing as inappropriate. At a less burdensome time, an individual is likely to perceive the

timing as better. Again, the possibility of assessing the target market according to appropriateness of timing is suggested by this result.

The extent of involvement in curriculum subgroups seems very related to the eventual decision to adopt the innovation. Among the practice faculty, the subgroup marked by the most cohesiveness, most interaction, and most frequent meeting schedule, three out of four adopted the innovation and the fourth expressed intent to adopt as soon as circumstances permitted. Participation in a fairly strong curriculum subgroup seemed to enhance the effectiveness of the marketing effort. Discussion among peers in this subgroup engendered increased individual awareness, interest, and desire relevant to the curriculum innovation. This is evidenced by the example of a newly-hired practice faculty member, not a part of the immediate target market, approaching the marketer and asking to be included. This individual stated that much discussion was devoted to the innovation at a recent meeting. Throughout the process of implementing the promotional plan, members of this subgroup were observed discussing the innovation and its use among themselves. In addition, members of this subgroup had the most interpersonal communication with the marketer, often initiated by the target faculty members. Clearly, the group process contributed positively to persuading target faculty to adopt the innovation. This result raises the question of designing the marketing plan for groups, rather than individuals. This is explored further in the final chapter.

SUMMARY OF MAJOR FINDINGS

Major findings, according to the fundamental elements of marketing -- product, promotion, price, and place -- show that price is the most consistent factor in the individual's decision to adopt or not adopt this curriculum innovation. This is consistent with findings of other models of curriculum innovation implementation

(Berman, McLaughlin, 1976; Leithwood, 1981). Through the Environmental Contaminants Education Project, various explanations of an individual's perception of excessive price were identified. One explanation is clearly an individual's sense of being overwhelmed by current workload commitments. Whether these commitments are internal or external, the individual explains that he/she cannot consider anything new at this time. A related explanation for an individual's perception of price as excessive is apparently rooted in the idea that effort is dependent on the result of a cost/benefit ratio. In this explanation, individuals do not see sufficient benefits to warrant their effort towards adopting the innovation. This may evolve from an individual's commitments to other, perhaps competing, curriculum areas. It may also evolve from a sense of workload inequity, especially in situations where faculty fulfill demanding administrative roles in addition to teaching responsibilities. For these individuals, the benefits do not compensate their efforts as things are already. To add yet another task is adding insult to injury. Such individuals are going to need to perceive substantial benefits to counteract these existing perceptions of imbalance. Without substantial benefits, they are unlikely to choose to adopt a curriculum innovation.

Another finding of interest is the extent to which subgroup involvement enhanced the effectiveness of the promotional plan. The opportunity to engage peers in discussion about any and all aspects of the curriculum innovation is apparently an important element in the individual's decision-making process. The subgroup experience enables on-going clarification, support, validation, problem-solving opportunities, and continuing attention to the curriculum innovation. The innovation becomes a topic of mutual concern in the subgroup. Furthermore, as individuals implement the innovation, the subgroup provides a forum for feedback and continuing refinement of the innovation.

The finding that greater amounts of interpersonal communication can enhance the effectiveness of the marketing model of curriculum innovation implementation is quite consistent with marketing theory. It is important to note the interrelatedness, in this project, of membership in a strong curriculum subgroup and extent of interpersonal communication with the marketer. Members of the strong subgroup had more frequent contact with the marketer, both individually and in small groups, than any others in the target market. Much of this communication was initiated by target faculty members. Thus, the subgroup experience increased individual interest in the innovation and seemed to generate closer communication between the marketer and members of the subgroup.

Other findings, related to product positioning, suggest that target faculty are likely to try and add the curriculum innovation to their courses without completely deleting any existing curriculum. This approach obviates the problem of competition among curriculum components; the innovation is not viewed as replacing an existing component. While each member of the target market who adopted the innovation achieved the goal of integrating the new curriculum without completely deleting any other curriculum, such an approach has some obvious limitations. At some point, course content will exceed available time if additions to the curriculum continue. At that point, positioning concerns may become more prominent and influential in the decision to adopt or not adopt a curriculum innovation.

In summary, these findings indicate that the decision to adopt a curriculum innovation is a complex, individual process, dependent upon many variables. The marketing model enables attention to each of these variables. Consideration of the cost of adopting an innovation has been shown to be a critical variable. Efforts to reduce the cost to the most minimal level possible are indicated. In addition, the involvement of target individuals in a cohesive curriculum subgroup has been shown

to be a positive factor in the decision to adopt a curriculum innovation. Thus, the project shows that the marketing model can be used to implement curriculum innovations and that certain revisions in the model may make it even more effective. This is addressed in subsequent sections.

DISCUSSION

The marketing model of curriculum innovation implementation was demonstrated to be effective in persuading target faculty to actually implement new curriculum in core courses. Each target faculty member who established an implementation date has followed through and completed the implementation of the innovation on schedule. Feedback from these faculty members has been overwhelmingly positive. Comments indicate strong student interest and involvement in the environmental contaminants content. The feedback from early adopters has helped focus continuing attention on the innovation and its institutionalization seems assured as a result.

This project indicates that certain aspects of the marketing model can be more finely tuned in subsequent efforts to use the model for implementing curriculum innovations. More attention to benefits is definitely indicated. Incentives can be identified and made available to target market members. An assessment of the members of the target market, prior to the promotional phase, can identify the range and type of incentives that would be most appropriate. Such an assessment can concomitantly identify timing issues and preferences of target faculty. Based on the findings of this project, a phased implementation of curriculum innovations is suggested. Members of the target market may be ready and able to consider adopting a curriculum innovation at very different times during the academic year. An individualized assessment, with input from target faculty, could lead to the

designation of various phases of innovation implementation, in accord with faculty readiness.

Another significant area for improvement of the marketing model lies in the value of group process as demonstrated in this project. A cohesive curriculum subgroup can be an important factor in the decision to adopt a curriculum innovation. Thus, future efforts could address establishing or supporting such small groups. The group process provides an opportunity for individuals to really explore the operational issues inherent in adopting a curriculum innovation.

Certain factors relevant to this evaluation of the marketing model for curriculum innovation are pertinent. The particular organizational character of this setting is well suited to the marketing model. Emphasis on informal, collegial processes, especially relevant to curricula content, is one facilitative organizational characteristic. This enabled the fulfillment of the simultaneous roles of marketer/evaluator and participant/observer in a normative, unobtrusive manner. Members of the target market were not made aware of the marketing plan that was underway. Most knew that the curriculum innovation being marketed was developed as part of the marketer/evaluator's doctoral work. Most believed that the product was the final result of that work and were not aware that a new marketing model of implementation was being tested. Nevertheless, the role of interpersonal relationships in the decision to adopt the innovation cannot be completely dismissed.

The informal nature and norms of this organizational setting were also factors in the marketing plan's lack of inclusion of formal organizational processes. In the initial marketing plan, a set of processes and activities to formalize individual decisions to adopt the innovation were included. The marketer/evaluator sought to institutionalize the curriculum innovation by means of formal sanction from the appropriate body. This intention was not only contraindicated by some members of the target market, it was flatly rejected. This is acknowledged to be a unique organizational characteristic, wherein members reject the idea of formal sanction.

While academic organizations generally value individual academic freedom, more central and formal control of curriculum matters is typical. In other schools, faculty may desire or feel the need for formal sanction of individual decisions to adopt curriculum innovations. This project was not able to evaluate the plans to proceed with formal sanction. It is relevant to note that informal sanction for the marketing effort was obtained by the marketer/evaluator from those with formal roles in curriculum decisions and the marketer/evaluator is certain that formal sanction would have been forthcoming, if sought.

Another factor which may be somewhat unique and pertinent to this project and its evaluation is the occurrence of an environmental problem in the building in which the school had been housed. About five months prior to the initiation of the marketing plan, the school was evacuated from its quarters as a result of an air quality problem. The extent to which this experience enhanced target market receptivity is unclear. Although data were gathered relevant to this issue, it is difficult to interpret. Most of the individuals who actually adopted the curriculum innovation did not feel as though the air quality problem was predominant, or even highly significant, in their decision. This is somewhat supported by the finding that some members of the target market who did not adopt the innovation were very heavily involved in the building's air quality problem. Concomitantly, some who eagerly adopted the innovation were not very involved in the air quality problems. While the actual impact of the building's air quality problems on this project and its participants cannot be assessed, this is not perceived as a serious threat to external validity. For one thing, the evidence that does exist does not suggest this to be a decisive factor. For another, the extent of environmental problems experienced by all members of society at this point in post-industrial America leaves almost no one untouched. The average individual is already aware of the increasing contamination

of the physical environment and has probably had some direct experience with air pollution, water pollution, ground contamination, and/or other environmental problems. This suggests that if receptivity is increased by individual experience, this receptivity is probably present in many, if not most, faculty members of schools of social work.

Another aspect of the evaluation of the marketing model for curriculum innovation implementation which is pertinent is that those who have not yet adopted the curriculum have not rejected the curriculum. They are by no means "closed" cases. It is quite possible that continuing marketing efforts, combined with a reduction in perceived cost, could result in more individuals deciding to adopt the innovation. At a time when some of these individuals are less encumbered by their external scholarly and professional commitments, it is feasible that they could be persuaded to adopt the innovation. In this regard, the model has not failed, it has just not yet succeeded. This will be addressed in the next chapter.

CHAPTER 5: REFERENCES

Berman, P.; McLaughlin, M. (1976) "Implementation of educational innovation" Educational Forum, March, 345-370.

Bogdan, R.; Taylor, S.J. (1975) Introduction to Qualitative Research Methods, New York, Wiley.

Grinnell, R.M. (1981) Social Work Research and Evaluation, Itasca, IL, F.E. Peacock.

Leithwood, K.A. (1981) "Managing the implementation of curriculum innovations". Knowledge: Creation, Diffusion, Utilization, vol. 2. no. 3, March, 341-360.

Patton, M.Q. (1980) Qualitative Evaluation Methods, Beverly Hills, CA, Sage.

Schwartz, H.; Jacobs, J. (1979) Qualitative Sociology: A Method to the Madness, New York, NY, The Free Press.

Yin, R.K. (1984) Case Study Research: Design and Methods, Beverly Hills, CA, Sage.

CHAPTER 6

IMPLICATIONS AND SIGNIFICANCE

This exploratory study of the use of marketing to implement a curriculum innovation in a school of social work contributes some insights into the processes involved in such change. Although this study's limitations preclude any claim that marketing is the preferred strategy for implementing curriculum innovations, use of the marketing model has clarified certain conditions and prerequisites for successful implementation of curriculum innovation.

Marketing theory directs attention to aspects of organizational innovation which are not fully addressed in traditional theories. Marketing identifies four categories of concern: product, promotion, price, and place. These categories force consideration of issues of importance in efforts to implement curriculum innovations, adding to existing theories.

Consideration of the curriculum innovation as a product focuses attention on an issue typically bypassed by traditional theories -- the quality of the product. As discussed previously, most theories presume an innovation to be of high quality, without requiring any proof of quality. Marketing requires substantial attention to product quality. In addition, characteristics of the product, such as its features, style, packaging, and positioning, are focused on by marketing. These considerations go beyond those typically addressed by traditional theories.

Promotion, depended upon heavily in marketing, is often absent from traditional theories which depend upon authority, bargaining, or power to secure the

cooperation of individuals who must implement an innovation. Marketing theory adds an important element to traditional theories by identifying micro theoretical issues related to individual acceptance of change. Identification of the continuum of awareness, interest, desire, and action, focuses attention on the processes by which individuals are, or are not, persuaded to accept change.

Attention to price/cost issues is included in most traditional theories. Marketing adds to existing literature by focusing attention on the importance of the individual's perception of price. Consistent with marketing's focus on the individual, price/cost is seen as individually perceived in relation to personal/professional circumstances. Individual perception of price is also inextricably related to the organization in which the individual is located. Marketing directs attention to these issues by means of place characteristics. Among these characteristics, segmenting the market into subgroups is an addition to existing theories.

Thus, marketing theory, with its emphasis on persuading individuals to adopt a product, adds to existing theories of curriculum innovation, especially at the micro level. The next section discusses some of these contributions in relation to this study.

CONTRIBUTIONS TO CURRICULUM INNOVATION IMPLEMENTATION

Use of the marketing model to implement a curriculum innovation resulted in recognition of factors not well addressed in the existing literature. One such factor involves the importance of group process in the individual's decision to adopt an innovation. Although the decision to use a curriculum innovation is an individual one, as documented in previous studies, this study showed that group process was a powerful element in the individual's decision. This study's design depended on

existing groups, corresponding to curriculum areas. Members of the group characterized by frequent, formal and informal interaction, cohesiveness and collegial relationships, adopted the innovation. This suggests that efforts to implement curriculum innovations can benefit from a focus on group process, whether or not a marketing model is used. The need to further explore the use of group process in implementing curriculum innovations is indicated.

Another contribution to curriculum innovation implementation literature which emerges from this study is the clarification of the thought process which accompanies an individual's decision to accept change. The well documented concern about cost has been explored and found to be highly individualized. Incentives to induce individuals to consider curriculum change are also very unique to each individual. Perceiving change as a burden, efforts to induce individuals to choose to involve themselves in change must also be individualized, in accord with each teacher's perceptions.

This study also shows that the timing of efforts to implement curriculum innovations needs to be individualized. Regardless of the apparent advantage of certain times in the academic year, some individuals will not perceive these times as preferable, or even possible. Thus, curriculum innovation implementation may be more effective if individuals are afforded the option of choosing when to participate. Such an approach, coupled with inducements that are individualized, seems most likely to result in teachers' willingness to adopt a curriculum innovation. Common inducements or rewards and/or a fixed timetable for curriculum innovation implementation are contraindicated by this study. This suggests a different way of thinking about the process of curriculum innovation implementation than is reflected either in the literature or in this study.

Another contribution to curriculum innovation implementation evolving from this study is the importance of competition between existing curriculum and curriculum innovations. The tendency to continue adding to curricula with each innovation is one that social work educators are quite familiar with. As mandates emanate from the Council on Social Work Education, most schools find themselves grappling with curriculum overload. The marketing model, with its focus on positioning, forces careful consideration of the question of the relationship of curriculum innovations to existing curriculum components. Continuous additions to a curriculum that must be delivered within a fixed time frame are impossible. Regardless of the model used to implement curriculum innovation, attention to this issue is imperative.

While this single study, using a marketing model to implement curriculum innovation, adds to existing understandings of curriculum innovation implementation, it is limited by certain factors. First, the fact that members of the target market had been involved in an environmental problem prior to participating in this study is a potential limitation. Although findings did not suggest that this factored heavily in individual decisions to adopt the innovation, the impact of this experience may be more significant, albeit subtle, than reported. To the extent that this experience influenced target teachers, educators using the marketing model might simulate such a situation. For example, the implementation of a curriculum innovation focusing on incest might be preceded by a conference or colloquium which includes professionals serving incest victims, incest victims themselves, and relevant others. In this way, a climate for receptivity may be established by heightening awareness and interest.

Another limitation of this study emanates from the role interpersonal relationships may have played in the decision of target teachers to adopt or reject the curriculum innovation. Because marketing depends heavily on interpersonal

communication and because, in this study, the marketer had personal relationships with the target market, the effect of these factors remains unclear. No evidence of such effects was found, but this does not preclude the possibility of such effects.

ISSUES FOR FURTHER RESEARCH

As a result of this study, several areas for further research can be identified towards the goal of increasing the effectiveness of curriculum innovation implementation efforts. Appropriate research questions include:

- **What types of groups may be most effective in persuading individuals to adopt a curriculum innovation?**

  In this study, groups based on common curriculum areas were used. Another way of grouping individuals that may be effective was suggested by the study: groups based on readiness to participate in curriculum innovation implementation. This study showed that different individuals are ready to consider curriculum innovations at different times. Furhter investigation into this way, and other ways, of grouping teachers may be fruitful.

- **What kinds of rewards or inducements may be most useful in persuading individuals to implement curriculum innovations?**

  This study showed that rewards or inducements may need to be individualized. Among the particular inducements suggested by participants in this study were: course load reduction, release from administrative responsibilities, assistance in the actual teaching of the innovation, and choice of time period to implement the innovation.

Further investigation into possible rewards and the feasibility of individualized inducements is warranted.

- **Would an implementation model using two or three strategies simultaneously be effective?**

  This study depended exclusively on a persuasion strategy. The literature focuses on strategies characterized as "requiring", by administrative mandate, the implementation of curriculum innovations. Berman and McLaughlin (1976) found that officially requiring implementation was not very effective. This study showed persuasion to be somewhat useful. Kotler and Andreason (1987) identify three strategies that can be used in marketing a product: requiring, rewarding, and persuading. Thus, exploration of ways to combine these strategies in an effort to implement curriculum innovations is suggested.

These research questions emerge from this study and afford avenues to further explore effective ways to implement curriculum innovations.

CONCLUSION

The development of the Environmental Contaminants Curriculum Modules makes a potentially significant contribution to the profession. In the context of the need to update the profession in this substantive area, Figueira-McDonough, as editor of the Journal of Social Work Education, wrote this about the article advocating inclusion of environmental contaminants curriculum in the professional foundation:

> After reviewing evidence of the physical, mental, and social problems of environmental hazarads, Lynne Soine argues persuasively for the inclusion of these aspects of environmental factors in the core training of social work students. While the ecological perspective restored environment as a critical consideration in social work practice, attention to the physical environment...has been scant.... It raises the issue...of the need for curricular updating (1987:4).

The curriculum modules are available to social work educators to enable independent updating of courses. Requests for information about the curriculum have come from all over the world, including Canada, Australia, Israel, Yugoslavia, and Czechoslovakia. Clearly, the development and availability of a complete, pre-tested curriculum package, integrating environmental contaminants and the core professional foundation curriculum, is a contribution of potential significance.

The two major components of this project, The Environmental Contaminants Curriculum Package and the Marketing Model for Curriculum Innovation Implementation, make separate and significant contributions to the profession. One advances the conceptualization of the physical environment in social work, concomitantly providing the curriculum by which to operationalize an expanded conceptualization. The other advances the repertoire of effective implementation models for curriculum innovations. In combination, these project components have demonstrated that curriculum updating, especially in areas of current and critical concern to the profession, can be achieved. This project paves the way for continuing advances in curriculum development related to environmental contaminants and social work. The project also suggests avenues for further refinement of the marketing model for curriculum innovation implementation towards increasing its effectiveness even further. Thus, as this project has reached its end, the most significant contribution it can make is to serve as the beginning for others' scholarly attention.

CHAPTER 6: REFERENCES

Berman, P.; McLaughlin, M. (1976) "Implementation of educational innovation" Educational Forum, March, 345-370.

Figueira-McDonough, J. (1987) "From the editor" Journal of Social Work Education, vol. 23, no. 2, 3-5.

Kotler, P.; Andreasen, A.R. (1987) Strategic Marketing for Nonprofit Organizations. Englewood Cliffs, NJ. Prentice-Hall.

Leithwood, K.A. (1981) "Managing the implementation of curriculum innovations" Knowledge: Creation, Diffusion, Utilization, vol. 2, no. 3, March, 341-360.

BIBLIOGRAPHY

Arbuckle, J.G., ed. (1985) Environmental Law Handbook. Rockville, MD, Government Institutes, Inc.

Argyris, C. (1957) Personality and Organization. New York, NY, Harper and Row.

Alpert, L. (1984) "Is there a killer in your basement?" Women's Day.

Bakshi, T.S.; Naveh, Z., eds. (1980) Environmental Education: Principles, Methods and Applications. New York, NY, Plenum Press.

Bennis, W.G. (1966) Changing Organizations. New York, NY, McGraw-Hill.

Berman, P.; McLaughlin, M. (1976) "Implementation of educational innovation". Educational Forum, March, 345-370.

Blumenthal, D.S. (1985) Introduction to Environmental Health. New York, NY, Springer Pubs.

Bogdan, R.; Taylor, S.J. (1975) Introduction to Qualitative Research Methods. New York, NY, Wiley.

Boraiko, A.A.; Ward, F. (1985) "Storing up trouble: Hazardous waste". National Geographic, 167:3, 318-351.

Brager, G.; Holloway, S. (1978) Changing Human Service Organizations. New York, NY, The Free Press.

Brain, J.D.; Beck, B.D.; Warren, A.J.; Shaikh, R.A. (1988) Variations in Susceptibility to Inhaled Pollutants. Baltimore, MD, Johns Hopkins University Press.

Breysse, P. (1977) "Formaldehyde in mobil and conventional homes". Environmental Health and Safety News, 35:1-6.

Brodeur, P. (1973) Expendable Americans. New York, NY, Viking Press.

Brown, M. (1987) "Toxic wind". Discover, November, 42-49.

Burger, E.J. (1976) Protecting the Nation's Health: The Problems of Regulation. Lexington, MA, Lexington Books.

Calabrese, E.J. (1978) Pollutants and High-Risk Groups. New York, NY, John Wiley and Sons.

Chaiklin, N. (1979) "The treadmill of lead". American Journal of Orthopsychiatry, 49:4, 571-574.

Clavin, T. (1985) "Superfund to aid group with tainted wells". New York Times, 2/10 L.I. 15.

Corwin, R.G. (1972) "Strategies for organizational innovation". American Sociological Review, 37, August, 441-454.

Council on Social Work Education (1984) Handbook of Accreditation Standards and Procedures.

Cox, F.; Erlich, J.L.; Rothman, J.; Tropman, J.E. (1979) Strategies of Community Organization. Itasca, IL, Peacock.

Edmunds, L. (1987) "Sick buildings". Johns Hopkins Magazine, June, 22-25.

Fine, S. (1981) The Marketing of Ideas and Social Issues. New York, NY, Praeger.

Fitzpatrick, M.S. (1978) Environmental Health Planning. Cambridge, MA, Ballinger Publishing Company.

Gargan, E.A. (1985) "Cuomo seeks new powers to act on illegal toxic-waste disposal". New York Times, 2/7 B5.

Germain, C.B. (1981) "The ecological approach to people-environment transactions". Social Casework, 62:6, 323-331.

Germain, C.B.; Gitterman, A. (1981) "Education for practice: Teaching about the environment". Journal of Education for Social Work, 17:3, 44-51.

Germain, C.B.; Gitterman, A. (1980) The Life Model of Social Work Practice. New York, NY, Columbia University Press.

Goldfarb, T. (1983) Taking Sides: Clashing Views on Controversial Environmental Issues. CT, Dushkin.

Goldfarb, T. (1982) "Environmental pollutants: A primer for social welfare professionals". School of Social Welfare, State University of New York at Stony Brook Environmental Health Project (unpublished).

Greenhouse, L. (1985) "Bankruptcy held a polluter shield". New York Times, 1/10.

Grinnell, R.M. (1981) Social Work Research and Evaluation. Itasca, IL, F.E. Peacock.

Grossman, K. (1983) The Poison Conspiracy. Sag Harbor, NY, The Permanent Press.

Hage, J.; Aiken, M. (1970) Social Change in Complex Organizations. New York, NY, Random House.

Hage, J.; Aiken, M. (1967) "Program change and organizational properties". American Journal of Sociology, 72, 503-518.

Hasenfeld, Y. (1983) Human Service Organizations. Englewood Cliffs, NJ, Prentice Hall.

Hasenfeld, Y.; English, R., eds. (1974) Human Service Organizations. Ann Arbor, MI, University of Michigan Press.

Hepworth, J.; Larsen, D.H. (1982) Direct Social Work Practice, Theory and Skills. IL, Dorsey.

Hogan, B. (1984) "A primer on groundwater". The Conservationist, 39:3, 12-21.

Kettner, P.; Daley, J.M.; Nichols, A.W. (1985) Initiating Change in Organizations and Communities. Monterey, CA, Brooks/Cole.

Knowles, M.S. (1970) The Modern Practice of Adult Education. New York, NY, Association Press.

Kotler, P.; Andreasen, A.R. (1987) Strategic Marketing for Nonprofit Organizations. Englewood Cliffs, NJ, Prentice Hall.

Kuhn, T.S. (1970) The Structure of Scientific Revolutions. Chicago, IL, University of Chicago Press.

Lefferts, R.B. (1982) "Environmental hazards and mental health". Environmental Health Project, State University of New York at Stony Brook (unpublished).

Leithwood, K.A. (1981) "Managing the implementation of curriculum innovations". Knowledge: Creation, Diffusion, Utilization, vol. 2, no. 3, March, 341-360.

Levine, A.G. (1982) Love Canal: Science, Politics and People. Lexington, MA, Lexington Books.

Luoma, S.N. (1984) Introduction to Environmental Issues. New York, NY, MacMillan.

Maugh, R.B. (1978) "Toxic waste disposal a growing problem". Science, 204:89.

Mayer, R.B.; Greenwood, E. (1980) The Design of Social Policy Research. Englewood Cliffs, NJ, Prentice Hall.

Milbrath, L.W.; Inscho, F.R., eds. (1975) The Politics of Environmental Policy. Beverly Hills, CA, Sage.

Norwood, C. (1985) "Terata". Mother Jones, X:1, 14-21.

Paine, S.C.; Bellamy, G.T.; Thomas, G.; Wilcox, B. (1984) Human Services that Work: From Innovation to Standard Practice. Baltimore, MD, Paul H. Brookes Publishing.

Patton, M.Q. (1980) Qualitative Evaluation Methods. Beverly Hills, CA, Sage.

Pressman, J.; Wildavsky, A. (1973) Implementation. Berkeley, CA, University of Claifornia Press.

Resnick, H.; Patti, R.J. (1980) Change from Within. Philadelphia, PA, Temple University Press.

Richman, E. (1978) "Millions of homes may have toxic insulation". Medical Tribune and Medical News, 19:9.

Rogers, E.M.; Shoemaker, F. (1971) Communication of Innovations. New York, NY, The Free Press.

Saul, S. (1984) "Deregulation: Federal agencies' new mandate". Newsday, 10/28 83.

Schwartz, H.; Jacobs, J. (1979) Qualitative Sociology: A Method to the Madness. New York, NY, The Free Press.

Shabecoff, P. (1984) "Environment shrinks as political issue". New York Times, 7/8 IV.

Shabecoff, P. (1984) "Toxic leak feared from Niagra site". New York Times, 10/30 A-1.

Shabecoff, P. (1984) "On the move but not yet on the wane". New York Times, 11/18 IV.

Shipp, E.R. (1985) "In Chicago, E.P.A. accuses and is accused on wastes". New York Times, 1/15 A-10.

Soine, L. (1987) "Expanding the environment in social work: The case for including environmental hazards content". Journal of Social Work Education, vol. 23, no. 2, 40-46.

Specht, H. (1969) "Disruptive tactics". Social Work, XIV, no. 2, 5-15.

Stellman, J.M.; Daum, S.M. (1973) Work is Dangerous to Your Health. New York, NY, Vintage.

Thompson, V. (1965) "Bureaucracy and innovation". Administrative Science Quarterly, 1, 1-20.

Trieff, N. (1980) Environment and Health. Ann Arbor, MI, Ann Arbor Science Publishers.

Tripodi, T.; Fellin, P.; Meyer, H.J. (1983) The Assessment of Social Research. Itasca, IL, F.E. Peacock.

United States Department of Health and Human Services (1980) Promoting Health/Preventing Disease. Washington, DC, United States Government Printing Office.

United States Department of Health and Human Services (1977) Human Health and the Environment. Washington, DC, United States Government Printing Office.

Verespej, M.A. "Time for decisions on hazardous wastes". Industry Week, as found in: Finsterbusch, K., ed. Social Problems 82/83. Guilford, CT, Dushkin.

Vickery, T.R., ed. (1972) Man and His Environment: The Effects of Pollution on Man. Syracuse, NY, Syracuse University Press.

Wald, M.L. (1984) "Northeast faces crisis on radioactive waste". New York times, 11/11 A-1.

Weisskopf, M. (1987) "Lead astray: The poisoning of America". Discover, December, 68-74.

Weissman, H.; Epstein, I.; Savage, A. (1983) Agency-Based Social Work: Neglected Aspects of Clinical Practice. Philadelphia, PA, Temple University Press.

Williams, J.S.; Leyman, E.; Karp, S.A.; Wilson, P.T. (1973) Environmental Pollution and Mental Health. Washington, DC, Information Resources Press.

Wingerson, L. (1985) "A genetic focus on toxic sites". Newsday, 3/12 III-1.

Wingerson, L. (1984) "When houses keep the cold out -- and the pollution in". Newsday, 11/5 II 7-9.

World Health Organization (1972) Health Hazards of the Human Environment. Geneva, Switzerland.

Yin, R.K. (1984) Case Study Research: Design and Methods. Beverly Hills, CA, Sage.

Zamm, A.V.; Gannon, R. (1980) Why Your House May Endanger Your Health. New York, NY, Simon and Schuster.

APPENDIX A

CASE STUDY PROTOCOL

An Outline Of Information To Be Gathered About Each Case

I. DESCRIPTIVE/BACKGROUND INFORMATION

A. Length of time at this school of social work.

B. Nature of relationship with marketer/evaluator.

C. Extent of active involvement in school's recent environmental problem.

D. Extent of current involvement in external scholarly activities other than teaching (i.e., research, consultation, publication contracts).

II. RESPONSE TO PROMOTIONAL PLAN

A. Adoption Process Stage 1: Awareness
   (1) Was promotional article received?
   (2) Was promotional article read?
   (3) What were reactions?
   (4) Did individual become aware of the product, The Environmental Contaminants Curriculum Package?

B. Adoption Process Stage 2: Interest
   (1) At what point did individual express interest in the product, if any?
   (2) What factors contributed to interest?

C. Adoption Process Stage 3: Desire
   (1) Did individual read the product?
   (2) How did individual react to the product?
   (3) At what point, if any, did the individual express desire to use the product?
      (a) What factors contributed to desire to use the product?

D. Adoption Process Stage 4: Action
   (1) Did individual schedule implementation dates for the Environmental Contaminants Curriculum Package?
      (a) Why or why not?

GENERAL INTERVIEW GUIDE

For Use In Formal Interviews After Desire Has Been Expressed

I. Do you think that the curriculum module will fit easily in your course?

Probes: How does module relate to your course in terms of:
- usual teaching methods?
- typical sequencing of topics?
- values underlying the course?

II. Do you feel comfortable teaching content which may be unfamiliar to you, at first?

Probes: Does the curriculum package prepare you sufficiently to teach this content?

Is the content easy enough to understand and master for teaching purposes?

III. Is the curriculum package itself easy to use?

Probes: Is it set up and structured in a facilitative, appealing manner?

Is it convenient to teach from?

IV. Relative to scheduling the module, when does it seem to fit best?

Probes: What content will it replace, if any?

What content will it be connected to, if any?

V. What factors would you cite as influential in your decision to adopt the curriculum?

Probes: Results of curriculum pretest reflecting strong student interest?

The environmental problems recently experienced in the school?

Amount/extent of interaction with the developer of the curriculum?

APPENDIX B

ENVIRONMENTAL CONTAMINANTS CURRICULUM PACKAGE

Lynne Soine, M.S.W.
Assistant Professor
School of Social Welfare
State University of New York at Stony Brook

MODULE I:

AN OVERVIEW OF ENVIRONMENTAL CONTAMINANTS AND SOCIAL WORK

A. SUMMARY

This is an introductory module which provides an overview and basic knowledge of environmental contaminants and the relationship between environmental contaminants and human health and well-being.

B. IMPLEMENTATION

This module can be used in its entirety as the introductory material for any of the subsequent, more specialized, modules. When used in its entirety, this module can be implemented in a one and a half- to two-hour period. Minimal implementation requirements include: reproduction of handout for each student; chalkboard or newsprint to use while lecturing; and space sufficient for students to sit in semi-circle/circle.

If the total course time allocated for environmental contaminants curriculum does not permit use of the entire introductory module and a more specialized module, the instructor can self-select aspects of the introductory module to be used in combination with any of the subsequent, more specialized, modules. This enables instructor manipulation of time and content focus to achieve the best fit between the course purpose and objectives and the environmental contaminants curriculum content.

The module is designed to facilitate selection and use of sub-components. A Quick Reference/Outline is provided and the curriculum is divided into three units. Full references are included to facilitate follow-up or further research.

C. TEACHING METHODS

This module depends upon didactic presentation and structured discussion. Handouts are included.

D. OUTCOME OBJECTIVES

As a result of participation in this module, students will:

1. Understand the background and scope of environmental contamination.
2. Know the classes and names of common environmental contaminants.
3. Know the common means of human exposure to environmental contaminants.

4. Develop an understanding of the social, political, and economic value conflicts and resulting attitudinal barriers inherent in the subject of environmental contamination.
5. Understand the relationship between the commitments and purposes of the profession and environmental contamination.

E. READINGS AND SUPPLEMENTARY MATERIALS

Included in this module are several articles which instructors may choose to make required or recommended readings to support and augment the curriculum. The articles included in Module I are:

Goldfarb, Theodore D. (1982) "Environmental pollutants: A primer for social welfare professionals", School of Social Welfare, State University of New York at Stony Brook.

An overview of information and issues relevant to the social and behavioral consequences of environmental contamination.

Brown, Michael (1987) "Toxic wind", Discover, November, pp. 42-49.

An easily readable review of the extent of toxic contamination in the atmosphere which is distributed throughout the United States, and the world, by means of wind.

Weisskopf, Michael (1987) "Lead astray: The poisoning of America", Discover, December, pp. 68-74.

An easily readable review of the pervasiveness of the toxic contaminant, lead, citing typical sources and steps to reduce human exposure.

In addition, references are listed in a form which may be xeroxed and distributed to students.

MODULE I: AN OVERVIEW OF ENVIRONMENTAL CONTAMINANTS AND SOCIAL WORK

UNIT 1: Environmental Contamination Has Been Increasingly Acknowledged, Threatening Human Health and Well-Being

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
Documentation of the nature and extent of environmental contamination	There are more than 63,000 chemicals in use in American industry today. Between 100 and 1,000 new chemicals are introduced yearly. The greatest growth in chemical development has been since World War II. Since 1950, the increase in production and use of commercial chemicals has been dramatic. Each individual is continuously exposed to at least some of these chemicals. Certain individuals are exposed to dangerously high concentrations of chemical contaminants, often without knowing it, in the workplace and in the home.	Maugh, 1978 Luoma, 1984:253

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	The expolosion in the use of chemicals has created a large problem in disposal of hazardous wastes. Some 580 billion pounds of hazardous wastes are produced yearly in the United States. All of this waste is eventually deposited somewhere in the biosphere. Some of this waste is recycled, some burned, and some dumped into the ocean. Most of the hazardous wastes produced in the past have been dumped into the land, however.	
	Estimated to be about several tons per person dumping this past waste has resulted in the identification of 50,000 toxic waste sites across the United States.	Maugh, 1979
	Toxins from these sites remain in the ground, leak into groundwater, or into bodies of water, enter the food chain, and contribute to the contamination of the physical environment.	Luoma, 1984:254

OUTLINE QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
Categories of contaminants included in curriculum	Environmental contamination has been occurring at least since the Industrial Revolution. Herein, the term "environmental contaminants" is used to describe substances in the air, water, food, and land which adversely affect human health and well-being. This definition is not inclusive of all possible adverse factors in the physical environment. It is limited to substances, thereby excluding conditions in the physical environment which can adversely affect human health and well-being. Some of these conditions have already been identified and researched by social scientists. Conditions of excessive noise can contribute to mental disturbance in some people. Overcrowded housing and living conditions may	Williams, 1973:8-9
Categories of contaminants excluded from curriculum		

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	contribute to mental illness.	
	Increasing levels of radiation in the environment (from diverse sources such as radar, communications satellites, microwave ovens, radio/tv waves, and high-voltage transmission lines), have been known to contribute to cancer and other health problems.	Williams, 1973:10
	Another final category of contaminants which is not included is food additives, preservatives, and other substances which are intentionally introduced into food and drink.	Zamm, Gannon, 1980:71-87
	This curriculum is limited to four major groups of environmental contaminants, classified as follows:	Lefferts, 1982:4
Classes and names of some common contaminants	1. Pesticides	
	-- DDT	
	-- Aldrin/dieldrin	
	-- Parathion	
	-- Toxaphene	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE

-- Aldicarb (Temik)

-- Carbofuran (Furadon)

2. Metals

-- Lead

-- Mercury

-- Cadmium

-- Arsenic

-- Nickel

3. Pollutants

-- Carbon monoxide

-- Sulfur dioxide

-- Ozone

-- Cooking/heating gas and oil (fuels)

4. Chemicals and Industrial Substances

-- PCB (polychlorinated biphenyl)

-- Dioxins and ibenzofuran

-- Chloroform

-- Asbestos

-- Benzene

-- Vinyl chloride

-- Formaldehyde

-- Benzepyrene

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
Impact of contaminants on overall health and well-being	The impact of these substances on human health and well-being is already known or strongly suspected to be adverse:	
	Estimates by the World Health Organization and the National Cancer Institute concur that between 60 and 90 percent of all human cancers are environmental in origin, and that approximately 90 percent of all human cancers are chemical in origin.	Grossman, 1983:23
	...millions of Americans have potentially been exposed to toxic chemicals ...in their air and drinking water. The long-term effects, which are both subtle and lasting, cannot be quantified... The California Department of Health Services...found that women drinking water from a contaminated well near San Jose suffered a significantly higher rate of miscarriages and birth defects than women drinking untainted water.	King, Newsday, 6/25/85:49

UNIT 2: The Contamination of the Physical Environment is Ubiquitous

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
Almost everyone contributes to the increasing contamination of the physical environment	It is tempting to fault a few well-known chemical or pesticide companies for contaminating the environment. However, while such companies have clearly contributed to the problem, environmental contamination is an ever-occurring part of the everyday life of almost every American. Environmental contaminants are produced in large amounts by a vast array of industrial processes, which do account for a significant source of contamination. However, the pervasiveness of contaminants in manufactured goods, combined with ignorance on the part of most people, leads to behaviors which further compound environmental contamination.	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	According to the New York State Department of Environmental Conservation,	
	Families who throw pesticides, cleaners, degreasers, paint and automotive products in the garbage or dump them on the ground and in drains are creating a source of groundwater contamination... Most households have three to ten gallons of toxic wastes to dispose of yearly. The problem is particularly acute with waste motor oil.	Newsday, 7/22/85:26
	Other toxic contaminants, such as lead, which is present throughout the environment, are routinely, but unknowingly, injested and inhaled by people, especially children and city dwellers. Improper disposal of a wide array of products containing lead, especially batteries, contributes to further contamination. The use of lead in gasoline has contributed greatly to increased	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	levels of lead in the air, from emissions and in the ground, from leakage of tanks. The Environmental Protection Agency estimates that as many as one-quarter of the nation's 2.5 million underground gasoline storage tanks could leak.	King, Newsday, 6/25/85
	Small businesses are also heavy contributors, often unknowingly, to environmental contamination. Firms such as funeral parlors, dry cleaners, automotive body shops, photo labs, microchip manufacturers, aircraft suppliers, pesticide producers and appliers, furniture manufacturers and refinishers, printing and ceramics companies, hospitals, and schools and universities all produce toxic chemical contaminants which are usually disposed of improperly.	Newsday, 8/5/85

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	Other contributors to environmental contamination include the use and disposal of potentially toxic chemicals in the home for heating, cleaning, remodeling, and insect/pest control.	
	Cases of acute carbon monoxide poisoning are increasingly reported as approximately 2.6 million homes in the United States converted from oil to gas heat between 1974 and 1983. Such conversion, if not accompanied by proper cleaning and removal of all soot from the chimney, leads to the production of the deadly, colorless, odorless gas carbon monoxide. Other undetectable malfunctions in both oil and gas heating systems can cause toxic chemicals to be released into the air.	Women's Day, 1/8/85

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	In addition to the home heating system, other sources of contamination include gas ovens and stoves, most cleaning products, most pesticides, and many other products routinely used and thrown into the garbage by most households.	
Value conflicts underlying environmental contamination	From this overview of the many contributors to environmental contamination, it becomes clear that many vested interests are challenged by changes required to decrease environmental contamination. From the strong, politically powerful companies that see profits threatened by changes related to environmental contaminants, to the average homeowner who sees recycling of waste motor oil as an optional inconvenience, the forces against change are pervasive.	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	Over and over, the basic value conflicts are expressed in financial/economic terms.	
	The society America has built is intricately related to and dependent upon environmental contamination. With the explosion of chemicals characterizing the post-World War II period, ever-increasing industrialization and a profit-driven desire to please consumers, every American is involved in some way with environmental contamination.	
	Decades of expanding knowledge of the consequences of environmental contaminants has slowly resulted in some changes. However, there remains a fundamental ambivalence in almost all matters of environmental contamination. Rarely is there	see: Weisskopf, Discover, 12/87

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	agreement among all involved in an instance of environmental contamination as to what the risk is, how serious it is, and how much money it is worth to eliminate the risk. Economic values compete with human health and welfare values, resulting in compromises which continue the contamination of the physical environment.	
Common places and means of exposure to environmental contaminants	At this point in the evolving history of environmental contaminants, it is widely documented that contamination can be present in each of the following physical environments:	
	1. The home (a partial listing of common contaminants): heating system emissions; gas leaks; cleaning products; building materials; water; smoke	Zamm, Gannon, 1980

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE

from cigarettes, cigars; refinishing, painting, and related materials; radon; auto emissions/toxic fumes from attached garages.

2. The Workplace (a partial listing of high-risk environments): industrial and manufacturing environments; any workplace environment which depends upon an internally-controlled air system (no windows that open); hospital and health care related work environments; work environments in proximity to labs, automobile/truck/bus garages, pesticides/pesticide spraying.
3. The Community (a partial listing of high-risk indicators): well water; proximity to landfills;

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE

proximity to industrial/ manufacturing areas; proximity to gasoline stations and storage tanks; extent of pesticide spraying; proximity to agricultural areas; proximity to major roadways which are heavily travelled.

4. Public and Private Buildings: As the nature and extent of indoor air pollution is increasingly documented, problems in the air quality of all buildings is possible. Any contaminant which can be found in the home or the workplace can also effect public and private buildings (see preceding: the home and the workplace).

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	While in any of these potentially contaminated physical environments, the human being may come into contact with contaminants through air, water, food, manufactured products, and/or soil.	

UNIT 3: Social Work Professionals are Uniquely Suited to Integrate Knowledge of Environmental Contaminants into Their Practice Toward the Goal of Mitigating Adverse Affects on Human Health and Well-Being

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
Importance of environment in contemporary social work practice	The ecological approach in social work practice emphasizes the environment. In fact, Germain and Gitterman state that social workers' primary focus is "at the interface of transactions between people and environments." To date, emphasis has remained with the social environment. However, as demonstrated in this module, the physical environment demands equal attention. Some recent social work practice texts have begun to make mention of the role of contaminated physical enviroments in clients' lives. Hepworth and Larsen note that:	Germain & Gitterman, 1981:44

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	Physical factors also sometimes dictate a change in environment. Clients with respiratory disorders, such as asthma or emphysema, may be at risk in environments that are high in air pollution. Other environments may pose... hazards to the health and safety of children and other vulnerable persons...	Hepworth & Larsen, 1982:492
	In a 1983 text, contemporary social work practice is defined as inclusive of: providing access and information to clients about services; securing services for clients; activating social networks to support clients; working to change clients' physical and social environments; and coordinating the work of other organizations and staff whose services the clients need.	Weissman, Epstein, Savage, 1983:3
Every social work role and function can be enhanced by including knowledge of environmental contaminants	These growing references to the relationship between the physical environment and social work practice barely scratch the surface. The pervasiveness of environmental contamination is such that every social work role,	Soine, 1987:43

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	function, and level of practice can be enhanced and updated by knowledge of the impact of environmental contaminants. Social workers are already oriented to a comprehensive assessment of the client's situation. Consideration of the physical environments of cleints requires only additional knowledge, easily learned by social work students.	
The social work profession is well-suited to incorporate environmental contaminants content into both education and practice	To date, no profession yet addresses itself to the issue of environmental contaminants in its entirety. The numan health and well-being consequences of contaminants are only just becoming known. Almost no one is exempt from exposure to environmental contaminants on a daily basis. All this leads to the following conclusion:	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	The need to extend the conceptual and empirical boundaries of professional education and practice to include the emerging new knowledge from the field of environmental science is a professional imperative for a profession that prides itself on its concern with the environment of the people it serves. This seems increasingly appropriate when it is realized that exposure to toxic materials is systemically higher among lower income workers, Blacks, and the poor.	Lefferts, 1982:13

AN OVERVIEW OF ENVIRONMENTAL CONTAMINANTS AND SOCIAL WORK

REFERENCES

Brown, M. (1987) "Toxic wind," Discover, November:42-49.

Germain, C.B. and Gitterman, A. (1981) "Education for practice: Teaching about the environment," Journal of Education for Social Work, 17:3, 44-51.

Goldfarb, T.D. (1982) "Environmental pollutants: A primer for social welfare professionals," School of Social Welfare, State University of New York at Stony Brook (unpublished).

Grossman, K. (1983) The poison conspiracy, Sag Harbor, NY: Permanent Press.

Hepworth, J. and Larsen, D.H. (1982) Direct social work practice, theory and skills, Illinois: Dorsey.

King, Newsday, 6/25/85, 49.

Lefferts, R.B. (1982) Environmental hazards and mental health, Environmental Health Project, State University of New York at Stony Brook (unpublished).

Luoma, S.N. (1984) Introduction to environmental issues New York: Macmillan.

Maugh, T.H. (1979) "Toxic waste disposal a growing problem," Science, 204:819.

Maugh, T.H. (1978) "Chemical carcinogens: The scientific basis for regulation," Science, 201:1200.

Newsday, 7/22/86, 26.

Newsday, 8/5 85.

Soine, L. (1987) "Expanding the environment in social work: The case for including environmental hazards content," Journal of Social Work Education, Spring/Summer:110.2:40-46.

Weisskopf, M. (1987) "Lead astray: The poisoning of America," Discover, December:68-74.

Weissman, H., Epstein, I., and Savage, A. (1983) Agency-based social work: Neglected aspects of clinical practice, Philadelphia, PA: Temple University Press.

Williams, J.S., Leyman, E., Karp, S.A., and Wilson, P.T. (1973) Environmental pollution and mental health, Washington, D.C.: Information Resources Press.

Woman's Day, 1/8/85.

Zamm, A. and Gannon, R. (1980) Why your house may endanger your health, New York, NY: Simon and Schuster.

ENVIRONMENTAL CONTAMINANTS CURRICULUM PACKAGE
MODULE I HANDOUT:

AN OVERVIEW OF ENVIRONMENTAL CONTAMINANTS AND SOCIAL WORK

A. Environmental contamination has been increasingly acknowledged, threatening human health and well-being:

1. More than 63,000 chemicals in use today.

2. 50,000 toxic waste sites identified, to date, across the United States.

3. It is now impossible for human beings to completely avoid contact with contaminants in the physical environment.

B. Classes and names of some common contaminants:

1. Pesticides:
   DDT; Aldrin/dieldrin; Parathion; Toxaphene; Aldicarb (Temik); Carbofuran (Furadon)

2. Metals:
   Lead; Mercury; Cadmium; Arsenic; Nickel

3. Pollutants:
   Carbon monoxide; Sulfur dioxide; Ozone; Cooking/heating fuels

4. Chemicals and Industrial Substances:
   PCB (polychlorinated biphenyl); Dioxins and ibenzofuran; Chloroform; Asbestos; Benzene, Vinyl Chloride; Formaldehyde; Benzepyrene

C. Contributors to environmental contamination include almost everyone:

1. From the largest manufacturing/industrial sources to each individual person in the country, the sources of environmental contamination can be traced.

2. Ignorance as well as other factors contribute to behaviors which increase environmental contamination. Improper disposal of toxic waste products, such as pesticides, degreasers, paint, motor oil, gasoline, furniture refinishing products, lead batteries, photographic chemicals, and many others, increases environmental contamination.

D. Fundamental value conflicts characterize this country's response to increasing environmental contamination:

1. The economy is interrelated with environmental contamination.

2. Economic values compete with human health and welfare values.

3. Resulting policies and practices are compromises which continue the threats to human health and well-being.

E. Common places and means of exposure to environmental contaminants:

1. Places: the home, the workplace, the community, public/private buildings.

2. Means: air, water, food, manufactured products, soil.

F. Professional social work consideration of the impact of the contaminated environment is an extension of the ecological approach to practice, consistent with Germain and Gitterman's statement that social work's primary focus is "at the interface of transactions between people and environments" ("Education for Practice: Teaching About the Environment," Journal of Education for Social Work, 17:3, 1981, 44-51). The pervasiveness of environmental contamination and its consequences is such that every social work role, function, and level of practice can be enhanced and updated by knowledge of environmental contamination.

ENVIRONMENTAL CONTAMINANTS CURRICULUM PACKAGE

Lynne Soine, M.S.W.
Assistant Professor
School of Social Welfare
State University of New York at Stony Brook

MODULE II:

ENVIRONMENTAL CONTAMINANTS AND HUMAN HEALTH AND WELL-BEING

A. SUMMARY

This module is meant to augment foundation content in the area of human behavior and the social environment. A review of the known or suspected effects of some of the more common contaminants is presented.

B. IMPLEMENTATION

This module is planned for a two-hour period and intended for a group of approximately twenty-five students. A chalkboard or newsprint is necessary.

This module may be used in conjunction with the introductory module (Module I: An Overview of Environmental Contaminants and Social Work). This module may also be implemented without the

introductory module. In this case, instructor may select some relevant background from Module I and incorporate it into the beginning of Module II.

C. TEACHING METHODS

This module depends upon didactic presentation, structured discussion, and includes handouts.

D. OUTCOME OBJECTIVES

As a result of participating in this module, students will:

1. Know the effects of selected environmental contaminants on human health and behavior.
2. Know the sources and symptoms associated with selected, common contaminants.
3. Develop an understanding of ways in which to identify and limit human exposure to environmental contaminants.
4. Know the basic needs of human beings confronting the contaminated physical environment.

E. READINGS AND SUPPLEMENTARY MATERIALS

If Module I recommended readings have not been used, they can be used in this module (see Module I, E: Readings and Supplementary Materials).

Handouts are provided which summarize the module's content.

References are listed and may be xeroxed and distributed to students.

MODULE II: ENVIRONMENTAL CONTAMINANTS AND HUMAN HEALTH AND WELL-BEING

UNIT 1: There is Wide Variation in the Adverse Health and Mental Health Effects of Environmental Contaminants

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
An introduction to environmental health	Environmental health is one of the oldest health-related disciplines with an initial focus on sanitation and infectious disease epidemiology. The relationship between polluted water and disease was cited as early as 1621, by Robert Burton:	Blumenthal 1985: IV

> They that use filthy, standing ill-coloured, thick, muddy water, must needs have muddy ill-coloured, impure, and infirm bodies. And because the body works upon the mind, they shall have grosser understandings, dull, foggy, melancholy spirits, and be really subject to all manner of infirmatives.

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	Increasing recognition of the role of environmental hazards in causing diseases such as cancer has focused more attention on environmental health. One definition of environmental health as a discipline is: "the study of disease-causing agents that are introduced into the environment by humans, as well as the illnesses that are caused by these agents."	Blumenthal 1985:1
Definition of "epidemiology"	As more attention has been focused on environmental health, the limitations in determining the precise effects of particular hazards have been documented. By necessity, cause and effect relationships are studied according to the prevalence of a particular hazard among population groups. The methods used are those of	Luoma, 1984:254

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	epidemiology, which is defined as "the study of the distribution and determinants of diseases and injuries in human populations." Thus, by definition, epidemiological tools cannot establish casual proof, only associations.	Blumenthal 1985:13
	As attention has been focused on environmental causes of health and mental health problems, more and more associations are being documented. There are many factors which influence an individual's response to exposure to environmental contaminants. Factors such as dose, or concentration of exposure and length of exposure are two important variables.	Luoma 1984:260
	Synergism, the interaction of two contaminants, is another important variable. Synergistic	Blumenthal 1985:9

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	contaminants, such as asbestos and cigarette smoke, produce an effect on the individual which far exceeds the combined risk of exposure to each contaminant separately.	Blumenthal 1985:10
	Despite the difficulty in documenting cause and effect relationships between specific environmental contaminants and the consequences to an individual's health, categories of health and mental health effects for some contaminants have been established as follows [distribute handout]:	

HANDOUT: Human Health and Mental Health Consequences of Selected Environmental Contaminants

CATEGORY	CONTAMINANTS	EFFECTS	COMMON SOURCES OF EXPOSURE
NONCUMULATIVE CHEMICALS (not retained in the human body after exposure; effects are dependent on dose and length of exposure	Carbon Monoxide (CO)	Depending on dose level and length of exposure: Vision problems Apathy Nausea Headaches Abdominal pain Depression Psychosis Fatigue Death	Automobile emissions; cigarette smoke; home heating systems
	Sulfur Oxides	(causes Acid Rain) Severe damage to lung tissue with chronic exposure especially for	Burning of coal; Industrial plants

CATEGORY	CONTAMINANTS	EFFECTS	COMMON SOURCES OF EXPOSURE
NONCUMULATIVE (continued)		children and elderly; chronic bronchitis; bronchial asthma	
CUMULATIVE TOXINS (continuously accumulate in body tissues to increasingly higher concentrations; exposure causes severe effects -- some reversible, some irreversible	Heavy Metals	Depending on dose and length of exposure: Nervous system damage; mental retardation; emotional instability; behavioral difficulties; perceptual disabilities, perceptual disabilities, speech defects, reduced physical coordination	Manufacture of batteries, ingestion of lead paint chips, automobile emissions, coal burning, power plants, ingestion of water with high concentrations from landfills, ingestion of soil

CATEGORY	CONTAMINANTS	EFFECTS	COMMON SOURCES OF EXPOSURE
CUMULATIVE (continued)			with high concentrations of lead (urban areas)
	Mercury	Toxic to nervous system: numbness, tremors, slurred speech, dementia, irritability, ataxia, death, personality changes, aggressiveness, paranoia, depression, crosses placenta in pregnant women leading to cerebral palsy	Industry: wood pulp manufacture of paints & pharmaceuticals, burning of coal Agriculture: water drinking, fish, especially marlin, salmon, swordfish, tuna, whale, shark

CATEGORY	CONTAMINANTS	EFFECTS	COMMON SOURCES OF EXPOSURE
CUMULATIVE (continued)		and mental retardation in offspring	Waste disposal
	Cadmium	Kidney function impaired, high blood pressure, heart disease, lung damage, death	cigarette smoke Industry: manufacture of batteries, metal-finishing, plastics industry, metal ore, mining or smelting municipal and industrial sewage, water

CATEGORY	CONTAMINANTS	EFFECTS	COMMON SOURCES OF EXPOSURE
CARCINOGENS (agents that cause cancer) TERATOGENS (agents that cause birth defects) MUTAGENTS (agents that cause genetic mutations)	Benzoapyrene	Lung cancer	cigarette smoke, urban air pollution, oil refinery wastes, shellfish, fish flesh, oil spills, urban street runoff
	Chlorinated Hydrocarbon Pesticides: DDT, Chlordane, Hexachlorobenzene, Dieldrin, Dioxin (2, 4, 5-T), PCB	various cancers	Agricultural workers, inhabitants of agricultural areas, contaminated well water, defoliant, lubricants in electric equipment, cars

CATEGORY	CONTAMINANTS	EFFECTS	COMMON SOURCES OF EXPOSURE
CUMULATIVE (continued)	Trihalomethanes (formation of carcinogenic chlorinated hydrocarbons during the chlorination of drinking water)	Rectum, colon, bladder cancer	Chlorinated drinking water
	Vinyl Chloride	liver damage, tumors in lung, brain, central nervous system	industries, especially plastics
RESPIRATORY FIBROTIC AGENTS (retained in the lung)	Coal dust, cotton dust, cellulose, asbestos	Pulmonary diseases/ pneumoconioses: brown/black lung disease, asbestosis	Industries using these contaminants: home building materials, submarines

CATEGORY	CONTAMINANTS	EFFECTS	COMMON SOURCES OF EXPOSURE
RESPIRATORY IRRITANTS	Formaldehyde, Sulfur dioxide (SO_2), Nitrogen Dioxide (NO_2)	Rhinitis, parynatis, bronchitis skin rashes	air pollution, industry, homes and buildings with ureaformaldehyde insulation

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
Limits to known effects of contaminants	This listing of contaminants is by no means exhaustive. It represents the most common, currently known environmental contaminants. Several important factors limit what is currently known about human effects from environmental contaminants: critical variables such as incubation period, usual attack rate, and case-fatality rate are typically not known, handicapping physicians. Incubation periods may be as long as decades, and people may not even remember their exposure. Finally, in today's environment, it is rare for an individual to be exposed to only a single contaminant. Thus, health and mental health effects represent exposure to multiple contaminants, complicating the identification of specific cause and effect relationships.	Blumenthal 1985:74 Blumenthal 1985:75

UNIT 2: Certain Individuals are at Greater Risk for Adverse Health and Mental Health Effects from Environmental Contaminants

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	While almost no one can escape some exposure to environmental contaminants, certain factors can increase the probability of exposure and adverse consequences.	
Hazardous environments	Since people come into contact with environmental contaminants in the home, workplace, community, and public/private buildings, a review of some of the most hazardous such settings follows:	
	Workplace	
	Any workplace may contain environmental contaminants Environments that include manufacturing, burning of any fuels, use of toxic chemicals or hazardous fibers, are	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	typically suspect. A listing of some of the most hazardous workplace environments follows [distribute handout]:	

HANDOUT: Workplace Environments Known to be Hazardous

WORKPLACE/OCCUPATION	COMMON ASSOCIATED CONTAMINANT/DISEASE
Manufacturers and packers of abrasive soap powders, sand blasters, mining industries, potteries, foundries, stone cutting and finishing, tile and clay producing, glass manufacturing	Silica/Silicosis (lung disease)
Coal Miners/Workers	Coaldust/"Black Lung Disease"
Dye manufacturing, rubber manufacturing	Bladder cancer
Metal smelting, metal alloy workers, arsenic pesticide production	Skin lung/liver cancer

WORKPLACE/OCCUPATION	COMMON ASSOCIATED CONTAMINANT/DISEASE
Asbestos miners, insulators, shipyard workers	Lung cancer (asbestosis)
Petrochemical workers, chemists	Leukemia
Shoe manufacturing	Nose and bladder cancers
Roofers, chimney sweepers, petroleum workers, shale oil workers	Skin/lung/bladder/scrotum cancer
Polyvinyl chloride synthesizers, rubber workers	Liver/brain/lung cancer
Welders	Lung cancer
Office workers (sealed buildings)	Varied indoor air pollution/ respiratory problems; headaches; fatigue
Hardwood floors, furniture makers	Lung/nose cancer

WORKPLACE/OCCUPATION	COMMON ASSOCIATED CONTAMINANT/DISEASE
Toll takers, tunnel workers	Lead poisoning, depression, carbon monoxide poisoning

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
Risks in the workplace	Workplace contamination poses many complex problems for workers and their families. Legislation requiring notification to workers of worplace risk is relatively recent and of limited effectiveness. In many instances, the effects of workplace contaminants take years to become evident. Even when adverse health and/or mental health effects are known to workers, they may be unable or unwilling to leave their workplace. In an article titled, "Workers are Often a Hazard to Themselves," the story of a 32-year-old man who	New York Times, 7/8/84:8

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE

worked in a battery recycling plant is reported. Even after being told that his exposure to lead had caused serious kidney damage, he fought to remain in the same job, despite OSHA (Occupational Safety and Health Administration) rules which required his removal from the job. He is quoted as explaining:

> Sure, I'm worried about my health. But what am I supposed to do? Just give up everything I worked for and put into that company?

Worker attitudes towards workplace risks

In an exploration of employees' attitudes about workplace risks, a Cornell University sociologist says, "workers often feel confused and powerless when confronted with the issue. They are easily reassured by company experts, especially if the experts

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	suggest that costly safety measures could mean layoffs."	
	The threat of unemployment is an immediate relatity while the health effects of workplace contamination are only future possibilities. In order to rationalize decisions to stay in a knowingly contaminated workplace, workers often adopt the attitude that "it won't happen to them." A case in point is upstate New York's talc miners, their families, and the communities proximate to the mines. Despite knowledge of the hazards posed, workers and community members continue to expose themselves to the risks of serious lung damage.	
	"Even though the dangers are well-known in this area, there is an economic imperative." As explained by a 69-year-old	Newsday, 3/23/84:15

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	miner, now afflicted with lung damage, "What the hell can you do? You got a family. You got to work somewhere, don't you?" This can reflects the serious bind that evolves when an area's economic base, especially employment resources, are provided by industries which contaminate the environment. These situations engender worker and community support for such industries and companies, complicating the task of identifying and eliminating contamination.	Ibid.
	While the risks of exposure to contaminants in the industrial/manufacturing environment have received considerable attention and investigation, other less likely workplace environments also pose threats. Particularly	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	problemmatic are modern office buildings, which depend upon mechanical systems for ventilation rather than depending upon outside air and open windows. The energy crisis of the 1970s spawned an era of "air tight" buildings. As summarized by Lavinia Edmunds, in John Hopkins Magazine:	
	...a dangerous thing happened on the way to energy conservation. Along with heat, air-tight buildings can trap a melange of pollutants, which can be the culprits in a vague but bothersome sickness known as tight building or sick building syndrome. The pollutants...can come from anywhere -- ozone from copy machines, preservatives from wood, carbon monoxide from passing traffic, combustion products from gas stoves, formaldehyde from new carpets and furniture, radon from the earth. In a too-tight building, fumes can accumulate. Indoor air becomes noxious.	Edmunds, 1987:22

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
Risks at home	In the home, contaminants are often associated with furnaces, stoves, ovens, and cigarette smoke. As reflected by the listing of common contaminants, burning of any fuel -- coal, oil, wood, or gas -- produces contaminants with adverse effects. The "energy crisis" of the 1970s which resulted in more tightly insulated homes and increased use of auxiliary heating systems such as kerosene, has worsened the risk. Use of ureaformaldehyde spray foam insulation introduced a serious contaminant into many homes and buildings. The popular practice of building homes with attached garages has increased contamination in the home. Cases of death have resulted from carbon monoxide poisoning	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE

due to cars idling in a garage under or next to bedrooms. Storage of chemicals in an attached garage, including gasoline, can lead to poisonous vapors in the home. One of the most insidious dangers in the home is a malfunctioning furnace which emits poisonous vapors.

Contamination in the home has also resulted from the improper application of pesticides, notably chlordane for termite control, around the foundation of houses. In many instances, the chlordane found its way into heating or air conditioning ducts, crawlspaces, and other places which enabled the pesticide to contaminate the air inside the home. Countless families have been forced out of their homes with symptoms including nausea,

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE

vomiting, headaches, coughs, insomnia, and fainting. These families often experience symptoms for some time before linking them to chlordane as a possible cause. At first, most people believe they have the "flu". When symptoms do not abate, and in many cases worsen, other explanations are sought. Usually it is the family that begins to suspect contamination as a cause and it is the family that has to fight to prove it. In areas such as Long Island, New York, where sandy soil and high humidity lead to widespread termite problems, some houses have been demolished after chlordane contamination. A grassroots group, People Against Chlordane, has been formed, advocating for a total ban on the use of chlordane as a

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE

suspected carcinogen. Many of the members of People Against Chlordane have been forced out of their homes and have lawsuits pending. A particularly problemmatic aspect of chlordane contamination is the fact that every single thing within the home is contaminated and unusable. The chlordane molecules are absorbed by wood, books, fabric, and there are very few viable means of decontamination for things like furniture, clothes, toys, and other items within the home. Thus, the family is left without anything -- no home, no clothes, no personal belongings. The serious disruption of family life caused by chlordane contamination can never be compensated. Life is never the same for these families. Most

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	homeowner's insurance policies do not cover chemical contamination, forcing families to hire lawyers and initiate lawsuits. A Dallas, Texas laywer specializing in cases involving toxic substances, says the greatest difficulty is getting a jury to understand the human and emotional agony suffered by families. "They've been knocked back to the point of starting over. They've lost several years of their lives."	Woman's Day, 1/21/36:130
Risks that can be controlled in the home	In many instances, individuals introduce contaminants into their own homes, knowingly or unknowingly. Indoor cigarette smoke is thought to be one of the most widespread sources of indoor pollution. Tobacco smoke contains many contaminants, including, but not limited to:	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE

carbon monoxide, nitrogen dioxide, hydrogen sulfide, hydrocyanic acid, and hydrogen cyanide. All individuals breathing air contaminated by cigarette smoke are at risk.

Another common source of indoor contamination comes from "home improvement" products such as paint removers, varnishes, and furniture stripping and refinishing solvents. Most of these products contain benzene, a carcinogen. Even when used in a ventilated area, toxic fumes are released.

Another common source of home contaminants is a gas stove and oven or other gas-fueled appliances. Hazards result from leaking as gas moves through pipe systems and from the burning process. According to one expert,

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	Air contamination arising from gas kitchen ranges cannot be adequately eliminated by such partway measures as increasing ventilation in the kitchen, keeping the kitchen door closed, installing a kitchen fan, turning off the stove's pilots, disconnecting the stove but leaving it in the room, or even by turning off the gas at the point where the gas line enters the house.	Gannon, Zamm, 1980:55

The only solution is to remove all gas lines entirely from the home.

The pervasiveness of the contaminated environment presents other threats around the home. A recently reported case of the death of a dog from chewing on a piece of wood being used to build a backyard deck is an example. The lumber in use was treated with chromated copper arsenate (CCA), a commonly used treatment to reduce rotting. As an arsenic compound, CCA caused a prolonged, horrible death for the dog.

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	This incident was described as "highly unusual, very rare" by representatives of the company which makes the lumber. However, in researching the incident, the owners of the dead dog discovered that the EPA had issued a consumer information sheet which cautioned against burning the wood because of toxic vapors; against working with fresh wood when it was wet or when a white powder was visible on the wood; against washing one's work clothes with other family laundry, and against using the wood around food or food storage areas. As of November 10, 1986, distributors of wood treated with CCA are required to give consumers the information sheet, <u>if they ask for it</u>. As the owner of the dog who died said,	<u>Newsday</u> 10/14/86:6

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	I don't know how you're supposed to know to ask for it, though. I think people ought to know why they're taking these precautions. I wonder how many other medically related crises have happened because of this material. I mean, think of the number of toddlers playing with this wood when it's fresh!"	Newsday, 10/14/86:6
Risks in the community	In the community, contaminants are often associated with the presence of industry, landfills, and old automobile service stations. Many of the most notorious incidents covered widely by the media have been examples of community contamination. The Love Canal, New York; Times Beach, Missouri; and Woburn, Massachusetts communities have each been devastated by chemical contamination. In other communities, contaminated well water has effected the quality of life for residents as they	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	cannot drink, cook, or bathe in the water which flows from their faucets. Other communities have been victimized by leaky underground gasoline storage tanks which have soaked the ground surrounding their homes, forcing toxic levels of benzene into the homes. Proximity to municipal landfills has made some communities susceptible to methane gas explosions and caused the posting of signs saying, "Explosive Area -- No Trespassing."	New York Times, 11/11/84:25
Resistance to acknowledging community contamination	Community contamination is typically slow to be identified and is usually acknowledged only after substantial numbers of community residents have suffered. In Woburn, Massachusetts, a mother, Anne Anderson, spent eight	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE

years trying to persuade public officials that the incidence of childhood leukemia in Woburn was suspiciously high. Mrs. Anderson's son died of leukemia at the age of 12, but not before she had organized the community, established a grassroots advocacy group -- For a Cleaner Environment (FACE) -- and gained the attention of politicians, public officials, and scientists from Harvard University's School of Public Health. Eventually, Mrs. Anderson's suspicious were confirmed, but not before it was shown that there was a consistent pattern of positive associations between availability of water from...[contaminated] wells and the incidence of childhood leukemia, perinatal deaths and some birth defects

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	such as cleft palate and Down's Syndrome."	New York Times
	This story is repeated over and over in the brief but burgeoning history of community contamination. As community members begin to suspect that something "strange" is going on, a series of reactions is predictable. At first, uncertainty, confusion, and denial are typical community reactions to the suspected presence of a contaminant. Often, only a few residents become initially active in response to a suspected threat to community health and well-being. As time progresses, efforts are usually made to ascertain the accuracy of allegations about a community contaminant. Depending upon the situation, the amount of	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	time taken can be anywhere from a few weeks to a few decades.	
Consequences of community contamination	Throughout the process of investigation of a suspected community contaminant, residents are subjected to adverse mental health and health consequences. Fear, uncertainty, frustration, and feelings of powerlessness pervade the daily lives of those in the community. Mothers and fathers feel guilty about further exposing children to a suspected contaminant. Families may be forced to relocate by health or mental health consequences of a community contaminant, as in the Love Canal, New York case. This disruption and resulting loss and separation issues impact all members of the family. There is almost always a financial crisis centering on	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	the simultaneous loss of housing and equity. A house in an area known to be near a contaminant may suddenly be worthless. As stated by an Akron, Ohio resident whose home is potentially explosive and uninhabitable due to leaking methane from a municipal landfill: "It's not just a financial burden, it's a emotional thing for all of us. We're kicked out of our house. Nobody has given us one cent for anything."	New York Times, 11/11/84:25
	In instances of proven contamination, community residents are usually forced to resort to litigation to get any compensation for their loss. The process of obtaining and paying for a lawyer, under the duress of exposure to a known contaminant, adds even more to	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	the burden carried by community residents. Often, the legal process takes years, leaving community members to use their own or public resources to replace housing, if necessary, and obtain emotional and physical care.	
Needs of people confronting environmental contamination	As demonstrated in this session, human beings face contaminated environments on a daily basis. A fundamental, underlying need is education. Most people are unaware of the extent of contamination in the environments in which they live and work. In addition, many people are unaware of the ways in which they, themselves, contribute to environmental contamination. Awareness, through mass public education, is a prerequisite to reducing the adverse health and mental	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE

health effects of environmental contaminants.

When indivudals suspect or are aware of an actual or imminent health or mental health effect of a contaminant, a variety of needs emerge. The need for support is strong, and may be accompanied by a persistent need for validation. The need for an outlet for anger and frustration is common. The need to gain accurate, unbiased, scientific and medical assessments of the known or suspected contaminant(s) and effects is preeminent, coupled closely with the need to establish a sense of control and empowerment.

Concrete needs may take precedence. The need to find new housing comes as a major life crisis to many families in

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE

cases of community and/or home contamination. The need for counseling and problem solving assistance may emerge. The need to be linked with various resources is essential. In almost all instances, a range of emotional reactions, including anger, frustration, and feelings of powerlessness pervade.

Information, combined with a conscious commitment to reducing the present and future contamination of the physical environment, is necessary to mitigate adverse health and mental health consequences faced daily.

ENVIRONMENTAL CONTAMINANTS AND HUMAN HEALTH AND WELL-BEING

REFERENCES

Blumenthal, D.S. (1985) Introduction to environmental health. New York: Springer Publishers.

Edmunds, L. (1987) "Sick buildings", Johns Hopkins Magazine, June:22-25.

Luoma, S.N. (1984) Introduction to environmental issues. New York: Macmillan.

Newsday, 3/23/84:15; 10/14/86:6.

New York Times, 7/9/84:8; 11/11/84:25.

Trieff, N.M. (1980) Environment and health. Ann Arbor, MI: Ann Arbor Science Publishers.

Williams, J.S., Leyman, E., Karp, S.A., and Wilson, P.T. (1973) Environmental pollution and mental health. Washington, D.C.: Information Resources Press.

Woman's Day, 1/21/86:130.

Zamm, A. and Gannon, R. (1980) Why your house may endanger your health. New York, NY: Simon and Schuster.

ENVIRONMENTAL CONTAMINANTS CURRICULUM PACKAGE
MODULE II HANDOUT:

HUMAN HEALTH AND MENTAL HEALTH CONSEQUENCES OF SELECTED ENVIRONMENTAL CONTAMINANTS

CATEGORY	CONTAMINANTS	EFFECTS	COMMON SOURCES OF EXPOSURE
NONCUMULATIVE CHEMICALS (not retained in the human body after exposure; effects are dependent on dose and length of exposure	Carbon Monoxide (CO)	Depending on dose level and length of exposure: Vision problems Apathy Nausea Headaches Abdominal pain Depression Psychosis Fatigue Death	Automobile emissions Cigarette smoke Home heating systems
	Sulfur Oxides	(causes Acid Rain). Severe damage to lung tissue with chronic exposure, especially for children and elderly Chronic bronchitis Bronchial asthma	Burning of coal Industrial plants

CATEGORY	CONTAMINANTS	EFFECTS	COMMON SOURCES OF EXPOSURE
CUMULATIVE TOXINS (continuously accumulate in body tissues to increasingly higher concentrations; exposure causes severe effects -- some reversible, some irreversible	Heavy Metals	Depending on dose and length of exposure: Nervous system damage Mental retardation Emotional instability Behavioral difficulties Perceptual disabilities Speech defects Reduced physical coordination	Manufacture of batteries, Ingestion of lead paint chips Automobile emissions Coal burning Power plants Ingestion of water with with high concentrations from landfills Ingestion of soil with high concentrations of lead (urban areas)
	Mercury	Toxic to nervous system: Numbness Tremors Slurred speech Dementia Irritability Ataxia Death Personality changes Aggressiveness Paranoia Depression Crosses placenta in pregnant women, leading to cerebral palsy and mental retardation in offspring	Industry: Wood pulp Manufacture of paints and pharmaceuticals, Burning of coal Agriculture: Water drinking Fish, especially marlin, salmon, shark, swordfish, tuna, whale Waste disposal

CATEGORY	CONTAMINANTS	EFFECTS	COMMON SOURCES OF EXPOSURE
CUMULATIVE TOXINS (continued)	Cadmium	Kidney function impaired High blood pressure Heart disease Lung damage Death	Cigarette smoke Industry: Manufacture of batteries, metal-finishing, plastics, industry, metal ore, mining or smelting, municipal and industrial sewage, water
CARCINOGENS (agents that cause cancer) TERATOGENS (agents that cause birth defects) MUTAGENIS (agents that cause genetic mutations)	Benzoapyrene	Lung cancer	Cigarette smoke Urban air pollution Oil reinery wastes Shellfish Fish flesh Oil spills Urban street runoff
	Chlorinated Hydrocarbon Pesticides: DDT Chlordane, Hexachlorobenzene Dieldrin Dioxin (2,4,5-T) PCB	Various cancers	Agricultural workers Inhabitants of agricultural areas Contaminated well water Defoliant Lubricants in electronic equipment Cars

CATEGORY	CONTAMINANTS	EFFECTS	COMMON SOURCES OF EXPOSURE
CUMULATIVE TOXINS (continued)	Trihalomethanes (formation of carcinogenic chlorinated hydrocarbons during the chlorination of drinking water)	Rectum, colon, and bladder cancer	Chlorinated drinking water
	Vinyl Chloride	Liver damage Tumors in lung and brain Central nervous system	Industries, especially plastics
RESPIRATORY FIBROTIC AGENTS (retained in the lung)	Coal dust Cotton dust Cellulose	Pulmonary diseases/pneumoconioses Brown/black lung disease Asbestosis	Industries using these contaminants: Home building materials Submarines
RESPIRATORY IRRITANTS	Formaldehyde Sulfur dioxide (SO_2) Nitrogen dioxide (NO_2)	Rhinitis Parynatis Bronchitis Skin rashes	Air pollution (indoor and outdoor) Industry Homes and buildings with ureaformaldehyde insulation

ENVIRONMENTAL CONTAMINANTS CURRICULUM PACKAGE
MODULE II HANDOUT:

WORKPLACE ENVIRONMENTS KNOWN TO BE HAZARDOUS

WORKPLACE/OCCUPATION	COMMON ASSOCIATED CONTAMINANT/DISEASE
Manufacturers and packers of abrasive soap powders Sand blasters Mining industries Potteries Foundries Stone cutting and finishing Tile and clay producing Glass manufacturing	Silica/Silicosis (lung disease)
Coal miners/workers	Coaldust/"Black Lung Disease"
Dye manufacturing Rubber manufacturing	Bladder cancer
Metal smelting Metal alloy workers Arsenic pesticide production	Skin, lung, liver cancer
Asbestos miners Insulators Shipyard workers	Lung cancer (asbestosis)

WORKPLACE/OCCUPATION	COMMON ASSOCIATED CONTAMINANT/DISEASE
Petrochemical workers Chemists	Leukemia
Shoe manufacturing	Nose and bladder cancers
Roofers Chimney sweepers Petroleum workers Shale oil workers	Skin, lung, bladder, scrotum cancer
Polyvinyl chloride synthesizers Rubber workers	Liver, brain, lung cancer
Welders	Lung cancer
Office workers (sealed buildings)	Varied indoor air pollution/respiratory problems Headaches;. Fatigue
Hardwood floors, furniture makers	Lung/nose cancer
Toll takers Tunnel workers	Lead poisoning Depression Carbon monixide poisoning

ENVIRONMENTAL CONTAMINANTS CURRICULUM PACKAGE

Lynne Soine, M.S.W.
Assistant Professor
School of Social Welfare
State University of New York at Stony Brook

MODULE III:

ENVIRONMENTAL POLICY:

IN THE BEST INTERESTS OF HUMAN HEALTH AND WELL-BEING?

A. SUMMARY

This module is meant to augment foundation content in the area of social policy and services. An overview of environmental policy issues is presented, including: identification of 'critical actors", vested interests, value conflicts, and policy-making structures and processes.

B. IMPLEMENTATION

This module is planned for a two-hour period and intended for a group of approximately twenty-five students. A chalkboard or newsprint is required.

C. TEACHING METHODS

This module depends upon didactic presentation, structured discussion, and includes handouts for participants.

D. OUTCOME OBJECTIVES

As a result of participation in this module, students will:

1. Understand the elements involved in environmental policy-making.
2. Comprehend the complex value conflicts underlying environmental policy.
3. Know how environmental decision-marking structures operate.
4. Be prepared to influence environmental policy decisions at local, state, and national levels.

E. SUPPLEMENTARY MATERIALS

Included in this module is a handout which summarizes major environmental legislation, and an article, "The Forest for the Trees -- Can Today's Environmentalists Tell the Difference?". In addition, module references are provided which can also be distributed to students.

MODULE III: ENVIRONMENTAL POLICY: IN THE BEST INTERESTS OF HUMAN HEALTH AND WELL-BEING?

UNIT 1: An Overview of Environmental Policy

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
Value conflicts underlie environmental policy	The processes used to determine environmental policy are complicated and reflect fundamental conflicts in values. Public concern about environmental policy can be traced to the post-Civil War period, during which the massive clearing of forests and rapid industrialization focused some concern on environmental preservation. Groups like the Sierra Club and the Audubon Society were established around the turn of the century. Current concerns about environmental quality can be dated from the 1962 publication of Silent Spring, by	Goldfarb, 1983:1

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	Rachel Carson. Since then, public interest groups devoted to environmental causes have proliferated, with more than two hundred organizations nationally and thousands at the local level.	
The "environmental crisis" as a "social crisis"	Despite the existence of more environmental protection and advocacy organizations, environmental decision-making represents the reconciliation of diverse scientific, political, economic, and social positions. In describing the "environmental crisis as a social crisis", Milbrath and Inscho note that, "The social edifice that we have built in Western, industrialized society is based on false assumptions about the natural environment." They identify several fundamental incompatibilities:	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	1. "We have built an energy intensive society such that hundreds of daily acts are dependent on having energy at our ready command." Most of this energy is obtained by fossil fuels which pollute the environment and which are nonrenewable and rapidly disappearing.	Milbrath, Inscho, 1975:9-10
	2. Our society is "critically dependent on metals" which are both toxic and nonrenewable.	
	3. Our economy requires continuing growth to approach full employment, using more energy, metals, and people and inflicting increasing injury on the environment.	
	4. Industrialization has expanded the capacity of	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	the earth to feed and support people but the population growth rate it has fostered cannot be tolerated for long.	
	Milbrath and Inscho cite these incompatibilities as evidence of the very complicated relationship between the kind of society we have constructed and the steps necessary to address the environmental problem. They conclude that the environmental problem is "preeminently a social problem" requiring massive social changes. Rather than emphasizing technological approaches to resolving environmental problems, social changes in beliefs and values, rewards, and laws must be emphasized.	Milbrath, Inscho, 1975:10

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	Milbrath and Inscho advocate planned social change in order to address environmental problems, noting that:	
	1. Many closely held individual beliefs and values must change;	Milbrath, Inscho, 1975:14-15
	2. Government must play a major role in planning and implementing needed changes;	
	3. Traditional economic thinking and economic relationships may be upset; and	
	4. People will have to confront and make some very difficult policy tradeoffs.	
	The preceding perspective emphasizes the social aspects and value base of environmental problems. Social aspects of environmental problems are value-based and intertwined	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	with economic, political, and technical aspects. Policy determinations are difficult in this context of complicated and often conflicting positions on environmental issues/problems. The environmental policy-making process encompasses these diverse social, political, and ecoromic factors. In addition, scientific evidence is depended upon as an important, although controversial, factor.	

UNIT 2: Environmental Policy-Making Processes

An overview of the environmental policy-making process:

INPUTS	PROCESS	OUTPUTS
Public opinion	Federal/state/local regulatory agencies	Environmental policy determination
Scientific research findings	Federal/state/local government processes (legislation, public hearings, etc.)	
Media	Judicial processes (court decisions)	
Professional opinions (doctors, laywers, social workers, scientists, economists, etc.)		

environment (feedback)

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
Inputs into environmental policy-making process	As reflected by the diagram, inputs into the policy-making process consist of: special interest groups including those that advocate	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	a less contaminated environment as well as those groups that advocate for the interests of businesses and industries above environmental interests; the media; and various professionals such as scientists, lawyers, and physicians.	
Processes involved in environemntal policy-making	The processes which result in an environmental policy decision are often legislative, regulatory, or judicial. All levels of government -- federal, state, and local -- make environmental policy. Regulatory agencies ultimately translate these policies into specific rules, standards, and/or regulations, and may or may not be responsible for insuring compliance.	
	The processes that result in determination of environmental policy are characterized by	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE

power struggles among competing interests. The interests of businesses and industries are fundamentally financial in nature. This almost always results in opposition to increased regulation of environmental contaminants. Businesses and industries have actively fought efforts to reduce or eliminate contaminants which are known or strongly suspected to harm human health and well-being. Many such businesses and industries support scientific research to provide "evidence" which counters evidence of the danger of contaminants. In addition, businesses and industries have substantial resources and organized lobby groups to influence the processes of legislative, regulatory and

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	judicial policy-making. Thus, businesses and industries are powerful forces in the processes which determine environmental policy.	
	The extent to which the public is a force in environmental policy-making processes depends largely on the level of public awareness in relation to environmental issues. Historically, there has been very limited awareness of the dangers of many environmental contaminants on the part of the public. As the number of environmental public-interest research and advocacy groups has grown, public	
Public ambivalence in environmental policy positions	awareness has grown. However, members of the public may simultaneously want an environemtnal contaminant eliminated, but not want to	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	suffer the consequences of eliminating the contaminant, as expressed in the following:	
	> When the only solution to a health problem caused by the effluent discharge of a factory seems to be that of closing the factory, action may not be taken if it creates massive unemployment in a region.	Trieff, 1980:609
	Similarly, some members of the public may actively support policies advocating cleaner air by forcing business and industry to reduce harmful emissions, but vehemently object to controls on fireplace and wood or coal burning stove emissions from their homes.	
Examples of power struggles in environmental policy-making	The following examples of the interplay among the various social, political, and economic elements of the environmental policy-making process reflect the power struggles:	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	Even after establishment of conclusive evidence of a link betwen the routine practice of feeding animals small amounts of antibiotics and danger to human health from the drug-resistant bacteria which result in the animals, the FDA experienced difficulty attempting to restrict the practice. A major metropolitan area editorial stated:	
	Anyone concerned about the practice should let the FDA know... The agency needs help to withstand the pressure from the livestock industry and the drug companies, which sell half of their antibiotics for use in animal feed.	Newsday, 1/30/85
	In describing delays in enforcement of policies related to ozone in the air, it was reported that:	
	Officials have been reluctant to make the tough political decisions that	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	would mean new, expensive controls on thousands of hydrocarbon-leaking establishments, such as gasoline stations and dry cleaning shops...state and city officials would rather wait for the EPA to decide if it will instead require all new cars to be fitted with canisters of activated charcoal that capture fumes. That is the solution gas stations would like to see, but the auto industry is resisting it, saying it would add as much as $85.00 to the cost of a car and it might not be safe.	Newsday, 8/4/86

In a discussion of the EPA's declaration of dinoseb (a pesticide) as an "imminent hazard" to human health, it was revealed that:

1. Dinoseb is one of hundreds of such pesticides developed and marketed before modern and stringent safety tests were required.
2. Over the past six years, the EPA has discovered that most of the studies supporting the licensing of these

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	pesticides are scientifically invalid or, in some cases, fraudulent.	
	3. The farm chemical industry has been "taken aback by the crescendo of concern".	
	4. In response to the "furor", both houses of Congress have now approved legislation ...to speed up safety reviews of about 600 active ingredients in nearly 50,000 products now in wide use.	New York Times, 10/12/86

After the Supreme Court ruled unanimously that an industrial polluter can invoke the protection of federal bankruptcy law to avoid an order to clean up a toxic waste site, the Justice Department warned the Court that:

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	The use of bankruptcy law as a shield in environmental cases could cripple Federal environmental enforcement efforts.	New York Times, 1/10/85

In an article titled, "Dow Stoops to Calm Congress and Public Opinion", the Chairman of Dow Chemical Company is quoted as saying,

> In the past the company really did not care much what the public or government thought about it. Now,...Dow is embarked on a campaign...to improve the company's image. That image...should reflect a company that is genuinely concerned with the environment and with public health and takes seriously its responsibilities to comply with the laws to safeguard the public from the hazards of toxic chemicals.

These comments were made <u>after</u> Congressional investigators revealed that Dow had used political influence to weaken an EPA report on possible

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	contamination at Dow's headquarters plant from the toxic substance, dioxin.	New York Times, 1/2/85
The EPA and OSHA	The year 1970 marked two major federal policies addressing environmental contamination: the establishment of the Environmental Protection Agency (EPA) and the Occupational Safety and Health Administration (OSHA).	Gov't Institutes, 1985:335
Differences between EPA and OSHA	Although somewhat overlapping, EPA and OSHA are very different in design. EPA is an independent regulatory agency, headed by a presidential appointee. OSHA is a division of the Department of Labor. Also, OSHA addresses workplace safety as well as health, while the EPA was "charged with the responsibility of regulating the emission of air pollution from both stationary sources of air polution and mobile sources..	Blumenthal, 1985:218

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE

Despite the seeming "protective" nature of these initiatives, neither, in fact, operated to protect human health and well-being. Instead, priority is placed on regulating the contaminants in the environment. Setting standards which define the permissible levels of contaminants in the air and in the workplace is the focus of these agencies. In the case of OSHA, enforcement powers are provided; for the EPA they are not.

The operation of both of these agencies has been characterized by power struggles among competing constituencies, resulting in compromise after compromise. In hundreds of cases, the courts have been used by various constituencies to try to force adherence to particular vested interests.

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
Use of courts to determine environmental policy	Use of courts to determine environmental policy is usually inconsistent with the value of human health and well-being. Courts decide cases on the basis of evidence and precedents. There is no inherent priority placed on human health and well-being in such proceedings.	
"Acceptable risk vs. safety"	Increasingly, environmental policy is being formulated according to the assessment of risk associated with contaminants. The focus is on the definition of "acceptable risk". Thus, while the public approaches environmental contamination from the perspective of "safety", meaning "free from harm", policy-making accepts the principle that some harm is acceptable. The question then becomes debated: how much risk or harm is accetpable?	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
"Risk assessment"	The field of risk assessment is growing and reflects the most dominant approach to setting limits and/or standards for contamination in the environment.	Goldfarb, 1983:86
Relative risk	Risk assessment "involves the estimation, or, in the case of tried technologies, the determination of the PROBABILITY of an event occurring and the estimation or determination of the SEVERITY of an event's occurrance." After the examination of probability and severity, acceptability of the risk posed is determined. Thus, in policy-making, relative risk is the framework which dominates.	Goldfarb, 1983:86
Methods used to determine relative risk	None of the methods used to determine relative risk are universally acceptable to all constituencies concerned about environmental contamination. Methods used have included:	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	Cost-Benefit Analysis -- Assumes all aspects can be quantified, including the value of human life, and then compared to each other.	
	Another method of determining risk is based on an analysis of risks that have been generally accepted by society. Such analysis is believed to yield insight into "patterns of acceptable risk-benefit tradeoff".	Goldfarb, 1983:87
	Another method, used infrequently in policy-making, is that of expressed preferences, in which the public is directly involved in deciding acceptable levels of contamination.	
Compromise in policy-making	In the context of competing interests of industry/business and public health and well-being, environmental policy-	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	making is undertaken. The regulatory agencies are concerned with mediating the competing interests, not absolutely protecting human health and well-being.	
	Political and economic forces are central to the policy-making process, introducing factors which tend to result in decreasing emphasis on human health and well-being.	
Recent trends in environmental policy-making	Recent emphasis from the Reagan administration on deregulation has also adversely affected environmental policy-making in the interests of human health and well-being. Under Reagan, OSHA has closed sixteen offices, imposed fewer fines, and conducted fewer physical inspections than during the previous	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	administration. The director of occupational safety for the United Auto Workers has charged that:	Newsday, 10/28/84:83
	> Workers are left naked without protection, and the Sierra Club and the Health Research group have charged that Reagan is endangering workers by delaying passage of rules reducing benzene concentration in the workplace and restricting formaldehyde.	
	In addition to the damage done by deregulation, the Reagan administration has consistently favored the interests of business and industry over human health and well-being interests. Reagan's veto of the 1986 Federal Clean Water Act and his administration's insistence that more study is needed before amending the Clean Air Act are but two major examples.	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE

These recent trends, combined with the tendency to resolve environmental policy decisions in courts of law, has resulted in a situation wherein human health and well-being is regularly sacrificed for other, more powerfully represented political, economic, and industrial interests. Unless and until the interests of human health and well-being are more powerfully expressed in the environmental policy-making process, this sacrifice will continue.

ENVIRONMENTAL POLICY REFERENCES

Arbuckle, J.G., ed. (1985) Environmental Law Handbook. Rockville, MD: Gvt. Institutes, Inc.

Brain, J.D., Beck, B.D., Warren, A.J., Shaikh, R.A. (1988) Variations in susceptibility to inhaled pollutants. Baltimore, MD: Johns Hopkins University Press (see Section V: Policy Implications).

Goldfarb, T. (1983) Taking Sides: Clashing Views on Controversial Environmental Issues. Connecticut: Dushkin Pub. Group.

Milbrath, L.W. and Inscho, F.R. (1975) The Politics of Environmental Policy. Sage, CA

Trieff, N. (1980) Environment and Health. Ann Arbor, MI: Science Pubs. Inc. (Chapters 16, 17, 18).

ENVIRONMENTAL CONTAMINANTS CURRICULUM PACKAGE

MODULE III HANDOUT:

MAJOR OUTCOMES OF THE FEDERAL ENVIRONMENTAL POLICY-MAKING PROCESS

Major outcomes of the environmental policy-making process include federal environmental health laws which deal directly with the impact of environmental contamination on human health. A review of such laws follows:

THE CLEAN AIR ACT (1963)

The primary purpose of the Clean Air Act is "to protect and enhance the quality of the nation's air resources so as to promote the public health and welfare and the productive capacity of its population." Originally delegated to the Department of Health, Education, and Welfare, 1970 amendments to the Clean Air Act created a new agency -- the Environmental Protection Agency (EPA), which was "charged with the responsibility of regulating the emission of air pollutants from both stationary sources of air pollution and mobile sources" (Blumenthal, 1985:213).

THE NATIONAL ENVIRONMENTAL POLICY ACT OF 1969 (NEPA)

(signed into law by President Nixon on January 1, 1970)

Divided into two titles, this act declares a national environmental policy and goals, and creates the Council on Environmental Quality. The policy statement announces "a general commitment to use 'all practicable means' to conduct federal activities in a way that will promote 'the general welfare' and be in 'harmony' with the environment." The goals are designed "with an eye toward assuring 'safe, healthful, productive, and esthetically and culturally pleasing surroundings' for all generations of Americans" (Gvt. Institutes, 1985:371).

The major impact of this act, defined by the Supreme Court after much litigation, is related to the procedures federal agencies use in decision-making. Accordingtly, NEPA does not require agencies to make decisions promoting the preservation or protection of the environment. It only requires that the environment be considered and designates procedures to be followed. The "environmental impact statement" is the major result.

THE CLEAN WATER ACT (1977)

(began as the Federal Water Pollution Control Act in 1948, was amended five times, and then comprehensively rewritten in 1972 and again amended and renamed in 1977)

The purpose of the Clean Water Act was: (1) to provide federal financial assistance for the construction of publicly-owned sewage treatment plants; (2) to regulate the discharge of pollutants from point sources; and (3) to regulate spills of oil and hazardous substances.

THE SAFE DRINKING WATER ACT (1974)

Provides for national drinking water regulations for public water systems that have at least fifteen service connections or regularly serve at least twenty-five individuals.

The regulations are required to identify contaminants that may have adverse human health effects and specify maximum contaminant levels for each contaminant so identified.

Under this act, a state can be given primary enforcement responsibility by the Environmental Protection Agency.

THE RESOURCE CONSERVATION AND RECOVERY ACT OF 1976

(originally the Solid Waste Disposal Act of 1965, amended in 1970 by the Resource Recovery Act, in 1978 by the Quiet Communities Act, and in 1980 by the Solid Waste Disposal Act -- it is still commonly referred to as the Resource Conservation and Recovery Act)

The purpose of this act is to fill the gaps left by environmental regulatory legislation which focuses only on the medium in which contamination is found -- air and water, for example. Under this act, the EPA regulates:

> ...wastes, which because of...quantity, concentration, or physical, chemical, or infectious characteristics may (A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of, or otherwise managed (Blumenthal, 1985:232).

THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT OF 1980 ("SUPERFUND")

This act is described as "a compromise piece of legislation" resulting from the introduction of more than twenty bills in the Ninety-Sixth Congress, 1978 to 1980. The emphasis in these bills was to:

> deal comprehensively with all forms of toxic environmental pollution in a manner that would reduce reliance on a complex environmental regulatory scheme and expedite remedial action and compensation for victims. The resulting legislation is commonly referred to as "Superfund" because its precominant feature was the creation of a Hazardous Substances Response Fund to support cleanup and remedial action whenever there is a release of a hazardous substance that presents a real or potential threat to public health. Excluded from this Act are: occupational exposure, most engine exhaust emissions, releases of radioactive materials during a 'nuclear accident', the 'normal' application of fertilizer, and releases permitted under other federal environmental regulatory statutes (Blumenthal, 1985:237).

THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 (OSHA)

This act is "designed to eliminate hazards in the specific limited environment of the workplace and to protect employees in that environment." Hazards must be both "recognized" and "capable of causing death or serious physical harm" (Blumenthal, 1985:169).

The Act established the Occupational Safety and Health Administration at the federal level and encouraged states to establish counterparts which would assume primary responsibility for implementation. In addition, NIOSH was established -- the National Institute for Occupational Safety and Health. NIOSH was to be the "standard-setting" organization.

ENVIRONMENTAL CONTAMINANTS CURRICULUM PACKAGE

Lynne Soine, M.S.W.
Assistant Professor
School of Social Welfare
State University of New York at Stony Brook

MODULE IV:

PRACTICE IMPLICATIONS OF ENVIRONMENTAL CONTAMINANTS

A. SUMMARY

This module is meant to augment foundation content in the area of social work practice. An overview of practice roles and functions related to environmental contaminants is presented. Students are encouraged to identify activities within their field placement agencies which acknowledge the possible impact of environmental contaminants on clients.

B. IMPLEMENTATION

This module is planned for a two-hour period, and intended for a group of approximately twenty-five students.

C. TEACHING METHODS

This module depends upon didactic presentation, structured discussion, and includes handouts and an optional in-class exercise.

D. OUTCOME OBJECTIVES

As a result of participation in this module, students will:

1. Undertake assessments which include attention to environmental contaminants.
2. Develop intervention plans for individual clients, families, groups, communities, and organizations which include attention to environmental contaminants.
3. Develop an understanding of the advocacy, information-gathering, and public education functions crucial to professional practice in an increasingly contaminated environment.
4. Identify existing and potential professional roles and settings in which environmental contaminants knowledge can be used to enhance and protect human health and well-being.

E. SUPPLEMENTARY MATERIALS

This module includes two handouts: Practice Implications for Environmental Contaminants: Guidelines for Assessments which Include Attention to Environmental Contaminants and Guidelines for Intervention and Evaluation.

MODULE IV: PRACTICE IMPLICATIONS OF ENVIRONMENTAL CONTAMINANTS

UNIT 1: The Physical Environment as an Integral Element of the Definition of Social Work Practice

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
CSWE definition of practice	Existing definitions of social work practice vary somewhat, but almost always include the "environment". The definition used by the Council on Social Work Education states that:	
	Professional practice... focuses on the transactions between people and their environments that affect their ability to accomplish life tasks, alleviate distress, and realize individual and collective aspirations...and has four related purposes:	CSWE Curric. Policy Statement, 4.2
	The promotion, restoration, maintenance, or enhancement of the functioning of individuals, families, households, social groups, organizations, and communities by helping them to prevent distress and utilize resources.	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
Definition of "environment"	The emphasis placed on environment in social work practice has been present to varying degrees throughout the history of the profession. However, "environment" has been defined in different ways throughout the profession's history. As presented in the second edition of Webster's New World Dictionary, "environment" is defined as: 1. a surrounding, or being surrounded 2. something that surrounds, surroundings 3. all the conditions, circumstances, and influences surrounding, and affecting the development of, an organism or group of organisms.	
Operational definition of environment in social work	In order for this concept of "environment" to be meaningful in social work practice, it must be	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	operationally defined. Throughout the history of professional social work practice, environment has been operationally defined in different ways. While many such definitions can be cited, generally a division is made between physical environment and social environment. Even within each of these categories, many operationally different definitions emerge.	
The social environment	The social environment has historically received the most attention from social work educators and practitioners alike, and is considered to be fairly well defined and integrated into social work education. More recently, the physical environment has been recognized as an aspect of social work which cannot be	Germain, 1981:324

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
The physical environment	ignored. Germain and Gitterman's practice text, The Life Model of Social Work, includes the physical environment as an integral component of the social work focus. The definition of physical environment used is:	
	The physical environment comprises the natural world of animals, plants, and land forms, and the built world of structures and objects constructed by human beings.	Germain, Gitterman, 1980:137
	This broad definition of environment includes many operational levels for social work practice. The "natural world" is comprised of "climatic and geographical features; landscapes and seascapes; diurnal, seasonal, and annual rhythms and cycles; and cosmic and lunar influences."	Germain, Gitterman, 1980:147-8

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	The "built world" includes "architectural structures, an almost infinite variety of objects; communication, media, and transportation systems; and arrangements of physical space and of the objects and structures within it."	Germain, Gitterman, 1980:148
	The potential for professional social work interventions based on these broad definitions of physical environment is limitless. Germain and Gitterman present several case examples of interventions which address aspects of the "built world". Examples of interventions into the "physical world" are far fewer, however, and generally emphasize the positive use of physical environment in professional social work intervention, as in the following examples:	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	The field of child welfare has probably made the greatest use of this environmental level. Social workers in urban areas frequently take children, and often with their mothers, on expeditions and picnics to the countryside, the seashore, or to the city park and zoo... In contemporary life, wilderness experiences and organized camping are provided to mental patients disturbed youth, the blind, diabetics and others with serious physical disabilities, and the elderly.	Germain, Gitterman, 1980:190-1
	Several very brief statements suggest that increasing environmental contamination of air, water, and land is a concern warranting social work intervention.	
Need to include contaminants and hazards in physical environment	As discussed in previous sessions (Modules I and II), there is a growing body of scientific evidence confirming the contamination of land, air, and water. The impact of these environmental contaminants on	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE

human health and well-being is established. The operational definition of physical environment used to guide professional social work practice must, therefore, include acknowledgement of the hazards posed by any human interaction with the physical environment, and proceed accordingly. Assessments and interventions with the goal of mitigating past, present, and potential adverse effects of the contaminated physical environment are now required.

UNIT 2: Practice Principles and Processes Appropriate to Environmental Contamination

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
Incorporating the physical environment into practice	In discussing professional practice principles which incorporate the physical environment, Germain and Gitterman state:	
	The practice principles include maintaining a continuing vigilance with regard to the impact of environmental variables on clients; keeping sensitively attuned and open to clients' overt and masked requests for help with environmental issues; maintaining clarity about the legitimacy and primacy of this area for joint client-worker attention and action; and being scrupulously concerned that there is client participation when possible, and that the client has given his/her informed consent.	Germain, Gitterman, 1980:156
	In order to operationalize these principles in practice, the social work processes of engagement, assessment,	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	intervention, and evaluation need to incorporate attention to contaminants in the physical environment.	
Practice process -- engagement	Engagement: Attention to environmental contaminants in the process of engagement includes conscious awareness of the physical environment in which the social worker practices and the clients live and work. In the process of forming relationships with individuals, groups, communities, and organizations, the social worker's alertness to those conditions in the physical environment known to be associated with environmental contaminants is essential. Most often, an assertive or proactive approach to engagement is required. Generally, individuals are unaware of the	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	risks posed daily by their physical environments, and unlikely to associate conditions in their physical environment with feelings of physical or emotional distress. Thus, social work engagement needs to encourage such exploration.	
	In situations where contamination has been acknowledged, proactive engagement is also emphasized. Residents of a neighborhood which has been identified as having contaminated drinking water are not likely to seek social work services. Outreach is necessary to engage such residents in a helping process which begins to respond to the multiple human needs resulting from the contamination.	
Practice process assessment	Assessment: The assessment process is crucial to	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE

incorporating environmental contaminants knowledge. In the process of gathering data, the physical environment must be systematically explored in accord with the knowledge of common contaminants and the typical sources of exposure. Categories of inquiry need to include home, workplace, and community, and minimally incorporate the following:

1. Home

   What sources of heat are used?

   Last servicing of heating equipment?

   What cooking fuels are used?

   What building materials and furnishings?

   Does anyone smoke in the home?

   Have any pesticides been used inside or outside the home?

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE

Is home water supply from private well or public system?

Is home located near major thoroughfares?

Is there a garage/storage shed attached to the home? If so, are any chemicals routinely stored?

Have any recent home improvement or crafts projects included paint removers, varnish, and/or furniture stripping or refinishing products?

2. Community

Are any of the following located in the community:

Landfills -- abandoned or operating?

Industrial/manufacturing companies?

Automobile service stations, body repair shops, or gasoline/oil tank farms?

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE

Dry cleaning establishments?

3. Workplace

Type of workplace environment: industrial? office? outdoors?

If industrial, what chemicals are routinely used? If unknown, have "right to know" procedures been used?

If office, what is source of air supply? "controlled" internal air system or open window/fresh air?

Source of heat in workplace?

Source of water supply in workplace?

If the practice situation is such that a particular geographic community comprises the target population, as in the mental health system's designation of "catchment

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	areas", a profile of community contamination can be developed and used by all social workers for assessment purposes.	
Practice implications of environmental contaminants: guidelines for intervention and evaluation	In instances where the assessment process has documented the likelihood of adverse effects from environmental contaminants, the intervention plan mutually developed by worker and client(s) should include action to ameliorate or eliminate the effects of the contaminants. Types of interventions which may be appropriate to ameliorating adverse effects of environmental contaminants include: 1. Educating the client(s) about the risk of particular contaminants and providing very clear and specific information about reducing risks.	

2. Educating the client(s) about the consequences of exposure to particular contaminants, including possible symptoms of adverse health and mental health effects.
3. Linking client(s) with resources to assure knowledge and protection of legal rights and recourse.
4. Linking client(s) with resources to meet concrete needs such as housing, water, uncontaminated air, and medical care.
5. Providing ongoing support and validation for victims of known/suspected environmental contamination.
6. Enabling client(s) empowerment and problem-solving capacities.
7. Organizing client(s) to achieve goals which protect

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	human health and well-being when faced with exposure to environmental contaminants.	
	8. Advocating for the amelioration of environmental contaminants in cases of adverse health and mental health consequences.	
	9. Identifying and recruiting resources to augment any of these interventions, including unions, advocacy groups/special interest organizations, health departments, research units of medical/university programs, professional associations, community groups such as civic associations/property owner associations.	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
Evaluation	The process of evaluation of intervention plans that include amelioration of the effects of an environmental contaminant should include the extent to which specific goals were achieved and documentation of strategies that have been effective.	

UNIT 3: Practice Roles and Settings Relevant to Incorporating Environmental Contaminants Knowledge

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	In order to incorporate the expanded definition of physical environment into professional practice, the following social work practice roles are appropriate: broker, advocate, educator, enabler, and organizer. Each of these roles is appropriate for the inclusion of environmental contaminants knowledge towards the goal of ameliorating adverse effects on human health and well-being.	Germain, Gitterman, 1980:153
Practice roles	Whether the focus of practice is with individuals, groups, communities, or organizations, each of these roles provides an opportunity to integrate environmental	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE

contaminants knowledge. A definition of the roles and their implications for practice in the contaminated environment follows:

ENABLER: Helps people to clarify their problems, identify their needs, and develop the capacity to deal with their own problems more effectively.

Implication: Social worker seeks and obtains sufficient information about client's home, work, and community environment to ascertain the extent to which environmental contaminants are a part of the client's physical environment. In instances of suspected involvement of environmental contaminants, social worker facilitates further fact-gathering through consultation with relevant experts. Based

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	upon findings, intervention plan may include action to change physical environment to reduce exposure to known or suspected contaminants.	
	ADVOCATE: Works to advance the cause of and empower client(s) who are oppressed and/or denied rights by society, organizations, communities, and groups.	
	Implication: Social worker is committed to action which arrests or eliminates a known or suspected instance of environmental contamination adversely affecting human health and well-being.	
	EDUCATOR/TEACHER: Providing pertinent information in the appropriate cognitive mode and at the appropriate rate for effective cognitive-perceptual processing; offering advice or	German, Gitterman, 1980:101

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE

suggestions; identifying alternatives and their likely consequences; modeling desired behaviors; and teaching the steps in problem-solving.

Implication: Social worker communicates information about environmental contaminants to client(s) in ways which are appropriate and specific to their situation, their level of education, and their capacity to act on the information.

ORGANIZER: Assists clients in developing and establishing structures and collective strategies which seek to redistribute power and advance the accomplishment of agreed-upon group goals.

Implication: In instances of known or suspected exposure to environmental contaminants, social worker facilitates the

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE

development of a communications network among affected people. Once established, the communications newtork is used both to inform those at risk and recruit participants for action plans. Once identified, participants are mobilized to pursue goals to reduce or eliminate exposure to environmental contaminants. Strategies used may run the continuum from collaborative to conflictual.

BROKER: Acts as intermediary between client(s) and service delivery system to acquire and arrange services and assistance necessary for client(s) to achieve goals.

Implication: In cases of known or suspected adverse consequences of environmental contaminants, social worker

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	seeks out appropriate sources of service/assistance and establishes cooperative, monitored relationships with such providers to enable effective referrals and linkages.	
Practice settings	Although knowledge of environmental contaminants can be used in any practice setting, there are particular practice settings which provide opportunity for major attention to environmental contaminants, concomitantly increasing the extent of protection of human health and well-being. In some instances, these settings have begun to reflect increased attention to environmental contaminants. In other instances, the opportunity is not yet realized. A review of	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	relevant practice settings follows:	
Health clinics	Health Clinics: Health clinics which employ social workers are natural settings in which to expand inclusion of environmental contaminants knowledge. Occupational health clinics are already heavily involved in informing, treating, and advocating for victims of environmental contamination. Public health clinics can also play an expanded role in identifying and mitigating the effects of environmental contamination when knowledgeable social workers are involved.	
Employee assistance programs	Employee Assistance Programs: The growing number employee assistance programs in all types of workplaces provide an opportunity to implement practice which is protective of	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	human health and well-being. Workplace environments of all types are increasingly found to be contaminated. Social workers in employee assistance programs are in a unique position to gather information which might identify environmental conditions warranting concern and investigation in the workplace.	
Community-based service agencies	Community-Based Social Service Agencies: Social workers in community-based social service agencies are also situated to advance the inclusion of environmental contaminants knowledge in practice. Besides serving to identify suspected cases of community contamination early, social workers in such settings can also mobilize support services for "victims" of known	

OUTLINE/QUICK REF.	SUBSTANTIVE KNOWLEDGE	REFERENCE
	community-based contamination, such as polluted water supplies or landfills leaking methane gas.	

OPTIONAL EXERCISE:

EXPANDING PRACTICE TO INCLUDE AN EXPANDED DEFINITION OF THE PHYSICAL ENVIRONMENT

1. Divide participants into small groups (four to five each) based on commonalities in field placement, such as:
   a. Nature of field assignment:
      -- direct service to clients
      -- planning/policy-making/program development
   b. Type of agency:
      -- mental health child welfare/aging/family services
      -- adolescent services/community-based services health care

2. Each group is asked to select a "recorder" to keep notes on newsprint.

3. Instructions to small groups (total small group time: 35 minutes)
   a. Brainstorm ways in which you could incorporate knowledge of environmental contaminants into your current field placement practice responsibilities (recorder writes each idea on newsprint) -- BE SPECIFIC!

b. Using the practice roles discussed in this session, brainstorm ideas for expanding your current practice assignment to include increasing acknowledgement of environmental contamination (recorder writes each idea on newsprint).

c. Discuss ways in which the agency you are placed at could incorporate knowledge about environmental contaminants towards the goal of mitigating adverse health and mental health effects (recorder writes suggestions on newsprint).

4. Reassemble full group (15 minutes)

a. Post newsprint.

b. Review each group's lists.

c. Invite discussion/comments.

MODULE IV HANDOUT:

PRACTICE IMPLICATIONS OF ENVIRONMENTAL CONTAMINANTS: GUIDELINES FOR ASSESSMENTS WHICH INCLUDE ATTENTION TO ENVIRONMENTAL CONTAMINANTS

Each of the following categories should be explored:

1. HOME
   a. What sources of heat are used?
   b. Last servicing of heating equipment?
   c. What cooking fuels are used?
   d. What building materials and furnishings.
   e. Does anyone smoke in the home?
   f. Have any pesticides been used inside or outside the home?
   g. Is home water supply from private well or public system?
   h. Is home located near major thoroughfares?
   i. Is there a garage/storage shed attached to the home? If so, are any chemicals routinely stored?
   j. Have any recent home improvement or crafts projects included paint removers, varnish, and/or furniture stripping or refinishing products?

2. COMMUNITY -- Are any of the following located in the community:

   a. Landfills -- abandoned or operating?

   b. Indistrual/manufacturing companies?

   c. Automobile service stations, body repair shops, or gasoline/oil tank farms?

   d. Farms?

   e. Dry cleaning establishments?

3. WORKPLACE

   a. Type of workplace environment: industrial? office? outdoors?

      -- If industrial, what chemicals are routinely used? If unknown, have "right to know" procedures been used?

      -- If office, what is source of air supply? "controlled" internal air system or open window fresh air?

   b. Source of heat in workplace?

   c. Source of water supply in workplace?

MODULE IV HANDOUT:

PRACTICE IMPLICATIONS OF ENVIRONMENTAL CONTAMINANTS:

GUIDELINES FOR INTERVENTION AND EVALUATION

In instances where the assessment process has documented the likelihood of adverse effects from environmental contaminants, the intervention plan mutually developed by worker and client(s) should include action to ameliorate or eliminate the effects of the contaminants.

Types of interventions which may be appropriate to ameliorating adverse effects of environmental contaminants include:

1. Educating the client(s) about the risk of particular contaminants and providing very clear and specific information about reducing risks.
2. Educating the client(s) about the consequences of exposure to particular contaminants, including possible symptoms of adverse health and mental health effects.
3. Linking client(s) with resources to assure knowledge and protection of legal rights and recourse.
4. Linking client(s) with resources to meet concrete needs such as housing, water, uncontaminated air, and medical care.
5. Providing ongoing support and validation for victims of known/suspected environmental contamination.

6. Enabling client(s) empowerment and problem-solving capacities.
7. Organizing client(s) to achieve goals which protect human health and well-being when faced with exposure to environmental contaminants.
8. Advocating for the amelioration of environmental contaminants in cases of adverse health and mental health consequences.
9. Identifying and recruiting resources to augment any of these interventions, including unions, advocacy groups/special interest organizations, health departments, research units of medical/university programs, professional associations, and community groups such as civic associations/property owner associations.

The process of evaluation of intervention plans that include amelioration of the effects of an environmental contaminant should include the extent to which specific goals were achieved and documentation of strategies that have been effective.