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**EXPLORING THE NATURE OF BEHAVIOUR CHANGE:
APPLICATIONS TO THE COMMUNICATIONS COMPONENT OF
THE GREAT LAKES HEALTH EFFECTS PROGRAM (GLHEP)**

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EXECUTIVE SUMMARY

The effective communication of health and environment information to the Canadian public is fundamental to meet the goals of the Great Lakes Health Effects Program (GLHEP). Inherent to the program is a process of generating public awareness about health and environment issues, and promoting behaviour changes in the public. GLHEP ultimately aims to empower Canadians so that they can take individual and collective actions to protect and sustain their own health, and the health of the environment.

The report was undertaken for the Great Lakes Health Effects Program at Health and Welfare Canada, to identify the nature of behaviour change and to apply this theoretical knowledge to the development of future GLHEP strategies to protect and promote health.

This report provides insight into human behaviour by exploring the nature of behaviour change. A theoretical relationship between knowledge, attitudes, motivation, and actions is identified. Also, a social diffusion process of innovations and an adoption decision theory are reviewed to provide insight into social change, and are presented as potential schemes for fostering behaviour change.

Key recommendations pertain to the development of future GLHEP strategies and include that GLHEP go beyond public awareness and actively pursue public education; that the program focus on increasing motivation when promoting behaviour change; that particular segments of the population are targeted for effective behaviour change; that GLHEP foster involvement and partnership with the public; and that GLHEP keep the health and environment messages simple.

1.0 INTRODUCTION

1.1 Mission and Goals of the Great Lakes Health Effects Program (GLHEP)

The mission of the Great Lakes Health Effects Program (GLHEP) at Health and Welfare Canada, is to "protect human health in the Great Lakes Basin from the effects of exposure to environmental contaminants" (Health and Welfare Canada; 1992). As one action component of the federal government's Great Lakes Action Plan (GLAP), the program is based on five features:

- acquisition and evaluation of data on the levels and effects of environmental contaminants (chemical and microbiological) with respect to human populations
- health-risk assessment of current and potential impacts on populations within the basin
- protection of public health from concurrent exposure to mixtures of chemicals from all sources
- public participation and information exchange on health issues in the basin, and
- sound inter-agency program co-ordination and management

(Great Lakes Action Plan, 1990)

GLHEP is composed of five working units each responsible for conducting specific projects: Toxicology, Epidemiology, Surveillance, Objectives, Remedial Measures, and Public Consultation. Central to all GLHEP activities are the following three goals:

1. to determine the nature, magnitude, and extent of effects on human health associated with exposure to contaminants (chemical, microbiological, radiological) from all sources of pollution in the Great Lakes Basin

2. to develop and implement strategies to reduce or eliminate risks to human health related to pollution in the Great Lakes Basin
3. to increase communication and consultation amongst agencies and the public and provide timely, useful information to foster understanding and appropriate action on health and environmental issues

(Health and Welfare Canada, 1992)

1.2 The Role of Communication in GLHEP

Effective communication between the program and the public is fundamental to meet the goals of the program. A process exists whereby GLHEP responds to the needs of various publics, and attempts to communicate new knowledge and original messages on health and environment issues to the public. GLHEP responds to the concerns of the public about possible effects of environmental contaminants on human health, and to requests for advice for environmental health information. The program is charged with informing people on the current status of the latest toxicological, epidemiological, and surveillance research, and how people can take informed action on environmental health concerns. To meet these ends, GLHEP is active in producing and disseminating a wide array of health and environment information materials including fact sheets, reports, and posters; participating in public forums, community meetings, workshops, and conferences; and consulting directly with various publics.

Generating public awareness is a primary function of the program. By providing information and increasing the public's knowledge, GLHEP attempts to increase public awareness about the link between human health and the environment so that people

realize that health risks do exist and will be more prepared to take action to protect their own health. For example, activities such as the consumption of certain Great Lakes fish, swimming in contaminated waters, and exercising outdoors on smoggy days, all present health risks to populations living in the Great Lakes basin. A fundamental message that GLHEP promotes is that people should be aware of, and concerned about the potential effects of environmental contaminants on their health.

The program recognizes the need for information to trigger action. By fostering public awareness of the link between human health and the environment, GLHEP aims to promote behaviour change in the Canadian public. Behaviour change is desirable because it is an action response that empowers people, both individually and collectively, to protect their own health. The process of empowerment theoretically begins with awareness, leads to understanding, and results in action. Through an empowerment process, the program could achieve two important objectives: (1) increasing the public's sense of control, and (2) encouraging the public to take ownership of the problem. GLHEP can help the public realize that a change in their behaviour will make a difference in minimizing their exposure to environmental contaminants and contributing to a healthier environment.

A nation-wide survey found that although there is already a high level of public awareness within the Canadian public about health and environment issues, there is not a corresponding active change in behaviour, either collective or individual (Decima Research, 1993; 2). Information alone seldom provides sufficient impetus to change action toward a given object or idea. Besides increased knowledge, there are other

contributors necessary to change behaviour. An understanding of the nature of behaviour change is needed before the process can be actively pursued and effectively promoted.

1.3 Purpose of the Report

The purpose of this report is two-fold. The paper first describes the nature of behaviour change. The basic conceptualizations of human nature as regards the manner in which people change their attitudes and actions is explored both in terms of the individual (individual action) and society (collective action). A process of social diffusion of innovations and an adoption decision theory are reviewed to provide insight into social change. These theories of human nature provide valuable insight into the "public" with which the Great Lakes Health Effects Program communicates. By understanding the dynamics of behaviour change, one can better understand how to achieve this goal. Ultimately, a grasp of broad theories of the person provides guidance for constructing new public communication campaigns and for evaluating and improving already existing ones.

The paper also attempts to apply this theoretical knowledge to the development of future GLHEP strategies to promote and protect health. Comprehension of the theoretical foundations of behaviour change can help GLHEP effectively design future communication strategies and help the program to fulfil its goals.

2.0 RESEARCH METHODOLOGY

2.1 Strategy

While early consultations provided a broad conceptual basis for this paper, the focus of this report has evolved from a process of investigation into the literature and adjustment to the findings. Initially, extensive literature searches were conducted to learn the status of knowledge in the subject area and to determine the feasibility of such a project. This literature review proved challenging for various reasons. It required delving into multidisciplinary research bearing on a wide range of psycho-social phenomena including the sub-specialties of many different fields. After various literature searches, subsequent modifications were made and the focus of this report was determined. Consequently, this study is an exploratory analysis of the nature of behaviour change.

2.2 Literature Searches

The volume of literature related to the topic of behaviour change is extensive. Information on the nature of behaviour change is found, both directly and indirectly, in many subject areas. The immense academic fields of psychology and sociology provide the largest amounts of knowledge on the topic since the analysis of human behaviour is central to social science inquiry. Academic psychologists have developed schools of thought, each with its own body of assumptions about human nature, of which the most basic tenet is that the contents of people's minds determine beliefs and actions (Joy, 1990; 6). Research abounds on social attitudes - how they are formed, maintained, and

changed. Cognitive psychology research is aimed at uncovering the cognitive processes behind social attitudes, values, and beliefs. Many research studies done in both the areas of psychology and sociology deal directly with communication effects on attitudes and actions.

One social science researcher, Albert Bandura, presents a "theoretical framework for analyzing human motivation, thought, and action from a social cognitive perspective" (Bandura, 1986; 2). He presents a theoretical approach to the issues of learning, designated as social learning theory, which encompasses psychosocial phenomena such as motivational and self-regulatory mechanisms. He maintains that because human thought is a powerful instrument for comprehending the environment and dealing with it, the diverse ways in which cognitive causation enters into human affect and action should be analyzed extensively (Bandura, 1986; 2). His theory devotes much attention to the social origins of thought and action. Bandura claims that his work "broadens the scope of behavioural inquiry by addressing the mechanisms of how knowledge is transformed into appropriate action" (Bandura, 1986; 3).

Research in areas like social marketing, public education, and mass communications and media, also provides relevant information on the topic of behaviour change. Literature in the area of public communications campaigns offers much theoretical knowledge regarding how people can change their behaviour in the face of communication campaigns.

3.0 EXPLORING THEORY OF BEHAVIOUR CHANGE

3.1 The Nature and Function of Theories

Theory can be defined as a "special form of knowledge, differing from one's everyday knowledge by being more explicit, formally organized, and abstract" (McGuire, 1981; 42). Within the social sciences, theories abound as they provide the frameworks necessary for absorbing and structuring the results of massive amounts of research. Their broadness provides guidance for coping with a wide spectrum of reality. However, the same abstractness can oversimplify and distort that aspect of reality it examines. The value of a theory comes from making proper use of the theory and involves "recognizing the brilliant partial insight into reality that is provided by any theory's special perspective, seeing its applicability to a specific problem whose puzzling aspects it can illuminate, while at the same time recognizing its limitations and being open to alternative theoretical insights from which guidance can be obtained" (McGuire, 1981; 42).

Specific theories of behaviour change provide insight into the nature of human behaviour. This type of analysis can be beneficial when designing and constructing communication strategies. Theories also provide checklists for analyzing and improving the efficiency of already existing public communication campaigns.

3.2 Components of Behaviour Change

Behaviour change can be interpreted as a process of human behaviour. There are theoretical psychological and sociological dynamics which interact and ultimately determine how people move to change their behaviour. A continuum exists that begins with information and ends with action. Knowledge and understanding, attitudes, and motivation, reinforcement, and empowerment are essential components of a change in behaviour.

Increased Knowledge

Knowledge and attitude are two prime related variables in determining human behaviour. How an individual will act in a given situation results from a combination of what is known about a subject and the accompanying attitude towards it. Awareness and understanding of issues create this relevant knowledge. A lack of depth in the level of knowledge, as well as understanding, can produce in people a sense of false security and diminished urgency associated with the need to change behaviour.

The level of knowledge is significant in that it has a direct relationship with positive attitudes and behavioural intentions (Simon, 1988; 43). In one study aimed at determining the Canadian public's attitude towards environmental problems, an individual's level of knowledge was found to be a common predictor of pro-environment attitudes and behavioural intentions among all segments of the population (Kindra, 1993; 12). Conversely, the results of another similar study concluded that increased literacy, attitude change, and even reported intentions of existing "responsible" behaviour do not in themselves guarantee or even imply related behaviour change

(Kindra, 1993; 13). It is significant that while increased knowledge implies a related behaviour change, knowledge alone seldom provides sufficient impetus to change attitudes or action towards a given object or idea. Clearly, while increased knowledge is critical to behaviour change, it is only part of the equation.

Positive Attitudes

According to research in cognitive psychology, people organize all of the inner and outer stimuli to which they are subjected and end up with kinds of "attitudes" "values" and "beliefs" (Joy, 1990; 4). Successful behaviour change needs a sustained attitudinal foundation for the new belief to be adopted and maintained. Changing people's attitudes can be a difficult task and movements of social change often face attitudinal roadblocks. Because of the direct linkage between values, attitudes, motivation, and behaviour, social influence research indicates that the less palatable the behaviour change, the more difficult it is to bring about changes (Kindra, 1993: 40). Persistence, patience, and sustained effort is required to change people's structure of beliefs (Kindra, 1993; 40).

Motivation

Although there is a direct relationship between attitudes and behaviour, the link between the two can be very weak and passive (Kindra, 1993; 22). Intention to modify behaviour - motivation - is usually the intervening variable. There are two critical motivators involved in behaviour change:

- (1) An individual needs to be aware of the positive consequences of taking a certain action, and
- (2) One needs to be aware of the negative consequences implicit in a refusal to take this same action.

Consequently, motivation is an essential aspect of behaviour change.

Reinforcement

Psychological research, as well as day-to-day experience, indicates that reinforcement is of vital importance for sustained behaviour change (Kindra, 1993; 32). Positive reinforcement provides support and further motivation for the individual to continue the change in behaviour. The lack of clear short-run reinforcement represents a major barrier to attitude and behaviour modification (Kindra, 1993; 41).

Empowerment

Behaviour change empowers individuals. Taking action increases one's sense of control and ultimately leads to one taking responsibility. Research on environmental communication points to the importance of increasing people's sense of control, "if people do not believe that they can make a difference, attempts to raise their level of knowledge or provide arguments for attitude and behaviour change, are likely to produce no results" (Kindra, 1994; 31). In fact, the perceived inability to make any impact on environmental protection is a major barrier to adoption of positive attitudes and actions (Kindra, 1993; 6).

3.3 Behaviour Change and Public Education

Behaviour change is a principal objective of public education campaigns. Both public awareness and public education campaigns aim to (1) change some behaviour of the individual, and (2) generate wider social change and create community responsibility. In order to achieve a desired behaviour change, public education programs not only attempt to increase knowledge about a subject, but they also focus equally on the motivational component of the change. In other words, these programs go beyond public awareness. By focusing on educating the public about the negative impacts of a behaviour, and the beneficial consequences of a new behaviour, people get used to the idea behind a program without being forced into action before understanding its basis (Carter, 1985; 35).

Unless people understand a change in behaviour and see how it impacts them, the change will not be long-lasting or effective (Carter, 1985; 35). People cannot be forced to change. People will always find a way to avoid a change in action they do not understand, or, as soon as the force imposing the action is removed, the action will cease (Carter, 1985; 35). If there is no point-of-contact intervention from a public education perspective, then the program is unsuccessful in terms of eliciting a desired attitudinal change.

A successful program will succeed if the focus is on the reason for the behaviour and the positive impacts it will have on people, and the environment. Highlighting the beneficial effects of the action itself contributes to both increased knowledge and positive attitudes.

3.4 A Process of Social Diffusion: Towards Social Change

An understanding of the nature of individual behaviour change is valuable. Understanding behaviour change on a larger social scale provides insight into the dynamics of social attitudes in a community, social momentum, and social acceptability. Albert Bandura's (1986; 44) work on social diffusion of innovations provides theoretical knowledge on how new ideas and innovations can spread throughout society. Societies are continuously faced with pressures to change some of their traditional practices or behaviours in efforts to improve the quality of life. These benefits are often accomplished by displacing some entrenched customs or beliefs when new ideas and thoughts are introduced. For example, GLHEP may want to promote a new behaviour of health protection such as preventing the contamination of Great Lakes fish by deciding not to pour chemicals down the household drain. The social diffusion process offers structure on how best to achieve community behaviour change goals. Bandura (1986; 160) identifies three important phases of a successful diffusion program which are each elaborated upon:

- (1) selecting an optimal setting for introducing innovations
- (2) creating the necessary preconditions for change
- (3) implementing a demonstrably effective program

An Optimal Setting

Among the different social segments of a society, some are more receptive to new ways than others. Innovations are best introduced in settings where members are willing to try them, at least on a provisional basis. Their successes can later serve as demonstration models for those who resist adopting innovations, and modeled benefits

carry substantially more force than exhortations in overcoming resistance to innovation (Bandura, 1986; 160).

Preconditions for Change

The preconditions for change are created by increasing people's awareness and knowledge of the innovations. They need to be provided with information about the purpose of the new practices, their relative advantages, and how adopting them is likely to affect their lives (Bandura, 1986; 160). Information and presentations serve to inform and arouse interest in new practices, however failure to tailor information about the innovation to the particular desires and cognitive capabilities of the audience can hamper the diffusion process at the outset.

Bandura (1986; 160) notes that programs of social change often fail because they do not proceed beyond the precondition stage aimed at informing people and altering their attitudes toward the innovations. Focus on attitude change as the principal means of promoting innovations assumes that attitudes solely determine behaviour. The approach has proven only partially successful as some studies have provided evidence that shows experiences accompanying changes in behaviour can alter attitudes (Bandura, 1986; 160). After people behave in new ways, their attitudes accommodate their actions. Hence, both attitudinal and behavioural changes are best accomplished by creating conditions that foster the desired behaviour.

Bandura also notes that it is exceedingly difficult to induce behavioural changes that contradict entrenched attitudes and beliefs. Such a view assumes that there is a tight linkage between beliefs and behaviour. In fact, different behaviours can be

construed as consistent with the same belief. If the new practices are advantageous, adopters either alter their attitudes to coincide with their new behaviour or they construe their behaviour in a manner consistent with their traditional beliefs (Bandura, 1986; 161). Indeed, the process of innovation of beneficial practices usually undergoes a history of initial rejection, followed by qualified acceptance, and eventually, wide-spread adoption with reinterpretation in terms of customary beliefs (Bandura, 1986; 161).

Persuasion alone is not enough to promote adoptive behaviour. To ensure social change, one must, in addition, create optimal conditions for learning new ways, provide positive incentives for adopting them, and build supports into the social system to sustain them (Bandura, 1986; 161). Persuasion and positive incentives are widely used as motivators when the changes being implemented depend on the consent of those whose lives are being affected.

A Demonstrably Effective Program

Implementing a program of social change requires transmitting the new behaviour to potential adopters. If new patterns of behaviour are to be learned, potential adopters must be provided with competent models who impart the necessary skills and who are especially emulatable (Bandura, 1986; 161). There are many ways of implementing modelling principles. After adopters understand the new ways through modelling, they must be provided with the necessary guidance and ample opportunities to perfect the modeled activities under simulated circumstances where they need not fear making mistakes (Bandura, 1986; 162).

Innovations must produce benefits if they are to gain wide acceptance. Unfortunately the benefits of many innovations do not become evident until they have been applied for some time. Such lags pose special motivational problems. Innovations are most readily accepted when they produce causal relationship between new practices and results can be easily verified (Bandura, 1986; 162). When the advantages to be gained from innovations are considerably delayed, it is necessary to provide current incentives to sustain adoptive behaviour until its intrinsic value becomes apparent.

3.5 An Adoption Decision Process

The process that occurs when an individual adopts a new innovation is revealing as it provides additional interpretation of behaviour change. McGuire (1993; 164) identifies four stages in an adoption decision process: (1) knowledge (2) persuasion (3) decision, and (4) confirmation. During the knowledge stage, the individual learns of the innovation's existence and gains some understanding of how it functions. In the persuasion stage, the individual forms a favourable or unfavourable attitude towards the innovation. This attitude or position is likely to be affected by information available, perceived relative advantage, perceived effectiveness, concern about risk, and social support. In the third stage, decision, the individual engages in activities that lead to a choice to adopt or reject the innovation. Finally the individual seeks reinforcement for the decision made.

4.0 RECOMMENDATIONS FOR APPLICATION TO THE GREAT LAKES HEALTH EFFECTS PROGRAM (GLHEP)

There are six fundamental recommendations that can be derived from this investigation that are applicable the program's mandate and development of future GLHEP strategies to promote and protect health. These recommendations are focused in the area of GLHEP's communication strategies.

1. GLHEP go beyond public awareness and actively pursue public education. By already fostering public awareness of the link between health and the environment, GLHEP is in a position to initiate positive behavioural changes within the public. To bring about sustained attitude and behaviour change, future promotional campaigns must not only heighten existing awareness of the problem, but also attempt to educate the public.
2. Future GLHEP communication campaigns focus on changing attitudes and behaviour by increasing motivation. Awareness is less the problem than motivation. If behaviour change is to be encouraged, both instructional and motivational efforts, through empowerment and ownership, are required to effectively produce action. The public needs to be made aware of the negative impacts and positive consequences of adopting a new behaviour.

3. The program target particular audiences who are perceived as those most likely to adopt a behaviour change. Social marketing research indicates that a focused communication strategy is more effective than a mass-marketing strategy because various segments of a population tend to respond differently to various appeals depending on their own perceptions, motivations, attitudes, needs, cognitive abilities and existing lifestyles. These initial credible groups would serve as intermediaries and become effective models for others to adopt a behaviour change.
4. GLHEP foster involvement and partnership. Social marketing research indicates that promotional activities that encourage involvement have a positive impact on behaviour change.
5. Future GLHEP communication campaigns keep the messages simple. To facilitate decision-making, attitude and behaviour change, the program should provide target groups with simple, effective and readily digestible pieces of information. People resist processing complex information, therefore the behaviour change process does not have an opportunity to begin.

6. GLHEP focus on fostering empowerment and enabling communities. People need to feel that they can make a difference and develop a sense of control over their actions and their environment. People also need to take ownership of environmental problems in their communities.

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