OVERVIEW TOPIC PAPER ON MASS MEDIA ENERGY CONSERVATION
COMMUNICATIONS POLICIES

by:

Patricia and Ilan Vertinsky
University of British Columbia

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Executive Summary

The utilization of information diffusion strategies
to increase energy conservation knowledge and practices
among the general population is discussed in terms of five
potentially valuable media functions:

1)   Information Dissemination
2)   Remedial Behavioral Modification - Fighting
     Addiction
3)   Long-term Lifestyle Decisions
4)   Triggering Cues to Conservation Action
5)   Crisis Management

Each of these functions are critically addressed in
terms of media mix, message content and form, timing and
intensity, exposure, and specific target populations. The
diffusion strategies are then organized into a matrix of
policy options so that the implementor can select the
appropriate options for use under specific conditions.

Information Dissemination

Four major categories of energy conservation
information are highlighted and the utility of each type
discussed:
1)   Information about the nature of the energy
     problem (general awareness);
2)   Information about how to conserve effectively
     (how-to material);
3)   Information to consumers and society about the
     results of conservation (feedback and
     incentives);
4)   Information about the individual consumer
     decision-making process (generalized under-
     standing and behavior).

The mass media is then examined in terms of media
exposure and compatibility with energy saving information
types. Heavy exposure to television among all ages,
particularly children, suggests that this medium has
enormous potential for informing Canadians about energy
conservation issues. It is proving, in many cases, to be a
general knowledge leveller, providing general messages about
the nature of the energy problem to all socioeconomic
groups. The print media seem to be the main sources of
detailed "how-to" and feedback conservation information and

are becoming increasingly specialized and sophisticated in presenting material attractively. Generally, they are used most by better educated, middle and upper socioeconomic groups who tend to be interested in environmental issues and feel a greater sense of potency in directing their own future.

Despite the wide availability of numerous media channels, large numbers of the population consistently escape contact with widely reported information. Clearly, message construction, media selection, media mix and the identification of a number of audience types can all improve this situation, particularly if social reception channels are effectively utilized as a support. We suggest that policies aimed at improving the effectiveness of diffusing energy conservation information through the mass media could be considerably improved by designing appropriate message-media-audience packages as means to accomplish specific and measurable goals. Some specific guidelines for such packages are drawn.

In addition to the cognitive aspects of behavior modification through the mass media, i.e., rational, intellectual calculation, the important motivational aspects of perception and action are examined as important targets for mass media information strategies.

The modification of behavior to eradicate addiction to undesirable energy habits is examined from two perspectives:

1) Marginal Behavioral Modification (initial change), and
2) Cultural and Social Change which is required to sustain, support and energize the accumulation and preservation of desirable, new lifestyles (maintaining change).

The initial intervention by the policy maker of encouraging rational calculation through information dissemination sets the stage for the manipulation of the effective dimension of the media aimed at uprooting addictions. The process consists of a mixture of "push" and "pull" strategies. "Pull" strategies create pleasant associations with correct energy conservation behavior while "push" techniques attempt to develop an association of aversion with the target behavior that has been chosen for modification.

In order to fight addiction to energy consumption behavior it appears that the transmission of messages must be arranged such that:

1) The costs of exposure avoidance are high.
2) Feedback is generated so rapidly that any pleasure which could be associated with defeating habits of energy consumption comes quickly to the consumer.
3) The message must be direct, simple and unambiguous to minimize faulty interpretation.
4) The messages must combine attractive, audio-visual effects to create dramatic and vivid associations with appropriate or inappropriate behavior.
5) The process of image creation must consist of appropriate reinforcements until the empty behavioral niche is filled by the desired energy conserving behavior. Here addiction is broken and new behavior can be built up.

Manipulating emotions through the process of behavioral modification is a delicate process and much harm can be done by fear-inducing interventions. It is a process which may create a backlash of populations exposed to the message, even if they were not the specific targets of the campaign. Until more is known about the characteristics of receiving groups and message design strategies, intervention policies should probably remain conservative, aiming at a slow incremental impact of "push" strategies with a strong and continuous role delegated to "pull" strategies.

Marginal behavioral modification tends to cause only a temporary impact upon behavioral patterns and does not necessarily help the change to become self-sustaining. Thus constant reinforcement is needed. To bring about a long term change one must develop a strategy of change which moves the behavioral system into a new state of equilibrium of behavioral patterns which has its own arrangement of internal forces of protection - this is what can be termed a genuine lifestyle change. Though it is certainly not easy to induce significant changes in either social values or individual lifestyles through media influence alone, important gains can be realistically expected.

Of importance to the policy maker concerned with promoting lifestyle change through the mass media is knowledge about the influence which information has upon the decision to adopt good conservation habits of particular groups. Early adopters (energy conserving intermediaries) seem to make a conscious decision to seek information from the mass media and other knowledgeable sources, and then influence more passive, late adopters by diffusing their

information and the way in which they evaluated it through social networks. Individuals who have not yet taken action receive information on the kinds of actions which other people are taking and why. Consequently the sum total of knowledge and experience in the social system increases. As this knowledge is further diffused by the mass media, social and cultural norms may gradually shift allowing for congruent lifestyle changes.

Given enough support and incentive from the media and other institutions these changes in turn have a ripple effect upon the rest of society so that the diffusion of knowledge and the adoption of energy conservation measures continue to spread.

Though the social system is enormously complex and universal strategies would likely be inappropriate, there are good possibilities for exploiting particular qualities of energy conserving intermediaries through the mass media. More knowledge about the nature of these intermediaries can help determine the most appropriate type of messages, the nature of conservation information and the desirable media-mix and timing. Since the mass media are potentially much more cost effective than face-to-face communications it is possible that the power of this instrument could be considerably enhanced if ways could be found to use the mass media to stimulate and coordinate opinion leaders and programs of interpersonal instruction about energy conservation practices. There is no doubt that the provision of information should be coupled with a comprehensive program of education in order to achieve satisfactory, long term lifestyle changes on a broad front.

Facilitating mechanisms or triggering cues are often critical to helping the individual make the final adjustment from knowledge to action, and the mass media can provide this function in a number of ways. Sheer saturation of information, particularly through television, is a useful behavioral trigger, as is the provision of a practical opportunity for quick application of the message.

In order to obtain specialized trigger effects, only media which can be available at designated locations at appropriate times can serve as triggers. Attractive pictorial reminders of energy waste in the kitchen or in public institutions at strategic places may serve as better and more economical triggers than an intensive campaign with television spots.

Cues must be devices for focussing upon one clear dimension rather than providing detailed explanations and a

variety of possible actions. They should, therefore, provide essential information in a clear, crisp manner for an on-the-spot choice of appropriate energy conserving behavior.

The final section of the paper discusses the use of the mass media during crisis situations and suggests that this is an area which may be of essential importance for the implementation of energy policies in the future. Information dissemination and responses to the mass media do not appear to have the same patterns during crisis and non-crisis situations and many examples of a pathological lack of response, even to a convincing and clear warning of a crisis or hazard are cited in the literature. In crisis situations certain groups of people have been seen to develop strong internal defences against information or emotional appeals which may threaten a previously developed consensus.

Other studies of crisis point out that once stress exceeds a certain level, especially when no hope for a solution is perceived, apathy and indifference set in. In periods of high social stress the media must serve to alleviate stress and to provide messages in forms which, rather than exacerbating emotions, serve to relax and dissipate tension and anxiety, instill confidence and provide specific directions for action.

The paper concludes by summarizing some of the major strategy implications of the review in a mass-media strategy option matrix which can be used to select appropriate message type and media mix for specific target populations.

Some general policy observations are also made.

1) In a field characterized by large and unexpected shifts in technological development and consequently changing demands for behavioral modification, it is important not to engage in strategies which might reduce future flexibility of response. Behavioral strategies should be directed at developing more plasticity of response from the public and conceptual, individual decision-making models, rather than molding behavior into specific patterns. To a large extent, the provision of information and models for cost-benefit calculation are preferred, though they may have no visible short term impact. Schools may offer an appropriate cost-effective setting for developing conceptual learning models concerning energy conservation which would assist the individual to understand

the reasons for and consequences of long-term energy conservation behavior.

2. Behavioral modification strategies for conservation should be developed on a regional basis to permit and encourage a better match of intervention media-mix packages and specific target populations.

3. The existence of a "trigger effect" requires a longitudinal approach toward evaluating intervention, since almost any campaign with a high level of intensity will incite "short term" responses in the appropriate direction. The impact, however, may be one of timing rather than one of increased prevalence.

INTRODUCTION

        As Canadians become better informed about the
national energy picture and the role energy plays in their
lives, they may reassess their overall preference patterns
and tend to consume less energy than they would otherwise
have done. (Energy, Mines and Resources Canada, 1977b).
The uncertainty lies, however, in pinpointing an effective
strategy, or series of strategies to develop and dis-
tribute appropriate information to specific audiences who
may then listen, understand and act upon those messages.
Furthermore, having acted once, the target population must
then be persuaded to continue their conservation behavior so
that they may become accustomed to, and satisfied with, a
lifestyle appropriate for a society of conserving Canadians.
This need not mean that Canadians must wholly accept the
notion that "small is beautiful", (Shumacker, 1974), but it
does indicate the need for a concerted government effort to
persuade Canadians that they must incorporate a conser-
vation ethic into their vision of the good life and to tell
them quite clearly the many practical ways in which they can
conserve energy or at least alter certain consumption
patterns.

        This paper intends to examine the mass media as an
instrument of energy policy in order to identify and analyse
alternative information strategies which may prove promising
in effecting:

    1)   gains in factual knowledge about energy
        conservation; and
    2)   attitude and lifestyle change, under normal and
        crisis conditions.

        To this end, an extensive and systematic literature
review has been undertaken in order to examine the present
state of the art in mass communication theory and to expose
some major problem areas in the use of mass media to inform
and cause behavioral change in the area of energy
conservation.

        The crisis dimension, particularly will be addressed
since much ambivalence exists as to the efficacy of mass
media persuasion within a crisis-oriented framework.
Despite the terminology, few among the public can be
persuaded to accept the full significance of the concept of

an "energy crisis".* Thus a study of the media will have to take into account its possible role in effecting feelings of urgency, emergency regulations and in promoting drastic lifestyle changes in times of visible high-stress. Complementary to this function, information systems need to be developed which have the potential of supporting and encouraging Canadians through a long-term and gradual transition from aggressive consumerism (The Science Council of Canada call it "growthmania", 1976, p. 18) to a more energy efficient society. The function of the media here would be to help disseminate the conservation message and to smoothe the way for new patterns of consumption in the future. The role of the media under both circumstances would be different but complementary, and the complexities involved in developing a series of effective information diffusion strategies will be discussed in terms of the interaction between crisis and evolutionary conditions.

THE MESSAGE OF ENERGY CONSERVATION

Before discussion can take place on the function of various media in disseminating information about energy conservation, it is crucial to delineate what Canadian policy makers wish Canadians to understand when they use the phrase "energy conservation". Recommendations and policy discussions with a 'conserver' orientation can be found extensively in certain Canadian Ministry reports. (Anderson and Cullen, 1978, Science Council of Canada, 1975,6,7; Energy, Mines and Resources Canada, 1976, 1977a, Kelly, 1978). Basically, they underscore two major needs:

1) the need to develop sound policies and programs for the use, conservation and replenishing of resources; and
2) the need to control existing and threatened hazards already created by the misuse of science and technology.

For the average Canadian this implies that they must use energy resources more frugally; that they must place more value on resources and learn to do more with less; and that they must re-order their priorities and change their

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*Workshop on Alternative Energy Strategies, "Energy: Global Prospects 1985-2000", M.I.T., May 1977, advocated unprecedented international cooperation in enforcing conservation on a basis of war-time urgency.

lifestyle habits in the total interest of society. They
are, in effect, being asked to question the notion that
bigger is better and to place greater value upon thrift,
saving, efficiency, durability, re-use and simplicity. In a
multicultural society such as Canada the spectrum of
religious and socio-cultural values necessitates a
thoughtful approach to the framing of an energy conservation
message as it applies to the individual Canadian. For each
request, "consume less", "adopt certain products", "recycle
your newspapers", "buy a small car", "walk more", etc., the
consumer-conserver has different informational needs and
presents a unique focus for presuasion.

Furthermore, the conservation message asks of
consumers a spectrum of behaviors requiring different levels
of knowledge and/or persuasion. Some economists suggest
that pricing signals are sufficient to foster general
conservation efforts among the general public. However, the
consumption patterns of the general public are based on a
multitude of factors, not all of them strictly related to
economic considerations. Technological barriers, building
codes, social status, public inertia, ignorance,
misinformation, skepticism and diffuse decision-making
patterns all affect consumption (Denney, 1978). It is
unrealistic to assume that high prices will automatically
change consumer habits without adequate provision of
conservation skills or appropriate available technologies
(Vertinsky, Vertinsky and Zaltman, 1972). Furthermore,
asking an urban housewife to hang out her washing on a warm
day requires a different level of understandings than does a
policy advising a drastic change in the building code for
conservation purposes.

The rapid rate of technological innovation is a
critical factor to be considered when framing a national
message of energy conservation. Advances in knowledge
concerning energy alternatives and accurate ways of
conserving energy are proceeding at such a rapid rate that
the concept of conservation should probably be emphasized
over particular techniques. There are many instances of
energy-saving technology which are impractical, expensive,
in scarce supply or are difficult for the average citizen to
adopt. Furthermore, some clarity needs to be given by policy
makers to the general energy picture to help dispel the
apathy and skepticism about conservation that appears to be
so widespread among Canadians (Energy, Mines and Resources
Canada, 1978a,b). Canadian citizens must be helped to
understand that they can become partners in a national
effort to uncover daily secrets about efficient living. The
slogan "Energy conservation: be part of the solution"
(Kelly, 1978, p. 17) can be one means of stimulating this

sense of partnership in a national solution-oriented movement. Such solutions may be rooted in indirect supportive measures to individuals and community groups to develop innovative approaches to conservation rather than boosting the supply of current conservation wisdom to the general public. In this way, the information and attitude gap between policy makers and the public can perhaps be reduced and the average Canadian can see and feel himself to be part of an ongoing national enterprise. Energy conservation's greatest hope, perhaps, lies in the flexibility and initiative of individual energy users.

The conservation message that has been discussed thus far relates to the Canadian scene under normal conditions. Quite clearly, conditions of crisis would court a message with a different focus. Enough has been recorded about war-time experience, for example, to suggest that people behave differently under crisis conditions and can be called upon more readily to sacrifice for the benefit of the country (Weibe, 1957). People may comply with a demand for thrift in times of urgency when they would resist such demands under normal conditions. Furthermore, the historically cyclical nature of normal/crisis conditions (though we do not speak of crisis in terms of extreme disaster) necessitates an ongoing realization that prior experience affects future behavior. Those who have been conditioned to stringency in some areas might well find less difficulty in accommodating to demands for thrift than a group who has experienced no such pressures. Thus, the conservation message must be an exhortation and/or a persuasion at critical points in the political/historical progress of the nation. It must, we will suggest, include concepts, facts and the tools to accommodate and adopt energy conservation measures.

Additionally, the message must somehow attempt to counteract the prevailing and long-standing marketing practice to encourage the basic attitude that favors a 'bigger is better' lifestyle philosophy. One may note the Chinese or Cuban experience where the promotion of lifestyle change has been directed at the more basic, attitudinal dimension of society. However, this requires a strategy of social transformation and the uprooting of established cultural values which focuses attention on the early stages of child socialization (Vertinsky, 1970; Worth, 1967; Fu, 1956; Mao Tse Tung, 1963). In most democratic countries these processes tend to be evolutionary in nature so that changes resulting from interventions to promote conservation would tend to be marginal unless the message could be framed in such a way as to appear consonant with social trends

(Denney, 1978). Policies affording equal time rebuttals and
fairness practices might help over time, but policy makers
must give careful thought as to the possible futility of an
energy conservation message which is but a pale shadow of
consumption - encouraging information being sold to the
public daily. Marketers have yet to exploit on a large
scale the conservation ethos as a selling tool by detecting
and running with emerging trends in social values.

Media Functions

The utilization of information diffusion strategies
to increase conservation is appealing as it involves the
minimum use of coercion measures and interference with
market operations. Marketers and psychologists generally
concede that a well-designed promotional campaign through
the media on behalf of energy conservation could yield
significant results in a number of dimensions though it is
not easy "to induce significant changes in either social
values or individual lifestyles through media influence
alone" (Denney, 1978, p. 25; Mendelsohn, 1973). However one
must note that there exists the possibility that mass media
is not wholly suitable for the communication of some of the
subtleties involved in disseminating the conservation
message. For certain dimensions of the message, more
complex communication mechanisms might profitably be studied
and employed (Emery, 1978).

However, the range of strategies available and the
potentiality of the mass media for reaching large and
diversified audiences provides implementors with the
possibility of adapting to varying budgetary constraints.
The utilization of information diffusion strategies must be
carefully examined to ensure that the broader energy
conservation message receives appropriate attention from
consumers and that the message contributes to appropriate
long and short-term behavioral change.

The mass media has five basic functions with regard
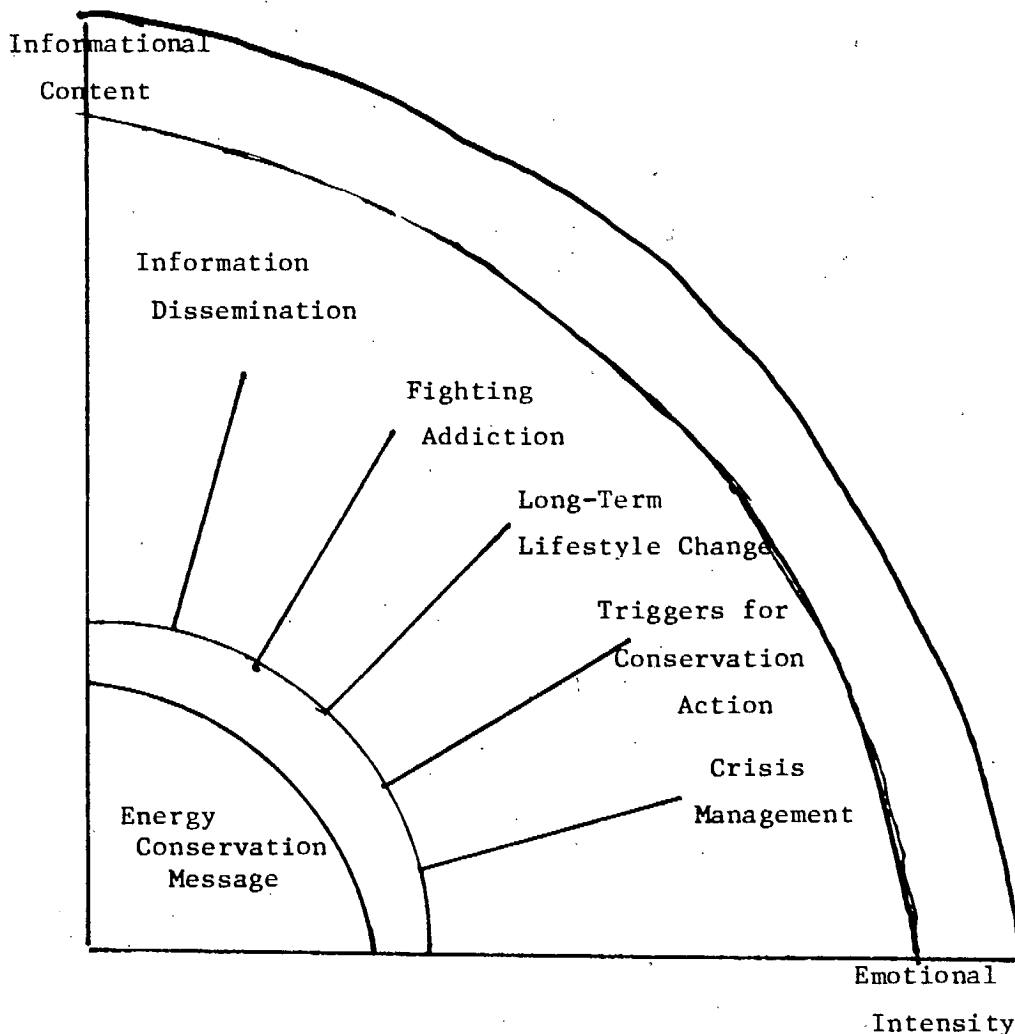to conservation.

1) Information Dissemination
2) Remedial Behavioral Modification - Fighting
   Addiction
3) Long-term Lifestyle Decisions
4) Triggering Cues to Conservation Action
5) Crisis Management

Each of these functions will be critically addressed in terms of media mix, message content and form, timing and intensity, exposure and specific target populations. The diffusion strategies will then be organized into a matrix of policy options so that the implementor can select the appropriate options for use under specific conditions.

INFORMATION DISSEMINATION

Energy Conservation Information

Information is clearly an essential component of any conservation program, despite the fact that, in isolation, it is not sufficient motivator for the individual to take energy conservation measures. Consequently, the selection, packaging and distribution of conservation information is of critical importance to the policy maker who wishes to affect the public's energy consumption behavior. The Center for Policy Alternatives Workshop on Consumer Energy Use selected four major categories of energy conservation information that they felt might be useful for the consumer:

Informational
Content

Information
Dissemination

Fighting
Addiction

Long-Term
Lifestyle Change

Triggers for
Conservation
Action

Crisis
Management

Energy
Conservation
Message

Emotional

Intensity

1)   Information about the nature of the energy
     problem

Experts differ in their views about the utility of
providing this kind of information to consumers. Large
scale studies have been performed both in Canada and the
United States to measure the publics' attitudes toward the
energy situation, (Energy, Mines and Resources Canada, 1978a
and 1978b) and to assess their level of knowledge about the
conservation problem (Anderson and Cullen, 1978). In a
major U.S. study, Milstein reported that lack of knowledge
about energy appeared to be a major problem - over half the
people in the U.S. did not accept the shortage as real
(Milstein, 1977). Similarly, a Canadian study noted that.
most Canadian publics have little appreciation of the need
for energy conservation (Kelly, 1978, p. 3). At the same
time there is disagreement as to whether a high level of
public knowledge is an essential prerequisite to the
initiation of a conservation campaign. A major concern is
the problem of information overload where the individual is
inundated with so much information that he is unable to sort
out which messages are useful and important to him. The
Jacoby, Speller and Kohn (1974a, 1974b) studies suggest to
policy makers that more information is not necessarily
better, and that information overload can numb the consumer,
though others suggest that their conclusions are an
oversimplification of the information provision process
(Bartlett and Green, 1966; Day, 1976; Russo, 1974; Scammon,
1977; Summers, 1974; Wilkie, 1973; Woodruff, 1972).

While in the short-run, it may be expedient to avoid
the problem of information overload and downplay the distri-
bution of information concerning the importance of the
energy problem, there seems little doubt that in the long
run, any effective campaign to change lifestyle habits must
be based upon a sound comprehension of global energy issues.
Less informed people tend to be less receptive to calls for
energy conservation. However, general awareness may develop
from, rather than be, the basis for conservation information
such as "how to" materials. Any good do-it-yourself manual
invariably emphasizes the practical over the conceptual, and
points to good tools as the first need.

2)   Information about how to conserve effectively

Since 1975 the Department of Energy, Mines and
Resources Canada has developed and distributed an impressive
array of practical conservation materials: 100 Ways to Save
Energy and Money in the Home, The Garbage Book, Keeping the

Heat In, Energy Conservation is Good Business, Billpayers
Guide to Furnace Servicing, District Heating for Small
Communities, The Car Mileage Book, are good examples.
Initially, the pocketbook format was chosen in preference to
a "throw-away pamphlet" to make the how-to information
"substantial, readable and worth keeping" (Kelly, 1978, pp.
4-5). Three million copies of the 160 page pocketbook 100
Ways to Save Energy and Money in the Home have been
distributed free of charge in response to individual
requests. Over two million copies of a small book on Home
Insulation were requested and mailed to households in Canada
or delivered by special van, though as Gordon reported,
Canadians are hardly busting down the doors to take
advantage of the national program to subsidize residential
insulation (Gordon, 1974). Such problems as out-dated
building codes, architecture and construction trends and
practices, and the slowness of the market in efficiently
manufacturing and delivering supplies of appropriately
priced conservation materials, as well as poor service and
maintenance outlets are all barriers to effective
implementation. Excellent opportunities for the service
sector to capitalize upon the fact that regular maintenance
of such things as car engines and home furnaces saves a
significant amount of energy do not seem to have been
effectively grasped as yet. Furthermore, the cost barrier
to consumers, even those who are eager to conserve,
particularly deters action.

A number of other written and visual how-to
materials have been designed and distributed locally,
provincially and nationally by Energy, Mines and Resources
Canada (Kelly, 1978). There are also numerous information
booklets available from Canadian industry, such as the
Energy-Efficient Home Planning Kit developed by B.C. Hydro
and Power Authority, practical advice for car and furnace
maintenance from Texaco Canada, and extensive conservation
advertising by Ontario Hydro. The U.S. government, many
industries and a variety of public interest groups
distribute masses of "how-to" literature to schools, groups
and interested individuals (Morgan and Vertinsky, 1978a).

Despite the rapid development of "how-to" materials
in energy conservation, a number of problems exist in their
design and distribution. In the United States regular and
effective marketing channels have not yet been fully
exploited for large-scale dissemination of available
materials. In the case of the Canadian government pocket
books people have been asked to mail in a request for the
information, thus tending to reach only a committed section
of the population. Recognizing this problem, and in an
attempt to personalize the home insulation message, Energy,

Mines and Resources Canada designed Enersave, a computerized analysis of a house's insulation requirements based upon a homeowner's responses to a questionnaire which was either mailed or brought to the door by people hired under government job-creation projects. The response rate to the questionnaire was high in the provinces where it was delivered, and subsequent conservation action by these homeowners was encouraged by major insulation manufacturers who were contacted by the government and requested to support the program.

In matters of design, low cost initially appeared to outweigh visual attractiveness in the presentation of conservation information since many materials consist of small print and poor quality charts and drawings. Increasingly, however, attractive designs, colors and skillful drawings are being used in "how-to" materials for both the general public and specific interest groups. (See, for example, the Garbage Gus materials developed by Energy, Mines and Resources Canada).

Institutions such as schools - major arenas for the dissemination of information to young children - not only remain passive in asking for appropriate teaching materials on conservation but are wasteful in terms of heating empty facilities and poor architectural design (Whitworth, 1976). There remains enormous scope for innovative approaches to the development and distribution of attractive and understandable "how-to" conservation materials, and the school might well become one of the most useful facilitating mechanisms. (See for example, Morgan and Vertinsky, 1978b; National Science Teachers, 1978; U.S. Department of Energy, 1978). Similarly, teacher training institutes, community colleges, and universities could become important centers for the dissemination of "how-to" conservation material, using resident expertise in linguistics to translate materials into different languages, in art to create designs, in education to plot appropriate developmental materials and so on. Teachers trained in institutions where a conservation ethos was discussed, or at least apparent, would be more likely to seek for and use appropriate "how-to" materials in their classrooms.

As Maisel (1973) remarks, the educational system is a mammoth medium for the communication of specialized knowledge, while the product of the system, particularly of higher education, is a stratum of individuals who are large-scale consumers of specialized information.

3) Information to consumers and society about the results of conservation

"How-to" information has limited appeal if it is not also accompanied by information about the general and specific results of conservation efforts. Numerous studies have looked at the effect of providing feedback information about conservation activities on homeowners and found varying results. Though Riegel and Salomon (1974) reported a reduction in residential electricity consumption by customers in New Jersey who were informed of their consumption patterns relative to the same time a year before, the findings are dubious due to the crude nature of the experiment. Other studies have found that feedback to individual users is more successful with moderate users than with high users of electricity (Seligman and Darley, 1976), or that such communication often results in consumer interest but not in actual consumption changes (Craig and McCann, 1977). Follow-up experiments some time after information has been given again suggest that significant changes in consumption are unlikely to result from feedback material (Heberlein, 1975) unless the information is accompanied by rewards or other incentives (Seaver and Patterson, 1976).

Financial incentives are the most commonly reported types of information provided and these seem to vary in effectiveness depending upon the size of the incentive and the salience of other factors, such as the social esteem of a large car or numerous appliances. Product-labelling and life-cycle costing of appliances generate information at the point of sale, but financial incentive information usually appears to have more of a short term than long term potential (e.g. Heberlein, 1975). (A related factor often forgotten by policy experts designing information aimed at persuading the public to save energy, is what happens to the "energy saved dollar". If thrift in the home allows an extra vacation by car or plane, the net energy savings result can be less than zero.) (Hannon, 1975).

4) Information about the individual consumer decision-making process

More useful to consumers than information about the outcome of their energy saving efforts may be information about how they arrived at their decision to conserve, i.e. the decision-making process, or rational calculation. Understanding why one does something allows actions to be be generalized over a whole group of related measures. In

this way, isolated and insignificant (in terms of energy saving) conservation efforts such as turning lights off might be made more generalized (turning off all appliances) and spread to other areas of the home and environment. Clearly, information aimed at aiding an understanding of the individual decision-making process is highly related to information about the nature of the energy problem and general public attitudes toward the energy situation in Canada.

Thorelli, Becker and Engledow (1975) have noted that there is "a considerable gap between what is actually available to be known and what people may need to know about topics" such as energy conservation in order to behave appropriately. Indeed, people must be shown what information is relevant and meaningful to them and also be persuaded that the information is worth using (McEwen, 1978). Thus a major need of policy makers is the determination of appropriate information to appropriate sources through receptive channels on a large scale. Since the mass media fulfill such a variety of informational needs (Hanneman, 1973) and have the potential for reaching large and diversified audiences economically, they will be studied for their effectiveness in disseminating energy conservation information.

INFORMATION THROUGH THE MASS MEDIA

A popular conception of mass communication depicts the media as a giant hypodermic needle jabbing indiscriminately to stimulate, or depress the passive masses, yet this idea presupposes a direct and immediate response from the receiver. The process, of course, is far more complex, for mass media information is received, passed on, distorted, assimilated, rejected or acted upon in ways which are, in part, determined by the operation of various social and social-psychological systems at various points of transmission and reception as the flow of information takes place. The communicator is thus challenged to develop complex skills where he must understand the various subcultures, language habits and other aspects of his audience in appraising the content of the message he is sending.

There are literally thousands of biological, physical and social environments which each pose quite distinct challenges for the communicator. For each environment there is an audience, and for each audience the message must differ in language, method of presentation, content and medium. Thus, messages sent through the mass

media must be adjusted to the nature of existing
institutions and communication channels. The success of the
communicator, who must compete for the attention of his
audience, will depend upon his ability to adapt his message
so that it has immediate meaning to the audience.

Media Exposure and Compatibility with Energy-Saving Information Types

Though the media have not yet been shown to be an
omnipotent source of influence, (Katz, 1978), television,
radio, newspapers, books, magazines and movies are all
extensively used as vehicles of public interest information
(Belson, 1959; Mendelsohn, 1974; Tichenor, Donahue, Olien
and Bowers, 1971; Vertinsky, Vertinsky and Zaltman, 1972;
Weiss, 1969, 1971). Television particularly appears to have
an enormous potential for influencing large segments of the
population by virtue of extensive and repeated exposure
which accelerates awareness and familiarity of particular
issues (Tichenor, Donahue, Olien and Bowers, 1971). Indeed,
American audiences have long regarded television as the most
desirable and credible of the mass media (Roper, 1973).

In North America, "television is shaped by the
exigencies of competition to attract viewers" (Comstock,
1977, p. 13), and a typical American citizen spends more
time watching TV than he spends doing anything else except
working and sleeping (San Francisco Examiner, January 29,
1970). An evening prime-time viewing audience in the United
States, for example, approximates 40 million people (New
York Times, January 12, 1975). The audience for the
Super-Bowl Football Game in 1979 was estimated at
150,000,000. Almost every Canadian household has a
television set which may well be turned on up to seven hours
a day, and many households have more than one set with
different members of the family watching different programs.
Similarly, in the U.S.S.R. television is recognized as an
incomparable media for reaching the populace (Skarnia and
Kitson, 1968).

Children particularly tend to be heavy viewers, and
television is often their main source of information
(Greenberg and Davis, 1969), taking precedence over parents
or teachers (Tolley, 1973). The average elementary child
watches up to 27 hours a week and in the family "television
often has the status of the childrens' medium, for which, by
dint of interest and attention, the young have become the
acknowledged resident experts" (Comstock, 1977, p. 14). By
the time the child reaches secondary school he may well have
devoted 22,000 hours to television, as opposed to 12,000
hours to formal education (Looney, 1971).

Apart from its heavy usage by children, other
demographic characteristics seem to be less relevant.
People appear to watch TV regardless of income, ethnic group
and level of education, and TV ownership, unlike other media
does not appear to be related to income (Greenberg, and
Dervin, 1970). However, there is general evidence
suggesting that the urban poor spend twice as much time
viewing TV, like the medium more than the general population
and rely upon it as their principal source of information
(Bower, 1973, Greenberg and Davis, 1969; Gorn and Goldberg,
1977; Marshall, 1977). Thus, the disadvantaged child may
spend twice as much time watching TV as his higher income
counterpart; a very high level of exposure to one medium
(Schramm, 1973). Studies further show that in addition to
those of lower socioeconomic status, blacks, women and the
elderly view more than the general population (Bogart, 1972;
Bower, 1973; Greenberg and Dervin, 1970; Robinson and
Converse, 1972; Schramm, Lyle and Parker, 1961).

Television thus has an enormous audience over
extended periods of time and is particularly appropriate for
mass communication in that it does not exclude the poor.
Indeed, it is their primary medium which has adopted,
according to Comstock (1977, p. 71), "some of the functions
of a dominant religion". It has increased the time spent by
North Americans on the mass media by 40 percent but it has
also had the effect of reducing the time spent by people
listening to the radio, reading magazines, books and comic
books, though not in reading newspapers. In general,
commercial movie going has reduced considerably over the
last two decades but there is evidence that this medium is
developing a new popularity, particularly among the young
adult group, and that the movie may prove to be a very
useful tool for informational campaigns (Mendelsohn, 1974).
Furthermore, TV has reshaped other media habits by informing
the public about media accessibility, current movies, novels
and romance-type literature, as well as other interesting
and innovative media products. Clearly, then, it would seem
that television has great potential as a medium for
informing Canadians about energy conservation issues, though
exactly what kind of information is best sent through this
medium and how it is treated by the audience is a more
complex matter and requires careful analysis of available
studies relating to such issues.

Television tends to visually provide instantaneous
general information (Roper, 1973) to large and diversified
audiences who may pay more attention to the medium than the
message (as MacLuhan has noted, "The medium is the
message"). As such, it can serve as a useful vehicle to

convey general messages about the nature of the energy
problem and the need to develop a conserver attitude toward
life. Commercials, general programming and news programs
all serve this purpose. The less educated express a greater
preference for television than newspapers or magazines as a
source of news and current information, though this may
reflect a literacy problem (Neumann, 1977) which a number of
studies are revealing is much greater in parts of North
America than has been generally recognized (Dickinson,
1978).

Television may thus prove to become a general
knowledge leveller, providing information for the less
educated which they would be unlikely to receive from any
other source (Tichenor, Donahue, and Olien, 1970) and
helping to close the general knowledge gap between those
with a higher socioeconomic status and the lower status
segments. On the other hand, McEwen (1978) feels it
important to point out that surprisingly, efforts to close
the gap between the "information haves" and the "information
have-nots" frequently have the opposite effect, i.e. when
information is made available to all, the haves gain more
and faster than the have-nots. At the same time because of
the generalized nature of information provided by
television, it is unlikely that television viewing alone
will enable the urban poor to glean the type of detailed
information about conservation which the better educated
collect from the print media.

The print media serve as a supplement or provide
specialized information, (Deutschmann and Danielson, 1960),
and they are used by most people as some of many sources of
information (Greenberg, 1966). Print media readers can not
only spend as much or as little time as they wish perusing
and absorbing information, they can also follow their own
inclinations in reading only those sections of the magazine
or newspaper which they find interesting or informative
(Neumann, 1977). The printed media seem to be the main
source of detailed "how-to" and "feedback" conservation
information just as they are for similar kinds of health
information (except for people with a low socioeconomic
background), (Wade and Schramm, 1969), and for information
on public events (Larsen and Medalia, 1962). Reizenstein
and Barnaby (1976), in an analysis of consumer conservation
and media habits found that the energy conscious consumer of
both gasoline and heat used more media sources than the less
energy conscious consumer, and used newspapers, magazines
and the radio most as important sources of conservation
information. In fact they found that the major factor
identifying an energy conscious consumer was exposure to the
media (see also, Tichenor, Donahue, Olien and Bowers, 1971).

Furthermore, the energy conscious consumer came from a middle class group with a high level of civic consciousness and education. Bridgeland and Sofranko (1978) found similar characteristics among people concerned about environmental improvement. People in the professions and government officials showed more concern about such issues than did businessmen (Constantini and Hanf, 1972). Lowry and Good (1977) described the energy conscious consumer as a wise money manager; neither an avid sports fan or an outgoing, gregarious type. He was concerned with maintaining family relationships, subscribed more to newspapers, was more concerned with the energy crisis situation than the average consumer, more likely to own his own house, drive his own car and be well above average in terms of education. Studies by Webster (1975) isolated similar characteristics.

Many of these characteristics have been confirmed in research about environmental concern, where stratification ranking, especially education is repeatedly shown to be correlated with concern over public issues (Buttel and Flinn, 1974; Converse, 1964; Sears and Freedman, 1967). Buttel and Flinn (1974, p. 31) note that "apparently, high personal levels of materials and symbolic resources are required before support for environmental reform assumes a prominent place in value hierarchies". The reasons behind the more extensive use of the print media by the better educated are obvious, says Feldman (1966, p. 133) since regardless of the source of information "the better educated are able and do keep themselves better informed - because of essentially the same factors which underlie their superiority in almost all other realms of knowledge - a greater capacity and a greater desire for learning in general". Feldman (1966) further shows that those of a higher socioeconomic status participate more in formal organizations; have broader interests and pay more attention to the serious aspects of the media; are less stereotyped in their thinking and feel a greater sense of potency in influencing their future situation. By contrast, lower socioeconomic groups are less motivated in their quest for knowledge and participate far less in community organizations. Public knowledge levels show a fairly high association with income, education and occupation; the higher the social status the higher the level of information. Such clients then are generally interested in the increasingly specialized nature of both radio and the print media in disseminating information. Probably as a result of the popularity of television, radio has become more of a local medium, often directed at specific, more homogeneous segments of the community. Mass magazines such as Life and Look have declined in popularity and ceased

publication, giving way to a thriving market in special interest magazines. Even magazines that retain large national circulations such as TIME have found it useful to set up regional advertising areas (Maisel, 1974). Such journals as Environment, Science and Children, and the Wildlife Review epitomize the use of highly specialized literature to spread details on conservation to specific clients. "How-to" and "feedback" types of conservation information are usually disseminated through these channels, often at a relatively high cost to the subscriber. One interesting phenomenon of print sources dealing with specialized information is the increasing use of pictorial print, colorful posters, calendars, maps and games in an attempt to stimulate greater awareness and interest in a particular topic.

In the People's Republic of China in the absence of widely available electronic media and the large scale circulation of newspapers, posters and wall newspapers are frequently used as mass communication vehicles for public interest and political information, along with special culture stations providing newspapers, magazines and books not normally available in rural areas (Lerner and Schramm, 1967). Posters have particularly been viewed in China as an effective means of circumventing literacy barriers. Similarly in areas with high levels of immigration, posters can avoid language barriers. As the popular saying goes, "one picture is worth a thousand words". Closer to home on the Toronto subways are posters advising Waste Not, Want Not while charts and diagrams spread the Canadian conservation story in public building stickers, pamphlets and fact sheets stuffed in with customers utility bills and family allowances (Kelly, 1978).

More specialized still are micro-computers, electronic mail services, teleconferencing, electronic publishing, bibliographic services and cable television (Berryman, Bikson and Bazemore, 1978; Emery, 1978; Kay, 1978; Moss, 1978). Here, applications of new technology allow the increased discrimination of a channel so that a message will reach a more selected audience or will encourage and facilitate feedback from them. Some of these advances, says Emery (1978, pp. 78-9) "provide unparalleled capabilities for developing an extremely powerful network for information exchange – without inundating uninterested persons with unwanted information". Maisel (1974) suggests that modern communication systems in North America are characterized by an increasing growth rate for specialized communication, and that the education system may become the most important of all specialized media systems (see also Wells, 1972). Opinion Research Energy Polls in the United

States between 1974 and 1976 showed that a substantial amount of information about energy conservation had been transmitted to American homes by children who obtained such information at school (Rappeport and Labaw, 1976), suggesting that school children may be used as a valuable channel of communication about certain issues to the home.

The educational system may well become an extremely important vehicle for dissemination of the fourth kind of energy conservation information - information about the individual consumer decision-making process. Educational theorists and practitioners have stressed for some time that curricula should be based upon conceptual frameworks and that learning experiences should be designed to encourage an understanding of generalized theory rather than the development of a number of isolated skills. A conceptual learning model concerning energy conservation would be characterized by:

1) adaptability (designed for use at any level of progression);
2) flexibility (allowances made for individual differences and community needs); and
3) permanence (where new information could easily fit into the developed framework).

This would allow for the appropriate sequencing of learning experiences (exploration, discovery, combination and selection) which would assist the individual to understand the reasons for and consequences of appropriate energy conservation behavior. As Bruner (1968) notes, we teach a subject not to produce living libraries but rather to get a student to think for himself, to consider matters, and to take part in the process of knowledge-getting. Knowledge, he notes, is a process not a product.

Despite the wide availability of numerous media channels, surveys consistently find that a large part of any population escapes contact with a certain piece of information that is widely reported (McEwen, 1978; Payne, 1965). It has been customary to blame the failure of public information campaigns upon general apathy, but it is quite possible that the target client is less culpable for his failure to take account of the message than the communicator who may have sent boring, incomprehensible messages through poorly selected media (Mendelsohn, 1974; Scammon, 1977). Some large scale studies attempting to identify an appropriate media mix for selected message types to specific audiences have had some success in overcoming some of the hurdles in information dissemination through the mass media,

but they have had to use social reception channels in addition to the mass media. A large scale effort to reduce the incidence of heart disease in Finland's North Karelia, for example, successfully disseminated general and specific disease and strategy information to the public through newspapers, radio, television, community presentations, meetings, pamphlets, posters, personal letters, feedback scores and so on (Craig and McCann, 1977; Shannon, 1978). The Stanford lifestyle project to inform and educate people in three northern California towns about cardiovascular health used different mixes of television spots, television programming, radio spots, radio programming, weekly newspaper columns, newspaper advertisements and stories, billboards, posters and printed material mailed to the participants. The media campaign of nine months was repeated twice so that extended media coverage was assured. In conjunction with other face-to-face methods of information dissemination, the media mix campaign was found to be highly effective at a number of levels (Farquhar, 1977).

Mendelsohn (1974, p. 55) suggests that the mass media can be rendered much more effective not only by careful selection of media-message-audience mixes but by carefully setting "reasonable, middle-range goals, narrowly defined and explicitly stated". Thus "innovative, information-giving formats, abetted by strong prior promotion, can overcome pre-existing so-called public apathy to a great degree". It would seem that policies aimed at improving the effectiveness of diffusing energy conservation information through the mass media could be considerably improved by designing appropriate message-media-audience packages as means to accomplish specific and measurable goals.

Fighting Addiction (habits): The Case of Marginal Energy Behavior Modification

So far this exploration has focussed upon the cognitive (intellectual) aspects of behavior modification through the mass media. Information dissemination was used to:

1) Affect the goals of individuals and/or
2) Increase the awareness of feasible technologies available to them and/or
3) Remove constraints which limited the feasibility of desired behaviors.

In short, the information was used, through the calculus of costs and benefits, to affect the choice of behavior. Yet there are a wide class of behaviors which are

unaffected by rational, intellectual calculation. Motivation
is required for perception and action, and the underlying
emotional aspects may have a greater impact upon behavior
than do the cognitive elements (Rosenstock, 1966). Habits
and customs are often hard to break and persist against any
premises of rationality. The fact is, says Kay (1978) that
people and institutions are unwilling to change their
established ways of doing things even when the new ways are
more convenient - and less expensive. Cigarette smoking is
an excellent example of how people, in the face of large
bodies of evidence pointing to the deleterious effect of
smoking upon physical health are yet often unable to break
the habit, or set of habits, to which they have become a
slave (Canadian Cancer Society, 1978). Feather (1962, 1963)
points out that smokers often do not avoid reading
unpleasant information about smoking and lung cancer;
"rather they subject it to careful and mercilessly
unsympathetic scrutiny". Thus knowing the hazards, and
understanding the consequences of ones' actions does not
necessarily help in breaking habits though they may
contribute over a period of time. By the same token,
conservation measures may require the individual to attempt
to desist from the large scale use of powered gadgets in the
home and on the roads upon which he may have become very
dependent. To a large extent we are dealing, in these
circumstances, with a type of addiction. "Addiction", says
Peele (1978, p. 67) "is any activity that can absorb a
person in such a way as to detract from the ability to carry
through other involvements. Personality, setting and social
and cultural factors are not merely the scenery of
addiction; they are parts of it" (see also Blum et al.
1969). Thus, the modification of behavior to eradicate
addiction to undesirable energy habits will be examined from
two perspectives:

1) Marginal Behavioral Modification (initial
   change), and
2) Cultural and Social Change which is required to
   sustain, support and energize the accumulation
   and preservation of desirable, new lifestyles
   (maintaining change) (Atkinson, 1957).

The initial intervention by the policy maker of
encouraging rational calculation through information
dissemination sets the stage for the manipulation of the
affective dimension of the media aimed at uprooting
addictions. The process consists of a mixture of "push" and
"pull" strategies. "Pull" strategies create pleasant
associations with correct energy conservation behavior while
"push" techniques attempt to develop an association of

aversion with the target behavior that has been chosen for modification (Atkinson, 1957; Clark, Teevan and Ricciuti, 1956; McClelland, Atkinson, Clark and Lowell, 1953).

Hopefully, the consumer will learn, in true Pavlovian sense, what kind of behavior generates the most pleasant rewards, and policy makers may well dream up a number of effective public reward systems for conspicuous energy conservation behavior.

Because of the powerful effects of reward and pleasurable feelings upon individual behavior, a number of social psychologists argue that over-emphasis upon sacrifice which calls forth ideas of poorly lit and underheated homes and classrooms may create unpleasant and unproductive feelings about energy conservation (Denney et al. 1978; Kelly, 1978). Some point to the idea that notions of a future filled with sacrifice can be dispelled or accommodated by emphasizing ephemeralization, which involves making the most with the least and calls for a constructive attitude toward future lifestyle possibilities (Fuller, 1969). "A society based upon ephemeralization would be one which encompasses the giving up of mass consumption of inferior merchandise in place of high quality, long-lasting, intrinsically well-designed durable goods – a type of future that people could adjust to" (Lazar, 1975, p. 27). Others note that the role of sacrifice has been found to be quite effective in times of crisis. The Kate Smith War Bond Campaign conducted through the mass media was extraordinarily successful in using sacrifice and sentimentality for collecting large amounts of money (Weibe, 1957).

From the point of view of energy conservation, studies show that the kinds of financial rewards so far offered have not been sufficient to break addictive consumption patterns and have not been able to compensate for the lost comfort and ease of energy use given up. Probably there is no practical, financial reward which could be realistically offered to affect addictive behavior to any great extent.

"Push" strategies must precede "pull" strategies since the latter aim to attract attention to an empty behavioral niche. Yet one of the major problems inherent in the "push" strategies using the mass media lies in the voluntary nature of exposure and the processes of selective attention, perception and interpretation (Vertinsky, Vertinsky and Zaltman, 1972).

The most universally recognized effect of mass communications on behavior unfortunately is "the reinforcement or strengthening of predispositions" (Klapper, 1960). People tend to see and hear communications that are favorable or congenial to their predispositions. They are thus more likely to see and hear congenial communications than neutral or hostile ones (Berelson and Steiner, 1964). Hence, people are thought to actively seek out information that supports their opinion and actively avoid material that challenges them. It is likely, says Lazarsfeld in his study with Berelson and Gaudet (1948) that a desire for the reinforcement of one's own point of view exists. If a new piece of information would weaken the existing structure of their ideas and emotions it would be shunned. "Campaigns in particular have been most influential when the attitude encouraged is the same as that which the population desires"(O'Keefe, 1972, p. 243).

From the above it seems clear that the transmission of messages must be arranged such that:

1) The costs of exposure avoidance are high, e.g. short, snappy messages which do not permit the effective defensive strategy of withdrawal from the channel. Intensity of the message may also play a role here, when the message is repeated so frequently that it is difficult to avoid without ceasing to use the channel altogether. Sheer saturation of message delivery can produce desired effects, but at a high cost to the delivery system (Hartley, 1946).

2) Feedback is generated so rapidly that any pleasure which could be associated with defeating habits of energy consumption comes quickly to the consumer. The longer the wait for the incentive, the less its effect (Dichter, 1971).

3) The message must be direct, simple and unambiguous to minimize faulty interpretation. Schramm (1955) has observed that few people can be counted upon to learn the unstated implications of a mass communication. Certainly, an understanding of the message is essential for future retention (Hovland, 1958). Energy jargon can be particularly meaningless to the layman. There is no one unit term for all types of energy and different units can be confusing. The use of a quantifiable and simple unit such as calorie counting in nutrition could make a number of conservation messages more apparent and explicit. Charts, diagrams, pictures and words which seem self-explanatory to the

communicator may prove meaningless to the
audience. Designers of international traffic or
safety symbols have had to wrestle constantly
with this problem. On the other hand,
Mendelsohn (1974) has noted that the movie
developed to educate audiences about alcohol
abuse, "A Snort History", contained not a single
word and yet was amazingly effective as a
graphical description of the problem.

Simplicity of language is important. Most
consumers, to use a marketing example, simply do
not comprehend nutrition information as
currently supplied through the media and on
package labels (Assam and Bucklin, 1972;
Chestnut and Jacoby, 1977; Medical World News,
1977; Scammon, 1977). The language barrier can
thus be an important factor in the failure of
many mass communication efforts. A message
which does not take account of locally shared
interpretations of words and concepts will tend
to be ignored. In a bilingual and
multi-cultural society such as Canada the
dangers of misinterpretation and confusion due
to the language of the message are particularly
high when the messages are disseminated from a
national rather than a local source.

4) The messages must combine attractive,
    audio-visual effects to create dramatic and
    vivid associations with appropriate or inap-
    propriate behavior. North American Social
    Purity Workers of the turn of the century
    understood this well, and had a remarkable "hall
    of horrors" available for distribution which
    included wax models, drawing, charts,
    photographs and lantern slides demon- strating
    the baneful results of the awful curse of
    misbehavior (Dresslar, 1913, p. 37). Whether
    or not this proved effective for breaking the
    habits they feared, marketing strategies today
    increasingly make use of vivid and eye-catching
    designs to communicate persuasive information.
    Such government posters and materials as
    "Garbage in Your Gut", "Good Nutrition Guards
    Your Heart", "Butt Out", "Waste Not Want Not",
    are examples of visual fun with a slogan
    message. As mentioned before, however, graphic
    portrayals of dire results from smoking,
    drinking or energy over-use have sometimes been
    shown to instill a sufficient level of fear or

irritation among the target population to cause
them to avoid future exposure to the information
(Hochbaum, 1958).

Slovic (1975) and Kunreuther (1976) suggest that
in a number of health-related cases the graphic
example of a health threat may be a very
important feature in fighting poor health
habits. The campaign to teach people the seven
danger signs for cancer is a good example of
this as are the anti-smoking campaigns in the
United States and Canada which have placed a
health warning on every pack of cigarettes.
Anti-Alcohol campaigns in Canada are similarly
using vivid, graphic illustrations of the
dangers of alcohol which portray "The Ultimate
Bloody Mary", and in matters of safety, such
titles as "The Wethead is Dead".

5) The process of image creation must consist of
appropriate reinforcements until the empty
behavioral niche is filled by the desired energy
conserving behavior. Here addiction is broken
and new behavior can be built up. The
foot-in-the-door-technique has been shown to be
quite useful for influencing behavior
sequentially (Scott, 1977). This method entails
gaining compliance with an initial small request
in order to facilitate compliance with
subsequent and perhaps larger, more complicated
requests. Rewards can be employed to facilitate
the continuance of the initial behavior such
that joining a car pool, the initial request
could bring with it time, money and social
rewards which may be sufficient to cause the
individual to expand his car-pool usage from
work to leisure-related needs (Freedman and
Fraser 1966; Henion, 1972; Miller, Brickman and
Bolen, 1975; Pliner et al., 1974). Thus, urging
more reasonable use of one's car can be the
first step in a line of requests designed to
fight large scale addiction to personal motor
transportation.

The process of "push" must be coordinated with
the process of "pull", i.e. the process of
creating an emotional appeal for the new set of
behaviors which have been selected to replace
strongly rooted habits. Manipulating emotions
through the process of behavioral modification
is a delicate process and much harm can be done

by overpowering or extreme fear inducing
interventions. It is a process which may create
a backlash of populations exposed to the
message, even if they were not the specific
targets of the campaign. Until more is known
about the characteristics of receiving groups
and message design strategies, intervention
policies should probably remain conservative,
aiming at a slow incremental impact of "push"
strategies with a strong and continuous role
delegated to "pull" strategies.

Cultural and Social Change: Modifying Lifestyles

Marginal behavioral modification tends to cause only
a temporary impact upon behavioral patterns and does not
necessarily help the change to become self-sustaining. Thus
constant reinforcement is needed. To bring about a long
term change one must develop a strategy of change which
moves the behavioral system into a new state of equilibrium
of behavioral patterns which has its own arrangement of
internal forces of protection - this is what can be termed a
genuine lifestyle change.

An economic strategy for life-style change is based
upon the dynamic exploitation of effects among the different
dimensions of behavioral change and interactions among
different people in the social system. Meenan (1976) has
suggested that great care should be taken in exploiting the
effects of apparently associated activities upon lifestyle.
In what he calls the "fallacy of ecological correlation" he
suggests that sometimes evidence of causality and
associations are based upon conventional wisdom and
superficial associations which must be clarified before
precipitous action to change lifestyles is taken.

Certainly there is no clear consensus as to the
appropriate magnitude and duration of efforts to develop a
conserver lifestyle. "Some feel that conservation must
entail significant changes in lifestyle and consumption
practices, and that these changes should be relatively
enduring. Others regard energy conservation as essentially
a transitional policy, part of more general strategies to
bring about a shift in energy supply and consumption
technologies" (Denney et al., 1978, p. 6).

Whatever the resolution of this problem, it is
pertinent when analyzing the role of the mass media in
bringing about lifestyle changes to consider the nature of
the target social system and its dynamics. Though it is

certainly not easy to induce significant changes in either
social values or individual lifestyles through media
influence alone, important gains can be realistically ex-
pected. The mass media in many totalitarian regimes is an
extremely effective vehicle for preserving lifestyles or
mandating guided change since mass media propoganda
strategies exploit the existing social networks of
communication and the structure of power. The effective use
of mass media strategies also assumes a certain amount of
priming, i.e., training different leaders or segments of the
population to receive and interpret the information
appropriately.

Clearly in a democratic country, under non-emergency
situations, the domain acceptable for mass-media strategies
is more limited. Government role in this domain is a much
debated point and many feel from a philosophical point of
view that no government should overtly attempt to persuade
consumers to adopt any particular lifestyle pattern. Others
feel it is imperative that governments should at least
attempt to provide a counter-balance to the large scale
marketing of energy consuming technology. The Canadian
government has taken direct responsibility for priming the
population by, for example, the use of paid media
advertisements and the coupling of information campaigns
with other forms of support for conservation such as direct
subsidies and job employment programs.

Even if active social "priming" must be minimal, it
is important to utilize knowledge of the social system to
ensure the differentiated dissemination of information and
emotional appeals, as well as to generate and support the
growth of appropriate volunteer organizations. The
literature of social change and innovation recognizes the
differentiated roles of different people in the
interpersonal communication network. Katz and Lazarsfeld
(1955) have emphasized the relationship of the social
setting to the reception of information from the mass media.
"Their emphasis upon the power of primary groups and
informal interpersonal and gemeinschaft-like ties introduced
an empirically based and powerful alternative to theories of
mass society which viewed an atomized population as
politically manipulated by the mass media" (Robinson, 1976,
p. 305).

Essentially they suggested that certain individuals,
by virtue of characteristics such as superior intellect or
level of education became opinion leaders for certain
segments of society and served as filters through which the
mass media information was transmitted to the more passive

members of their immediate group. Weiss (1970) has declared
the two-step notion to be too simplified a conception of the
relationship between the public and the mass media. Wright
and Cantor (1967) have further investigated the opinion
leader concept and Robinson (1976) has clarified a system of
interpersonal information dissemination that accommodates:

1) Media to opinion givers;
2) Media to opinion receiver or nondiscussants;
3) Opinion givers to opinion receivers;
4) Opinion givers to opinion givers;
5) Opinion receivers to opinion givers;
6) Opinion receivers to opinion receivers.

However, uncertainties remain as to the precise
relationships between those attentive to information and
those who are not (Harik, 1971; Katz, 1957). Friendship or
occupational similarity in networks in society may
facilitate information diffusion more than opinion leaders
(Laumann and Guttman, 1966).

Of more consequence to the policy maker concerned
with promoting lifestyle change through the mass media is
not so much knowledge of the precise directionality of mass
media information through social reception channels as the
influence which this information has upon the decision to
adopt good conservation habits. Early adopters seem to make
a conscious decision to seek information from the mass media
and other knowledgeable sources, and then influence more
passive, late adopters by diffusing their information and
the way in which they have evaluated it through social
networks. Individuals who have not yet taken action re-
ceive information on the kinds of actions which other people
are taking and why. Consequently the sum total of knowledge
and experience in the social system increases. As this
knowledge is further diffused by the mass media, social and
cultural norms may gradually shift allowing for congruent
lifestyle changes. Given enough support and incentive from
the media and other institutions these changes in turn have
a ripple effect upon the rest of society so that the
diffusion of knowledge and the adoption of energy
conservation measures continue to spread (Coleman, Katz and
Menzel, 1966; Robertson, 1971; Rogers and Shoemaker, 1971).

Opinion leaders or early adopters seem to have
different characteristics from their more passive fellows
and the communicator must recognize this in deciding who
should get what kind of conservation information through
which channels. Early adopters have been described by

Rogers (1973) as being more cosmopolitan and having a higher
level of education and socioeconomic position than late
adopters, or at least as having greater initial interest in
the topic at hand. Being more wealthy they can afford the
financial risk of trying new ideas. Since they have more
highly developed belief systems they appear to monitor the
mass media more closely and derive more knowledge more
quickly from more sources (McEwen, 1978). The same
characteristics allow them to put more trust in scientific
information and be more likely to use the knowledge
correctly and evaluate the consequences. This is the
appropriate audience, then, for specific and technical
energy conservation measures and for carefully organized
feedback messages which emphasize the importance of the
ongoing nature and specific value of energy conservation
practices.

Late adopters, by contrast, tend to depend much more
on interpersonal communications which appear to be necessary
to convince most people to adopt a new behavior since they
provide a personally tailored message in a two-way situation
with scope for immediate feedback and reinforcement.

Rogers (1973) has emphasized that in any given
population there are large numbers of people who are simply
not interested in a particular topic so that even if some
behave as opinion leaders in one dimension they may not in
another. This target population, then, may well need to be
exposed to the more general and inspirational conservation
message emphasizing a sound comprehension of global energy
issues.

Thus, certain portions of the population lead in
experimenting with innovations while others serve as opinion
leaders whose adoption of an innovation triggers broad
social following. Others serve as implementation
facilitators i.e., provide specialized knowledge for those
who seek help in removing barriers to implementation such as
manning free clinics or distributing pamphlets through
volunteer organizations. Knowledge about the nature of such
roles can help determine the most appropriate type of
messages, the nature of conservation information and the
desirable media mix and timing.

Though the social system is enormously complex and
universal strategies would likely be inappropriate, there
are good possibilities for exploiting particular qualities
of energy conserving intermediaries through the mass media.
Since the mass media are potentially much more cost
effective than face-to-face communications it is possible
that the power of this instrument could be considerably

enhanced if ways could be found to use the mass media to stimulate and coordinate opinion leaders and programs of inter- personal instruction about energy conservation practices [see for example, the voluntary collaborator approach in Costa Rica (Zaltman and Vertinsky, 1971) and the approaches taken in the California community education project (Farquhar et al., 1977)]. Similarly, the information and implementation group at Energy, Mines and Resources Canada are exploring the benefits of setting up Community Conservation Centers, Regional Resource Centers and liaison with citizen groups to inform and prime opinion leaders for action within their reference groups (Kelly, 1978). There is no doubt that the provision of information should be coupled with a comprehensive program of education in order to achieve satisfactory, long term lifestyle changes on a broad front (Jacoby, Chestnut and Silberman, 1977; Mendelsohn 1974).

Since social dynamics and structure may vary greatly from region to region, social research must form an integral part of devising a mass media plan for lifestyle change.

Using the Mass Media to Trigger Action

Facilitating mechanisms or triggering cues are often critical in helping the individual make the final adjustment from knowledge to action. The mass media can provide this function in a number of ways. Sheer saturation of information, particularly through television which is such a widely used medium can provide a behavioral trigger to an individual who has understood and accepted the importance of a piece of information about conservation but has not yet acted upon it. By constantly focussing upon this information the mass media can keep grabbing attention until some positive action is taken.

Often, information provision does not clearly suggest a practical, behavioral action or afford the audience the opportunity of quick application of the message. Mendelsohn (1963, 1974) has suggested that the success of a National television traffic safety system mass media campaign stemmed from the provision of a specific technique to allow drivers to easily measure their own driving abilities after they had viewed the program. In this way viewers who became aware of driving deficiencies through self-evaluation could be directed into immediate social mechanisms which had already been set up in the community to correct poor driving habits (Bush, 1965).

In order to obtain specialized trigger effects, only media which can be available at designated locations at

appropriate times can serve as triggers. Marketers have
long been aware of the power of placement upon spur of the
moment behavior (Bettman and Zins, 1977). Supermarkets and
Department Stores have used the idea to good effect upon
last minute buying. Similar strategies may be very
effective by placing charts and attractive posters at the
point of purchase in appliance stores, for example, or by
having attractive pictorial reminders of energy waste in the
kitchen or in public institutions at strategic places.
(Switch the Light Off. Turn the Heat Down. Waste Not, Want
Not. Use the Stairs for Short Trips.) Furthermore, they
may serve as better and more economical triggers than an
intensive campaign with television spots which, while
triggering general or instant action, does not seem to be
able to sustain such behavioral patterns.

Triggering cues must have an attractive message to
ensure maximum exposure and minimum avoidance behavior.
Just as unpleasant or unattractive physical environments
have been shown to have an immediate negative effect upon
human social behavior so unpleasant pictures or messages
about a world without energy can cause aversion and lack of
conservation action (Sherrod, 1977). Cues must be devices
for focussing upon one clear dimension rather than providing
detailed explanations and a variety of possible actions.
They should, therefore, provide essential information in a
clear, crisp manner for an on-the-spot choice of appropriate
energy conserving behavior.

The Use of the Mass Media During Crisis Versus Non-Crisis Situations

This is an area which is not very well researched
but yet may be of essential importance for the
implementation of energy policies in the future. The
implicit assumption that information dissemination and
responses to the mass media have essentially the same
patterns during crisis and non-crisis situations has been
challenged by recent studies (Hermann, 1972; Holsti, T978).

Many examples of a pathological lack of response,
even to a convincing and clear warning of a crisis or hazard
are cited by Janis (1972). He has developed a theory of
group decision pathology which indicates that in dangerous
situations certain groups of people develop strong internal
defences against information or emotional appeals which may
threaten a previously developed consensus. These groups
develop a strong filter process through tight gatekeeping
and isolation from outside communications. Further, such
groups can develop a pathological level of self confidence

and engage in arrogant risk taking. In such circumstances the mass media clearly would tend to be neutralized.

Other studies of crisis point out that once stress exceeds a certain level, especially when no hope for a solution is perceived, apathy and indifference set in. In other cases, when some benefits for individuals are perceived, the stress is reflected in hoarding, for example, or in panic driven social action such as riots. In periods of high social stress the media must serve to alleviate stress and to provide messages in forms which, rather than exacerbating emotions, serve to relax and dissipate tension and anxiety, instill confidence and provide specific directions for action.

Little empirical evidence has been reported about the impact of different media in crisis situations, but certain recommendations are consistent with characteristic types of response during the onset of difficult times, such as the use of soothing music, inspirational messages and the provision of specific instructions.

CONCLUSION: Strategy Recommendations for Mass Media Utilization

Some of the major strategy implications of the review are summarized in the mass-media strategy matrix. The matrix provides alternative classes of appropriate message contents for each of the five task categories. For each message content, specific goals are identified with their target populations. For each content and target population grouping, a desirable media mix is identified and a recommendation made with respect to message intensity and continuity.

Clearly more research is needed to test the validity of transferring observations made empirically in other systems to the Canadian scene, as well as to refine our knowledge about specific target populations in Canada. The development of energy-media related profiles of different segments of the Canadian population on an empirical basis is, in our opinion, the next priority for mass-media policy related research in energy conservation.

MASS MEDIA STRATEGY (POLICY) OPTION MATRIX

TASK CATEGORY	CONTENT	SPECIFIC GOAL	TARGET POPULATION	PREFERRED MEDIA MIX	INTENSITY AND CONTINUITY
	a) Information about the nature of energy problem	1) General motivational conditioning 2) Triggering social responsibility 3) Attention focussing	All population but in particular, opinion leaders	TV and radio for conceptual messages. Printed media for details directed at opinion leaders to facilitate defence of energy conservation postures	Continuity should be emphasized over intensity to minimize information overload
Dissemination of Information	b) "How to ..." information	Ensure feasibility, reduce research costs for conservation solutsion	1) The "committed" to ensure implementation 2) Community facilitators such as teachers and volunteers 3) General population	For the general population - posters, newspaper ads. For facilitators, and upon request, detailed booklets, specialized channels for facilitators	Continuity and selective, intense exposure

TASK CATEGORY	CONTENT	SPECIFIC GOAL	TARGET POPULATION	PREFERRED MEDIA MIX	INTENSITY AND CONTINUITY
	c) Feedback information	Provision of information on conserva-tion results for reinfor-cement and motivation as well as a trigger for action	All the popula-tion but in particular the middle economic classes and the better educated	TV, radio and printed media depending upon complexity of the infor-mation	Periodic, in-tense exposure as follow up to introduction of new measures
Dessemi-nation of Informa-tion	d) Information to improve consumer decision making processes	General acquisition of skills for rational cal-culation	1) School children 2) The popula-lation with at least high school education	TV and Radio for priming and printed media for follow up	Continuity is required, moderate intensity

TASK CATEGORY	CONTENT	SPECIFIC GOAL	TARGET POPULATION	PREFERRED MEDIA MIX	INTENSITY AND CONTINUITY
Marginal Behavioral Modification	a) "Push" messages for uprooting addictions	Develop association of aversion with target behavior chosen for modification.	All the population or selected targets depending on the behavior to be uprooted.	TV and selectively placed posters	Intensity and continuity are important. But attention must be placed upon strategies aimed at reducing exposure avoidance by target populations
	b) "Pull" messages for bringing forward desirable new habits to replace an empty behavioral niche hence reinforce the "push" strategy	Develop pleasant associations with target behavior chosen to fill the behavioral empty niche created by displacement of uprooted behavior	Push and pull strategies form an integral mix but weight of each in the mix depends on avoidance rates in population. High avoidance rates will favor more pull		

TASK CATEGORY	CONTENT	SPECIFIC GOAL	TARGET POPULATION	PREFERRED MEDIA MIX	INTENSITY AND CONTINUITY
Lifestyle Change	Mobilize the social infra-structure to transform society	1) General motivation 2) Specific informa-tion to opinion leaders and facilita-tors 3) Feedback for rein-forcement and control 4) Provision of a frame-work to in-tegrate specific campaigns into a co-herent life-style program	1) As in "mar-ginal" be-havioral modification 2) Opinion leaders and facilitators 3) The public at large 4) The public at large	1) TV, radio and posters 2) Printed media, TV and spe-cialized channels 3) TV and radio 4) TV and radio	Intensity and continuity are essential. Timing of dif-ferent message targets depends on specific social dynamics which evolve over thime. Community O.D. must be an in-tegral plan of the campaign

TASK CATEGORY	CONTENT	SPECIFIC GOAL	TARGET POPULATION	PREFERRED MEDIA MIX	INTENSITY AND CONTINUITY
Triggers	1) General triggers - triggers which direct attention to conservation actions 2) Specific triggers - triggers which provide key information at points of implementation	Trigger all conservation actions for which a motivational basis exists and "choice" made but not implemented	All populations "ready" for action	TV and radio for provision of general triggering cues. Posters and in selected locations for "implementation point" triggers	High intensity for general cues. Continuity for "implementation ponit" cues. Economy in information, content and emphasis upon attractive messages are exceedingly important

TASK CATEGORY	CONTENT	SPECIFIC GOAL	TARGET POPULATION	PREFERRED MEDIA MIX	INTENSITY AND CONTINUITY
Crisis Management	Control of action and motivation during high stress periods	1) Provision of information 2) Stress-anxiety reduction and in-spiration	All the population	All media should be used for maximum exposure. Images must be designed to reduce anxiety and information must be specific, clear and simple	Continuity and availability must be high. Intensity must be minimized to avoid over-load

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