

Public Outreach and Behavior Change

An annotated reference guide for outreach practitioners

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Introduction

This reference guide is intended as a resource for professional communicators and public educators who work in non-school settings. Such public “engagement” professionals may use it to stimulate behavior change, to understand the theories and models that underlie their professional practice, or to gain insight on how to apply these theories in practice. Those who conduct evaluations or whose work is being evaluated on the basis of changes in behaviors of a target audience may also find it useful.

A substantial range of research information relates to changing people’s behaviors. This information, however, is rarely distilled for the non-specialist user, and often the language in the professional literature is directed toward other academics who are already familiar with it. This reference guide is an attempt to level the playing field by providing background so that the practitioner can both access the literature and put it to use.

This reference guide’s resources span learning, communication, and behavior-change theories and models. However, the present document is certainly not exhaustive, and the publisher, Oregon Sea Grant, intends to continue developing this guide via an online collaborative workspace (wiki), at <http://seagrants.oregonstate.edu/wiki/bibliography/>. Readers are invited to visit the wiki, and to learn from, and add to, the content there.

This reference is organized into the following five sections.

FOUNDATIONS provides a glossary of key terms and their definitions as referred to in one or more models and theories of communication, learning, or behavior change.

THEORIES AND MODELS that are frequently encountered in communication, learning, and behavior change fields are presented. Each entry is accompanied by a reference for the reader who would like more detail.

APPLICATIONS is organized as an annotated bibliography and highlights journal articles, books, and Web sites that have applied learning and behavior change theory to produce behavior change results. The annotations in this section provide the theory used, the area of study, the study question or goal, and a summary of results. The annotations are intended to help informal educators and outreach professionals locate references that pertain to their area of work. This section is presented in two parts: *Health Applications* and *Social Applications*.

SYNTHESIS AND OVERVIEW RESOURCES provide an overview of *Journal Titles*, as well as additional *Publications* and *Web Sites* that offer summarized or broad-spectrum information from the fields of communication, learning, and behavior change.

In her **OBSERVATIONS**, the author comments on common themes found in the included theories and successful applications.

Foundations

COMMUNICATION—A complex, interactive, and continuous process by which messages are received and transmitted between two or more people in order to convey and understand information or ideas.

Miller, Katherine. 2002. *Communication Theories: Perspectives, Processes and Contexts*. McGraw Hill Companies: Boston, MA. ISBN 0-7674-0500-5

LEARNING—According to Social Learning Theory, people learn from other people through observation and imitation. This type of learning involves memory, motivation, and attention.

Learning Theories Knowledgebase.
Accessed May 24, 2007.
<http://www.learning-theories.com>

FREE-CHOICE LEARNING—The voluntary learning that takes place outside of formal school settings.

Falk, John H., and Lynn D. Dierking. 2002. *Lessons Without Limit: How Free-Choice Learning Is Transforming Education*. Altamira Press: Lanham, MD. ISBN 0-7591-0160-4

THEORY—An abstract construct designed to describe or explain observed phenomena, which can be used to address a question or problem.

Miller, Katherine. 2002. *Communication Theories: Perspectives, Processes and Contexts*. McGraw Hill Companies: Boston, MA. ISBN 0-7674-0500-5

MODEL—A representation of an abstract construct used to simplify or more clearly elucidate a complex process.

Miller, Katherine. 2002. *Communication Theories: Perspectives, Processes and Contexts*. McGraw Hill Companies: Boston, MA. ISBN 0-7674-0500-5

BEHAVIOR—An action in response to stimuli.

Skinner, B. F. 1938. *The Behavior of Organisms: An Experimental Analysis*. Appleton-Century Company: New York, NY.

SOME BELIEF TYPES

- *Behavioral beliefs*—The perceived outcomes related to performing a behavior.
- *Control beliefs*—The perceived ability to perform a behavior based on knowledge, skills, and external factors.
- *Normative beliefs*—The perceived social pressures regarding a behavior.

Ballantyne, Roy, and Jan Packer. 2005. Promoting environmentally sustainable attitudes and behavior through free-choice learning experiences: What is the state of the game? *Environmental Education Research* 11(3):281–195.

NORM TYPES—The factors influencing *normative beliefs*.

- *Descriptive norms*—The beliefs about the prevalence of a behavior or norm.
- *Injunctive norms*—The beliefs about what influential others (e.g., parent or boss) expect regarding a behavior.

Rimal, Rajiv N., and Kevin Real. 2005. How behaviors are influenced by perceived norms. *Communication Research* 32(3):389–414.

SELF-EFFICACY—Belief in one's personal capabilities. People have a stronger incentive to act in a certain way (i.e., change behaviors) if they believe that their actions will create desired outcomes or solutions.

Bandura, Albert. Self-efficacy. 1997. *Harvard Mental Health Letter* 13(9):4–7.

STAGES OF CHANGE—A stepping stone description of how change occurs for any individual relating to any behavior:

- *Pre-contemplation*—ignorant of any problem and not considering any change in behavior.
- *Contemplation*—aware of a need for change without any immediate intention to make a change.
- *Preparation*—intention and effort to change a behavior.
- *Action*—actively practicing a new behavior.
- *Maintenance*—continued commitment to a new behavior.

The last stage of change may be *relapse*, in which old behaviors reassert themselves. Each of these stages is associated with suggested *processes of change* that may move an individual to the next stage and closer to performing the desired behavior.

UCLA Center for Human Nutrition. Prochaska and DiClemente's Stages of Change Model. Accessed May 25, 2007.
http://www.cellinteractive.com/ucla/physician_ed/stages_change.html

PROCESSES OF CHANGE—The strategies for moving an individual from one *stage of change* or starting point in awareness and willingness to the next stage closer to changing the behavior.

Cancer Prevention Research Center.
 Transtheoretical Model: Processes of Change. Accessed May 10, 2007.
<http://www.uri.edu/research/cprc/TTM/ProcessesOfChange.htm>

HIERARCHY OF EFFECTS MODEL considers the effects of communication and is based in the practice of advertising. The original hierarchy theory stated that knowledge change affects attitudes, which affects behaviors. The subsequent *Dissonance Attribution Hierarchy Theory* states that behavior change affects attitudes, which affects knowledge. The *Low-involvement Hierarchy Theory* suggests that knowledge change affects behavior, which affects attitudes. Together, these variables are referred to as KAB (Knowledge, Attitude, and Behavior) by many researchers. Each of these theories represents a linear model of change. Recently researchers have suggested that these hierarchies are not three separate theories but instead are one continuum. Different hierarchies involving the above KAB variables are a product of different levels of involvement and the range of choices available.

Chaffee, S., and C. Roser. 1986. Involvement and consistency of knowledge, attitudes and behaviors. *Communication Research* 13(3):373–400.

THE THEORY OF REASONED ACTION is based on the assumption that humans are rational and make rational choices based on systematic analysis of information. This theory describes the role of intentions, attitudes, and beliefs in the creation of behaviors. Intention is the best indicator for the occurrence of an action or behavior, and attitudes and beliefs determine intention. Attitude is a person's positive or negative feelings about a behavior. Beliefs fall under two categories: the beliefs about the outcomes associated with a behavior (*behavioral beliefs*), and beliefs about what other people think about the behavior and their desire to conform to other people's opinions (*normative beliefs*). This theory pertains only to behaviors in which individuals have full volitional control.

Ajzen, Icek, and Martin Fishbein. 1980. *Understanding Attitudes and Predicting Social Behaviors*. Prentice-Hall, Inc.: Englewood Cliffs, NJ. ISBN 0-1393-6443-9

THE THEORY OF PLANNED BEHAVIOR builds on the Theory of Reasoned Action. Both theories assume that a behavior change follows a shift in intention. The Theory of Planned Behavior deviates from its predecessor in that it includes a person's perception about how difficult it would be to perform a behavior. This is called a *control belief* and reflects the obstacles people have encountered in the past regarding behaviors. Unlike the *Theory of Reasoned Action*, this theory embraces non-volitional behaviors.

Albarracin, Dolores, Blair T. Johnson, Martin Fishbein, and Paige A. Muellerleile. 2001. Theories of reasoned action and planned behavior as models of condom use: A meta-analysis. *Psychological Bulletin* 127(1):142–161.

THE THEORY OF NORMATIVE SOCIAL BEHAVIOR states that norms influence social behavior and if the norms change, behaviors may change. Two types of social norms are *descriptive norms* (beliefs about the prevalence of a behavior) and *injunctive norms* (belief about what influential others [for example, a parent or boss] expect regarding a behavior). These two types of norms are a further division of *normative beliefs*, as described in the Theory of Reasoned Action. The Theory of Normative Social Behavior identifies *injunctive norms*, group identity, and expected outcomes as the three factors that influence the impact of *descriptive norms* and the intention to perform a behavior.

Rimal, Rajiv N., and Kevin Real. 2005. How behaviors are influenced by perceived norms. *Communication Research* 32(3):389–414.

THE TRANSTHEORETICAL MODEL, which includes *stages of change* and *processes of change*, is based on the recognition that different individuals and/or audiences are at different stages relating to making a change in behavior in relation to any issue. The progression through these stages can occur multiple times, at varying rates. Thus, this model of change is cyclical instead of linear. This theory highlights the

need to understand and address audiences at their present stage of awareness and engagement in order for lasting behavior change to occur.

Prochaska, J., and C. Climente. 1983. Stages and processes of self-change of smoking: Towards an integrated model of change. *Journal of Consulting and Clinical Psychology* 51:390–395.

THE SOCIAL AMPLIFICATION OF RISK FRAMEWORK (SARF) was developed in the United States in the 1980s. It describes the processes by which some potential hazards and events spark social and political interest (amplification), despite evidence that they are unlikely to occur, while other potentially more significant events receive relatively scant public attention (attenuation). The public's perception of risk associated with an issue relates to the Spiral of Silence Theory and the Media Systems Dependency Theory. Together, these theories and framework explore the relationship between knowledge and perception, and behavior change for the collective public.

Nick Pidgeon, Roger E. Kasperson, and Paul Slovic, eds. 2003. *The Social Amplification of Risk*. Cambridge University Press. ISBN 0-5215-2044-4

SOCIAL COGNITIVE THEORY is derived from Social Learning Theory, which explores the interaction of negative and positive reinforcement (punishments and rewards), as well as observation, on people's learning. Social Cognitive Theory examines the continuous interaction between behaviors, personal beliefs and cognitions, and physical and social environments, all of which influence the ability and likelihood of changing behaviors. This model highlights the role of social modeling and mass media in shaping behaviors. This theory also considers the role of self-efficacy, or the perceived ability to perform a behavior, as a factor influencing behavior choices and changes.

Bandura, Albert. 1986. *Social Foundations of Thought and Action: A Social Cognitive Theory*. Prentice-Hall Inc.: Englewood Cliffs, NJ. ISBN 0-1381-5614-X

SPIRAL OF SILENCE THEORY offers insight on the way public opinions are shaped. One premise of this theory is that every individual wants to be part of a social collective and fears isolation. This need for inclusion creates incentives for people to accurately assess the collective public opinion. This theory posits that people do not voice their opinion if they believe that their opinion differs from the social norm. This creates a dynamic spiral where any public opinion gains dominance the more dominant it is perceived to be.

Noelle-Neumann, E. 1974. The spiral of silence: A theory of public opinion. *Journal of Communication* 24:43–51.

AGENDA-SETTING THEORY explores the role the news media plays in shaping public opinion of what issues are important. This theory has also been used to analyze the role of media in political and corporate agenda setting. This theory states that the media influences the public's opinion and prioritization of issues by giving more media attention and time to particular issues.

Miller, Katherine. 2002. *Communication Theories: Perspectives, Processes and Contexts*. McGraw Hill Companies: Boston, MA. ISBN 0-7674-0500-5

MEDIA SYSTEMS DEPENDENCY THEORY, otherwise known simply as Dependency Theory, views media, audience, and society as interdependent in how they affect individual behaviors. Audiences rely on media for certain information needs. Both the audiences' perceived information needs and the ability of media to provide information are influenced by general social stability and norms. This theory states that media plays an increasingly

important role in information transfer in a world where social networks are weakening.

Ball-Rokeach, S. J., and M. L. DeFleur. 1976. A dependency model of mass-media effects. *Communication Research* 3:3–21.

THE SELF-DETERMINATION THEORY views motivation to change behaviors along a continuum from being controlled by others (external motivation) to being able to self-determine (internal motivation). This theory is supported by research that states that internal motivation leads not only to more enjoyment of a behavior change but also more persistence to maintain a new behavior. Requested behavior can be encouraged in three ways. First is by acknowledging and validating the current perspective of the requestee ("I understand that this change may be difficult"). Second, the requestee should be given as much choice as possible in the request for behavior change ("You could try this new behavior three hours a day each week or one whole week a month"). Third, the requestee should be informed of the meaning behind any request, especially when choices are limited.

Osbaldiston, Richard, and Kennon M. Sheldon. 2002. "Social Dilemmas and Sustainability: Promoting Peoples' Motivation to 'Cooperate with the Future.'" *Psychology of Sustainable Development*. Ed. Peter Schmuck and Wesley P. Schultz. Kluwer. Academic Publishers: Boston, MA. 37–57. ISBN 1-4020-7012-8

MASLOW'S HIERARCHY OF NEEDS states that humans must first meet basic physiological and safety needs before addressing "higher" needs such as social, esteem, or aesthetic. In relation to behavior change, Maslow's hierarchy of needs provides some reference to understand the barriers to change for any behavior.

Maslow, A. H. 1943. A theory of human motivation. *Psychological Review* 50:370–396.

COMMUNITY-BASED SOCIAL MARKETING (CBSM)

is a model for creating behavior changes founded in the disciplines of psychology and social psychology. The four steps of CBSM are:

1. Identifying barriers by reviewing local articles and literature, holding focus groups to learn about attitudes and behavior, and/or conducting phone surveys
2. Constructing a pilot program to overcome identified barriers using information, personal assistance, and/or demonstration as is necessary
3. Implementing the resulting program across the community, while including local media and advertising
4. Evaluating the success of the program by involving all important parties and including a feedback mechanism to reinforce behavior changes.

The referenced article highlights one example, the “Go Boulder” campaign to reduce traffic congestion and air pollution by shifting from single-occupancy vehicles to alternative transportation.

Community-Based Social Marketing: Strategies for Encouraging Sustainable Behavior. Accessed March 1, 2007.
<http://www.humboldt.edu/~ccat/appropriatetechnology/ZachSP2005/index.html>

Applications

Health Applications

Albarracin, Dolores, Blair T. Johnson, Martin Fishbein, and Paige A. Muellerleile. 2001. Theories of reasoned action and planned behavior as models of condom use: A meta-analysis. *Psychological Bulletin*. 127(1):142–161.

This paper examines how accurately the Theory of Reasoned Action and the Theory of Planned Behavior predicted condom use through a synthesis of relevant data sets. The data revealed that attitudes and subjective norms were good indicators of intention, and that intention correlated to the behavior of using condoms.

California Project LEAN. Community-Based Social Marketing: The California Project LEAN Experience. Accessed May 10, 2007.
http://www.californiaprojectlean.org/views/Learn_About_California_Project_LEAN.asp

The goal of Project LEAN (Leaders Encouraging Activity and Nutrition) was to “improve healthy eating behaviors among low-income Californians.” To do this, Project LEAN used a community-based social marketing (CBSM) approach to influence the eating behaviors of their targeted audience. Team leaders first conducted formative consumer research to guide the campaign development. This led to a community-based marketing framework. The project leaders then developed a campaign strategy, evaluated their success using established behavioral objectives, and, based on the evaluation, brainstormed ways to improve their future success rate.

Fishbein, Martin, Harry C. Triandis, Frederick H. Kanfer, Marshall Becker, Susan E. Middlestadt, and Anita Eichler. 2001. “Factors Influencing Behavior and Behavior Change.” *Handbook of Health Psychology*. Lawrence Erlbaum Associates: Mahwah, NJ. 3–17. ISBN 978-0-8058-1495-8

This paper is an overview from a conference on behavior change and the AIDS epidemic. The authors provide an overview of three popular theories of behavior change—the Health Belief Model, the Social Cognitive Theory, and the Theory of Reasoned Action—and summarize main points based on areas of consensus among these theories. These theories agree that behavior change will occur only if there is some internal or external stimulus that disrupts the existing behavior. These theories also all emphasize the importance of assessing the entry point of any audience to best determine the most effective variable to target in order to elicit behavior change.

Fishbein, Martin, and Marco C. Yzer. 2003. Using theory to design effective health behavior interventions. *Communication Theory* 13(2):164–183.

In this article, various theories relating to behavior change and health issues are integrated into a summative theory which emphasizes that intention to change behavior depends on (1) attitudes toward performing the behavior, (2) perceived *social norms* associated with the behavior, and (3) levels of *self-efficacy*. The article points out that different strategies are necessary to facilitate behavior change depending on the strength of each of the above factors. Identifying beliefs held by the intended audience and selecting a target belief to be addressed in an education campaign can be a strategic move that strengthens the effectiveness of a campaign intended to change behaviors.

Rapaport, Penny, and Sheina Orbell. 2000. Augmenting the theory of planned behavior: Motivation to provide practical assistance and emotional support to parents. *Psychology and Health* 15:309–324.

The Theory of Reasoned Action and the Theory of Planned Behavior are used to examine the

motivations of caregivers of elderly parents. The researchers collected data by administering a questionnaire to young adults to gather data on attitudes, subjective norms, *control beliefs*, anticipated regret, and the self-concept of the participating person. These questions were directed toward the intention to care for aging parents both emotionally and physically. The resulting data supported the Theory of Planned Behavior, which states that intention is the best indicator of behavior. Anticipated regret also corresponded to the likelihood of providing care, indicating that motivations are directed by emotional as well as rational processes.

Prochaska, James O., Carlo DiClemente, and John C. Norcross. 1992. In search of how people change: Applications to addictive behaviors. *American Psychologist* 47(9):1102–1114.

This article summarizes multiple studies on facilitated and self-initiated behavior change in relation to addictive behaviors, including alcoholism, obesity, and smoking. The authors reference the Transtheoretical Model of behavior change and the associated *stages of change* and *processes of change*. The research question asks whether there are common principles involved in successful behavior change both for people helped through psychotherapy and those who change on their own initiative. This article outlines each stage of change using examples from research. The authors introduce the concept of a spiral pattern of change based on the observation that many people relapse into old behaviors and cycle through the stages of change several times before adopting a new behavior for the long term. The studies show that similar processes of change accompany both successful self-initiated changes and successful psychotherapy-mediated changes. The authors summarize their findings by stating that “the underlying structure of change is neither technique-oriented nor problem specific.”

Their research supports the Transtheoretical Model of behavior change, which incorporates a cyclical or spiral pattern of change, a common set of processes that aid in successful behavior change, and the need to assess a client's stage of change to appropriately match the process of intervention.

Social Applications

ABC News/Times/Stanford Poll: Global Warming. 2006. Intensity spikes in concern on warming; may see a change in weather patterns. http://www.wilsoncenter.org/topics/pubs/CI_OccPaper_ClimateChange.pdf

This analysis of a public poll highlights three main variables that contribute to individual opinions about the seriousness of global warming: (1) level of perceived scientific consensus, (2) personal experience with changing weather patterns, and (3) increased familiarity with the overall issue. These factors indicate the existence of *control beliefs* that might be a barrier to change in behaviors. This contributes to the discussion of behavior change because various behavior-change theories point out that personal beliefs about an issue affect the likelihood of adopting a new behavior.

Ballantyne, Roy, and Jan Packer. 2005. Promoting environmentally sustainable attitudes and behavior through free-choice learning experiences: What is the state of the game? *Environmental Education Research* 11(3):281–195.

This article connects *free-choice learning* to the Theory of Planned Behavior. This paper provides a helpful overview of the theory involved and uses examples from the field of informal environmental education to identify factors that contribute to the success of environmental education settings and objectives. The paper also highlights areas where more research would be helpful to more fully describe the

interaction between environmental education and behavior change. The author concludes that engaging the emotions of the learner, challenging the learner's beliefs, and addressing the learner's current conceptions are the factors that contribute to environmental education that successfully encourages behavior change. Areas that would benefit from more research include the long-term impacts and barriers to change in the field of environmental education.

Dierking, L. D., L. M. Adelman, J. Ogden, K. Lehnhardt, L. Miller, and J. D. Mellen. 2004. Using a behavior change model to document the impact of visits to Disney's Animal Kingdom: A study investigating intended conservation action. *Curator* 47(3):322–343.

This study took place at Disney's Animal Kingdom in the Conservation Station, a featured activity area designed to promote conservation behaviors. Zoos and aquariums fall into the category of *free-choice learning* settings, and this study explored the application of the Transtheoretical Model, which uses a cyclical or continuum model of behavior change. The study asked whether "a behavior change model could be used to document the short- and long-term impact of visits to a place like Conservation Station on intended behaviors." Pre- and post-visit interviews were conducted to establish the current and subsequent *stages of change* for visitors to Conservation Station. Follow-up phone calls were made two to three months after the visit, to discover "long-term" effects of the visit on behavior. The authors point out the study limitations, including the focus on intended behaviors, which can differ from actual behaviors due to the tendency to answer in the way a respondent thinks is socially desirable. The study found that the majority of those interviewed were in the *Preparation stage*, followed by the *Contemplation stage*. The study reported

a short-term increase in interest and intention of future involvement in conservation activities for those in *Contemplation*, but less impact for those in the *Preparation stage*. There was no significant impact on visitors' intentions to be involved in conservation activities over the long term. The authors report that one strength of using the Transtheoretical Model includes the recognition that visitors vary in the level of conservation involvement and interest as incoming visitors, and this variability can be expected to influence the outcomes associated with their visit. A weakness of using this model to test conservation intentions lies in the fact that this behavior-change model was designed for health studies that involve more discrete and definable changes in behavior. The authors conclude that involvement in a *free-choice learning* opportunity such as Conservation Station is just one of many motivators necessary to form a commitment to perform conservation behaviors over a lifetime. The study did reveal that different messaging may be more effective, based on the revealed stage of change for most incoming visitors.

Hazards Forum. 2001. *Social Amplification of Risk*. Minutes of a meeting of the U.K. Hazards Forum, May 15, 2001. <http://www.hazardsforum.co.uk/SAR%20Report.htm>

The Social Amplification of Risk Framework explores the idea that lay publics are not passive recipients of expert risk knowledge but draw upon multiple information sources and understanding to rationalize risk. New concepts have been developed by researchers to enable them to refine understanding of risk-amplification processes, identifying that there are critical points when the orientation, tempo, or strength of the social image of a hazard changes significantly.

Environmental Education and Communication (GreenCOM) Project. 2001. Environmental Education and Communication (EE&C) for Behavior Change: Its Role in Forest, Water and Biodiversity Resource Management for Sustained Economic Growth in Bolivia. Prepared for USAID/Bolivia.

USAID/Bolivia, a facet of United States Agency for International Development, contracted with GreenCOM to create an assessment of Environmental Education and Communication (EE&C) needs and recommendations to improve collaborations within the USAID organization and among partners. To do this, GreenCOM reviewed USAID-related projects and conducted interviews with USAID partners and product recipients. To accomplish specific USAID objectives, GreenCOM employed education and behavior-change frameworks from the disciplines of social marketing, environmental communication, environmental education, and public participation. As described here, EE&C reflects the interplay between policy, behavior, and technology and alternative livelihoods. EE&C strategies recognize that behavior change does not occur as a direct result of increased education or knowledge. The programs that employ EE&C use research to assess a targeted audience in order to effectively address the factors that influence people's actions or lack of actions. EE&C also advocates a two-way process of education that includes initial assessments, design followed by pre-testing and refining of the design, and implementation and continual monitoring of progress. The feedback system also includes opportunities for public input. EE&C uses a diversity of media avenues with a set of core concepts to reach audiences over an extended time period, while also emphasizing the benefits of the desired behavior change through both rational and emotional appeals. This paper describes the finding of the EE&C

assessment and the recommendations made to use EE&C strategies to encourage lasting behavior change in Bolivia regarding natural resources, as well as to improve the relationships and effectiveness within USAID and partnering agencies.

Krosnick, Jon A., Allyson L. Holbrook, Laura Lowe, and Penny S. Visser. 2006. The origins and consequences of democratic citizens' policy agendas: A study of popular concerns about global warming. *Climate Change* 77:7–43.

This article uses a model to explain the “causes and consequences” of national opinions about the seriousness of global warming. This article uses the ACE model of national seriousness judgments, which examines Attitudes and Certainty about the issue, and Evaluation of beliefs in relation to judgments about global warming. Researchers used surveys to collect data and found that attitudes about global warming are based on personal experience, information, and level of *self-efficacy*. Evaluations of beliefs include opinions about human or personal responsibility for global warming. This article also addresses the role of *media agenda-setting* and its influence on national opinion, and resulting opportunities for behavior change. This article is valuable in this context because it highlights an environmental issue of concern and addresses the factors that influence people's perceptions of this issue. Understanding the underlying perceptions and their origins is essential in identifying an audience's entry point and the corresponding message to increase the likelihood of behavior change.

Maiteny, Paul T. 2002. Mind in the gap: Summary of research exploring ‘inner’ influences on pro-sustainability learning and behavior. *Environmental Education Research*. 8(3):299–306.

This article reveals findings from a series of discussion groups focused on the topic of expe-

riences that have led people to change their behaviors to be more pro-environment and how these experiences relate to the participants' overall belief systems. The findings indicate that long-lasting behavior change is more likely if an individual has an emotional experience relating to a change in behavior. This includes invoking reflection about responsibility, meaningfulness, and well-being related to the resource or targeted behavior change. Coercive tactics, such as incentives, regulations, or even emotional anxiety, were reported as less effective at creating lasting pro-environmental change. This article addresses the emotional response of many people to environmental issues and the accompanying emotional and situational barriers that prevent change.

Pollock, Anne, Julia Coffman, and M. Elena Lopez. 2002. Using behavior change theory to communicate effectively: The case of Latino parent involvement. *The Evaluation Exchange* 8(3)2–3. <http://www.gse.harvard.edu/hfrp/eval/issue20/theory.html>

This article condenses many current theories on behavior change into eight factors that affect behaviors. These eight factors provide a framework to evaluate the possible barriers to behavior change for any audience. In this article, Latino parents are the targeted audience, and the behavior-change goal is to increase the involvement of these parents in their children's schooling, thus increasing the likelihood of the children's academic success. The eight factors that influence behavior are defined, and an example of effective messaging to address and potentially change behavior for each factor is provided. The eight factors known to influence behavior are:

1. *Intention*—commitment to perform the behavior
2. *Environmental constraints*—restrictions to performing the behavior

3. *Skills*—abilities to perform the behavior
4. *Attitudes*—beliefs about performing the behavior
5. *Social norms*—perceived social pressure to perform the behavior
6. *Self-standards*—whether performing the behavior is consistent with self-image
7. *Emotion*—emotional reaction to performing the behavior
8. *Self-efficacy*—belief in one's personal capabilities of performing the behavior or making a difference through a change in behavior

Weilbacher, William M. 2001. Point of view: Does advertising cause a “hierarchy of effects?” *Journal of Advertising Research* 41(6):19–26.

This article examines the Hierarchy of Effects Model from the field of advertising and marketing communication in light of three questions: (1) “why the hierarchy of effects models do not provide an accurate description of the effects of advertising,” (2) “why these hierarchy of advertising effects models are not an accurate conceptualization of how marketing works. . . .” and (3) “why. . . the Hierarchy of Effects Model is unable to measure the effects of advertising.” This critique of the historic hierarchy model highlights the complexities of human cognition and motivation and supports the need for more complex models of behavior change. Because the goal of marketing is to influence consumer behavior, this article also addresses the shortcomings of behavior-change models that rely solely on increased knowledge to create a change in behavior.

See also: Barry, Thomas E. 2002. In defense of the hierarchy of effects: A rejoinder to Weilbacher. *Journal of Advertising Research* 42(3):44–49.

Weiler, Betty, and Sam Weiler. 2005. Experimental Evaluation of Persuasive Communication Strategies Aimed at Influencing Problem Visitor Behavior at Port Campbell National Park. Final Report to Parks Victoria.

This report was created in order to develop and assess the effectiveness of different communication strategies aimed at reducing visitor foot traffic off the designated pathways at Port Campbell National Park. This study refers to both the Theory of Reasoned Action and the Theory of Planned Behavior. A questionnaire was administered to visitors to measure the effects of five different experimental messaging treatments. These messages were created based on communication theory; two messages used personal stories to engage emotions, two messages attempted to activate a personal norm for visitors, and the fifth message used the standard “stay on the path” signage and was not based in theory. The questionnaire was designed to interpret visitors’ beliefs about the impact of the behavior on the desired result (stay off the paths in order to protect groundcover) and the respondents’ positive or negative feelings about the importance of the desired result. The study results indicated that the personal story was the most effective treatment at producing the desired behavior. The use of a personal norm also increased the effectiveness of creating the desired behavior, although the authors postulated that other factors, such as the length of the norm sign (message) may have influenced the results. Overall, this study highlights the usefulness of incorporating communication theory into communication strategies to produce desired behaviors.

Synthesis and Overview Resources

Journal Titles

These journals are among those which regularly address behavior change theory or practice.

- *Communication Research*
- *Journal of Extension*
- *Journal of Communication*
- *Journal of Environmental Education*
- *Environmental Education Research*
- *Journal of Advertising Research*
- *Risk Analysis*

Publications

National Communication Association. 2001. *Communication: Ubiquitous, complex, consequential*. Accessed September 10, 2007. <http://www.natcom.org/research/monograph.htm>

This document is a collaborative effort of many communication researchers to provide an overview of communication research in light of four challenges facing the world in the 21st century. These challenges are:

1. To maintain and enhance a vigorous, self-renewing democracy
2. To promote the health and well-being of all
3. To help our organizations and institutions change in ways that enable our society to prosper in the emerging global economy
4. To enable people to live happy, meaningful lives and have fulfilling relationships

Ogden, Jane. 2003. Some problems with social cognition models: A pragmatic and conceptual analysis. *Health Psychology* 22(4):424–428.

This article reviews several articles related to health and safety communication in order to address the accuracy and practicality of four behavior change theories: the Theory of Planned Behavior, the Theory of Reasoned Action, the Health Belief Model, and the Protection Motivation Theory. This article is

important because it points out the difficulties of placing the complexities of human cognition and factors that influence our behaviors into any single theory box. “A good theory should generate synthetic rather than analytical truths to avoid being tautological.” This article concludes that theories are useful as tools to develop strategies to create behavior change.

Osbaldiston, Richard. 2004. *Meta-Analysis of the Responsible Environmental Behavior Literature: A Dissertation Presented to the Faculty of the Graduate School, University of Missouri-Columbia*.

This Ph.D. dissertation provides a summary and evaluation of 62 studies from the past 20 years pertaining to responsible environmental behaviors (REB), such as recycling and energy conservation. This meta-analysis looks at various behavior-change theories, including the Self-Determination Theory, and evaluates their effectiveness at promoting REB. It also identifies behaviors that are most amenable to change and highlights gaps in current research and areas for future research.

Nick Pidgeon, Roger E. Kasperson, and Paul Slovic, eds. 2003. *The Social Amplification of Risk*. Cambridge University Press. ISBN 0-5215-2044-4

This volume brings together contributions from a group of international experts in risk perception and risk communication. Key conceptual issues are discussed as well as a range of recent case studies in AIDS/HIV, nuclear power, and other topics. The volume also draws attention to issues in public policy, risk management, and risk communication practice.

Rollnick, Stephan, Pip Mason, and Christopher Butler. 1999. *Health Behavior Change: A Guide for Practitioners*. Churchill Livingstone: Edinburgh, Scotland. ISBN 0-4430-5850-4

This guide for health practitioners provides simple strategies for developing communication pathways for clients whose health would benefit from a change in behavior. This resource emphasizes the interpersonal communication and relationship skills needed to successfully encourage difficult changes in behavior. Several theories are referenced, including the Stages of Change Model, the Social Cognitive Theory, and the role of self-efficacy.

Stern, Paul. C. 2005. Understanding individuals' environmentally significant behaviors. *ELR, News and Analysis* 35:10785–10789.

This article examines individuals' "environmentally significant behaviors" and explores the factors that affect these behaviors. The authors note that contextual influences such as laws and regulations affect individual behavior. Personal factors such as *normative beliefs* play a greater role in influencing behaviors when contextual factors such as laws are weak. This is because relatively few individuals are in a position to change behaviors based on information alone, due to various constraints. However, this article does highlight the significant impact of changing social norms to support behavior change.

Web Sites

Behavior Change Theories and Models. Accessed April 30, 2007. http://www.csupomona.edu/~jvgrizzell/best_practices/bctheory.html

This Web site provides an overview of social science theory relating to behavior change. It includes the basics of learning theory, the Health Belief Model, the Transtheoretical Model, the Relapse Prevention Model, the Theories of Planned Behavior and Reasoned Action, Social Learning/Social Cognitive Theory, and more.

Hershfield, Larry, Shawn Chirrey, and Jodi Thesenvitiz. 2000. Changing behaviors: A practical framework. *The Health Communication Unit*. Accessed September 10, 2007. <http://www.thcu.ca>

This behavior-change framework is designed for health practitioners. It provides a good overview of the variables involved in behavior change. This Web site states that one or more of the following must be true for a person to perform a given behavior:

1. Strong positive intention to perform behavior
2. No environmental constraints
3. Has skills necessary to perform the behavior
4. Believes advantages outweigh costs
5. Perceives social pressure to perform behavior
6. Behavior is consistent with self-image
7. Positive emotional reaction
8. Self-efficacy and confidence in ability to perform behavior

Goodman, Andy. Four Connecting Points: How I work with clients. Accessed June 3, 2007. <http://www.agoodmanonline.com/workshop/communicate.htm>

This Web site provides several case studies and applied examples for creating desired behaviors using communication and social marketing techniques. There are several examples of environmental campaigns where the desired outcome is behavior change. As an overview, Andy Goodman uses the following technique to design effective client campaigns:

1. Identify target audience
2. Identify desired response
3. Identify audience motivations and barriers
4. Plan social marketing program

Observations

Much recent research shows that behavior change is one step along a multi-directional and spiraling continuum. This continuum is comprised of knowledge acquisition, emotional engagement, the creation and ongoing modification of personal beliefs, and many other factors. In order to create lasting behavioral changes, people need education and opportunities to learn and grow from many sources and at many times in their lives. The factors that lead to true behavior change are “a complex function of interest, knowledge, experience, concern and commitment developed over a lifetime” (Dierking et al, 2004). The emerging cyclical and continuous framework of learning and behavior change encourages educators and communication practitioners to assess an audience’s current state of awareness and incoming beliefs in order to design an effective message custom-made for that audience. Audience assessment is important throughout the behavior-change process in order for changes to become ingrained and lasting. Continual communication between audience and educator facilitates successful behavior change.



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