PURDUE EXTENSION | Health and Human Sciences

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Models and Theories to Support Health Behavior Intervention and Program Planning

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Developing health promotion programs that support healthy lifestyle behaviors requires comprehensive planning. Program planners can use models and theories to guide this process as they work with individuals, groups, and communities. Individuals and communities have multiple risky lifestyle behaviors including physical inactivity, unhealthy diets, smoking, and stress. Also, there are often many factors that can affect an individual's or community's ability to effectively change behaviors, including low income, lack of access to safe places to exercise, inaccessibility of healthy food, and cultural and ethnic differences.

These factors can make determining how to best design a program seem like an overwhelming task. To be effective, programs must not only address the behavior, but also the factors that surround it. Models and theories can provide a framework for program planners to build upon as they develop health promotion programming.

This publication discusses three models or theories related to health behavior change that can help planners design effective health promotion programs: socioecological, transtheoretical, and health belief. Before describing these models, it is useful to first understand some basic terms, including theory, model, concept, and construct.

Basic Concepts

Merriam-Webster defines a theory as "an idea or set of ideas that is intended to explain facts or events." Models refer to a more descriptive process. In other words, a model may describe how a process occurs but not necessarily why it occurs in that way.

Theories and models both include concepts and constructs. Concepts are the primary components of a model or theory. Constructs are components that have been created for use in a specific model or theory. These terms are important to understand when discussing models and theories (Glanz, Rimer, & Lewis, 2002).

Health behavior models and theories help to explain why individuals and communities behave the way they do. Planners can use these models and theories to increase the effectiveness of their program design, implementation, and evaluation. It's useful to remember that different models may be appropriate in different situations. There is no one-size-fits-all approach; each individual or community requires programming that is tailored specifically to their needs.

Tailoring that programming may require planners to consider multiple models or theories when they develop programs and interventions to support lifestyle behavior changes. A mix of approaches helps to provide the best support and guidance to individuals, groups and communities as they work to develop healthy lifestyle behaviors (Glanz, Rimer, & Lewis, 2002).

Socioecological Model

The first model, the socioecological model, addresses behavior change at multiple levels and considers the inter-relationship between behavior and the environment. The model accounts for multiple factors that can influence the behavior change process.

The model identifies five levels of influence on health behavior and discusses the reciprocal relationship between them (Stokols, 1996; McLeroy, Bibeau, Steckler, & Glanz, 1988):

1. **Intrapersonal factors** — these include individual characteristics such as knowledge, beliefs, and self-concept. Most health promotion programming is aimed at this level.
2. **Interpersonal processes and primary groups** — these include the individual's social environment such as family, friends, peers, and co-workers that surround the individual and influence behavior. In turn, an individual's behavior also influences family, friends, and peers (National Cancer Institute [NCI], 2005).
3. **Institutional or organizational factors** — these refer to workplaces, churches, and other organized social institutions. These institutions have formal or informal policies and structures.
4. **Community factors** — these describe the relationships among organizations and institutions. This includes community norms.
5. **Public policies** — these refer to policies or regulations concerning healthy practices.

In the socioecological model, an individual's behavior influences and is influenced by factors in the other levels (Glanz, Rimer, & Lewis, 2002). Using this model allows a program planner to consider factors from multiple levels that can impact health.

For example, to develop programming for adult obesity, a planner must first understand the policies, structures, behaviors, and norms that support obesity in the community. Communities that do not have access to healthy food or low-cost exercise options will have difficulty supporting an individual who attempts to become healthier. While individual lifestyle factors are important to consider, this model encourages the planner to identify interventions to influence factors where individuals live, work, and play. See Figure 1.

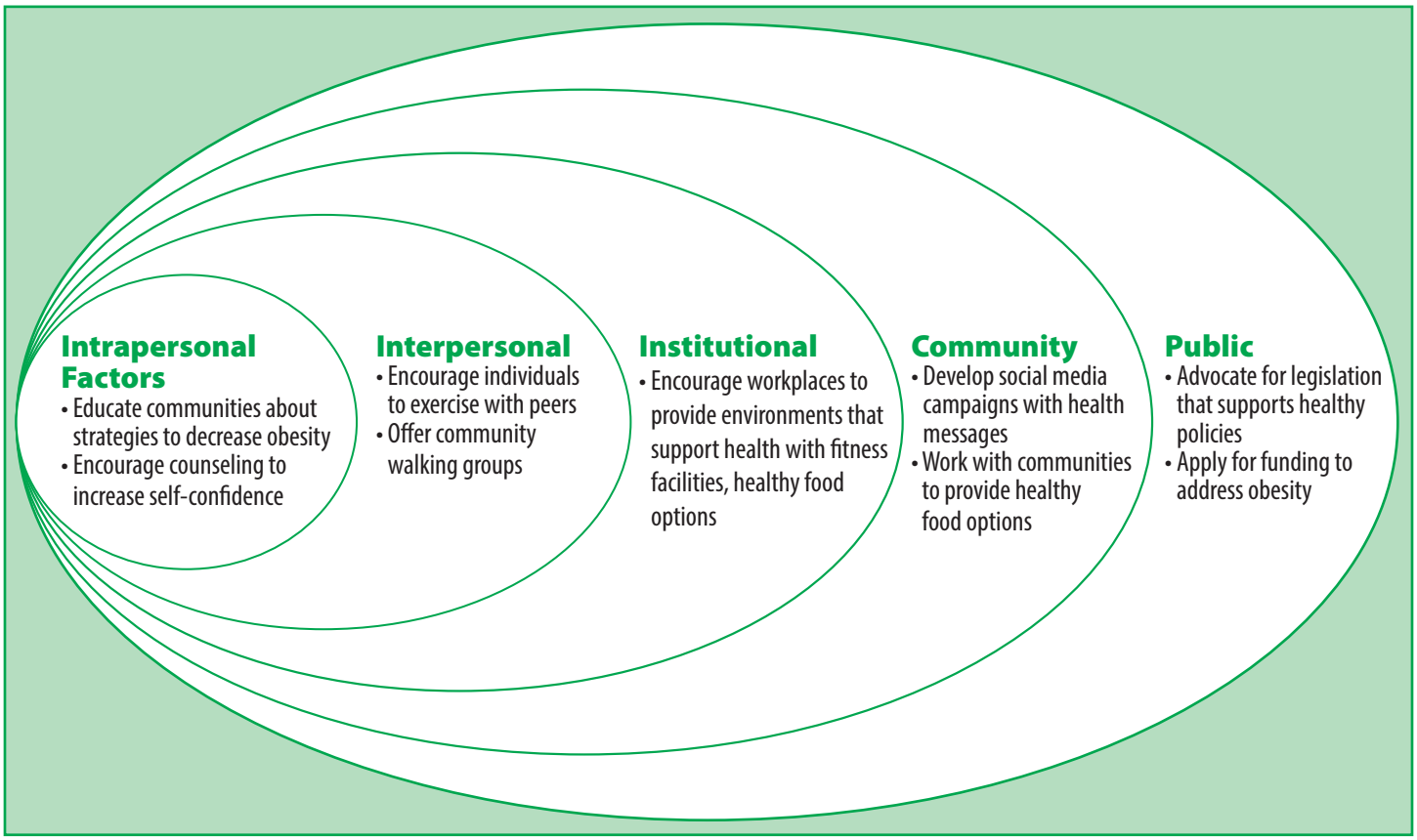

Figure 1. A socioecological approach to obesity. This figure shows interventions that program planners can take at each level of the socioecological model to implement a health program that targets obesity.

Transtheoretical Model (Stages of Change)

The transtheoretical model describes the process of behavior change and accounts for an individual's readiness to make and sustain behavior changes. This model is useful because it helps planners design programs based on an individual's readiness, motivation, and ability.

The model includes five stages (Glanz, Rimer, & Lewis, 2002; NCI, 2005):

1. **Precontemplation** — in this stage, the individual has no intention to change behavior within the next six months. The individual may lack knowledge or may have been unsuccessful with previous attempts at a change.
2. **Contemplation** — in this stage, an individual is considering a behavior change within the next six months. Ambivalence, however, may keep the individual from progressing to the next stage.
3. **Preparation** — in this stage, the individual takes some steps toward making a change and doing so within the next 30 days.
4. **Action** — an individual reaches this stage once he or she has made an apparent behavior change for six months or less.
5. **Maintenance** — if the individual's behavior change lasts for more than six months, he or she moves into the final stage, maintenance.

It is important to be aware that this process can be cyclical. Individuals may start at one stage and progress forward, or may go backward. The model includes several other important concepts that help describe factors or activities that occur as individuals attempt to make a behavior change. These include weighing the benefits and costs of making a change, evaluating the impact of the change, finding support for the change, and determining whether or not they can confidently make the change to a healthy behavior (Glanz, Rimer, & Lewis, 2002; NCI, 2005).

While there are some similarities to the socioecological model, this model focuses on helping the individual to move through the stages toward a sustained behavior change.

For example, if a program planner uses the transtheoretical model to address obesity, then the planner must determine the individual's current stage of change in relation to lifestyle behaviors that lead to obesity. In most cases, several behaviors contribute to obesity. Figure 2 shows interventions using this model to address physical inactivity as a contributor to obesity. These interventions are tailored specifically to each stage with the hope that the individual will respond by moving forward in the behavior change process described by this model.

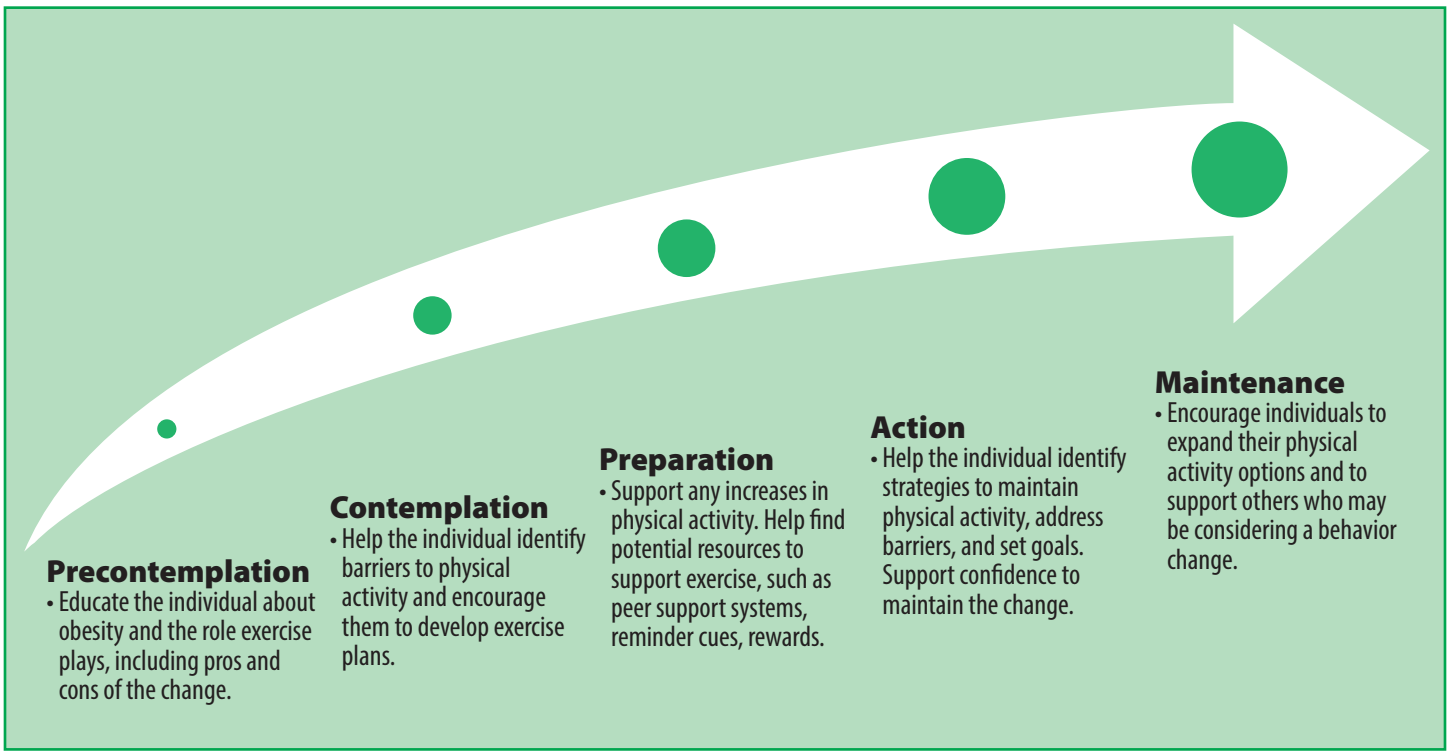

Figure 2. A transtheoretical model approach to physical inactivity. This figure shows interventions that program planners can implement at each stage to support an individual's behavior change related to physical activity.

Health Belief Model

The health belief model is one of the oldest models of health behavior, but is still very relevant when discussing health behavior change. This model addresses the readiness to act upon a health behavior based upon several individual beliefs. These beliefs include:

1. **Perceived susceptibility** — refers to beliefs concerning risk or susceptibility to a condition or disease.
2. **Perceived severity** — refers to beliefs concerning the possible severity of a disease or condition.
3. **Perceived benefits** — refers to the perceived value or benefit of behavior changes in reducing the risk of a condition or disease.
4. **Perceived barriers** — refers to any obstacles or barriers to the behavior changes being considered to decrease risk.

If individuals perceive they are susceptible to a condition (1) and that the condition could be severe (2), they will most likely take action to avoid the condition. The likelihood of action is enhanced if the perceived benefits (3) outweigh the perceived barriers (4).

The model also includes two other constructs: cues to action and self-efficacy. Cues to action are events that spur individuals toward action. For example an individual may see a television ad featuring a well-known actor discussing weight-loss strategies.

Self-efficacy refers to an individual's confidence that he or she can successfully carry out the indicated actions. If individuals do not believe they can successfully make a behavior change, they are unlikely to do so (Rimer, Glanz, & Lewis, 2002; NCI, 2005).

This model can be very useful in designing health promotion programming. For example, most individuals are very aware that obesity often leads to the development of diabetes. Figure 3 shows how planners can use the health belief model to develop interventions to address obesity to avoid diabetes. In this example, the interventions are aimed at educating individuals to increase their perceived susceptibility to and seriousness of diabetes as an outcome of obesity.

Education also helps individuals discover the benefits of decreasing their risk of diabetes by losing weight. Helping individuals to identify and eliminate barriers may help them see that the benefits outweigh the barriers, thus encouraging actions to avoid the development of diabetes by dealing with their obesity.

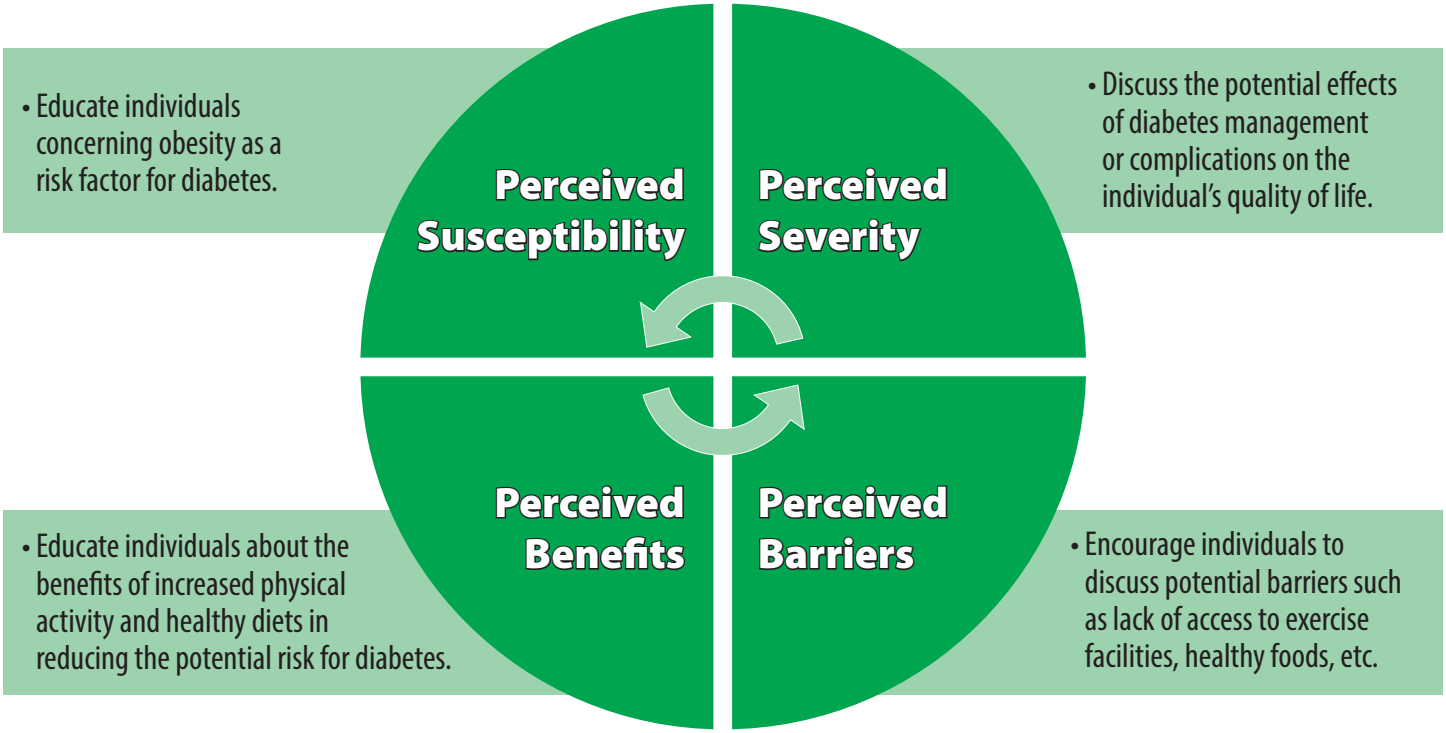

Figure 3. A health belief model approach to addressing obesity as a factor in diabetes. This figure shows interventions that program planners can use to help individuals change their behaviors to avoid the risk of diabetes.

Summary

Each model reflects different, yet related, dimensions of the behavior change process. Determining which model to use will depend upon the situation. In many cases, planners may find that using more than one model is appropriate or that only certain aspects of a model are useful.

Consider a program planner who is working with an obese individual whose family members seem to be able to eat whatever they want without developing diabetes. In such instances, the health belief model may be useful. In this example, the planner may need to enhance the interventions for perceived susceptibility.

If an educator is working with a group of low-income individuals who are dealing with obesity and work for the same employer, the socioecological model may be more useful. The planner may need to aim more effort to create and support healthy work environments and find resources that provide low-income individuals opportunities for exercise and healthy food options.

In both of these examples, the transtheoretical model may help an educator determine what interventions are appropriate to move both groups along the continuum toward behavior change.

Models and theories can help us understand behavior and plan health promotion programming. They also can remind us to consider and address the many variables and factors that affect the behavior change process at the individual, group, and community levels. The three models discussed in this publication are among the most commonly used. However, there are many more models and theories that explain. The availability of multiple models and theories allows the program planner to support design of effective health promotion programs.

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THEORIES OF BEHAVIOR CHANGE

Defining Theories of Behavior Change

Behavior change is often a goal for staff working directly with constituents, organizations, governments, or communities. Individuals charged with this task can be thought of as "interventionists" whose goal it is to design and implement programs or interventions that produce the desired behavioral changes[1] (Glanz, Lewis, & Rimers, 1990, p. 17). As Glanz, Lewis, and Rimmers[1] suggest, designing interventions to yield behavior is best done with an understanding of behavior change theories and an ability to use them in practice (1990, p. 19). The goal of this Gravitas, therefore, is to introduce three major theories of behavior change, describe the key variables of behavior change models, and to explore the link between behavior change and attitude.

The Key Elements of Behavior Change

Before exploring behavior change models in depth, it is important to understand the variables that are essential to the models. Below is a select list of the variables common to many behavior change models[2] as well ways to maximize on these variables when attempting to evoke a behavior change.

Key Element	Definition	Strategies for Behavior Change
Threat	A danger or a harmful event of which people may or may not be aware.	Raise awareness that the threat exists, focusing on severity and susceptibility.
Fear	Emotional arousal caused by perceiving a significant and personally relevant threat.	Fear can powerfully influence behavior and, if it is channeled in the appropriate way, can motivate people to seek information, but it can also cause people to deny they are at-risk.
Response Efficacy	Perception that a recommended response will prevent the threat from happening.	Provide evidence of examples that the recommended response will avert the threat.
Self-Efficacy	An individual's perception of or confidence in their ability to perform a recommended response.	Raise individuals' confidence that they can perform response and help ensure they can avert the threat.

(continued)

1 Glanz, K., Lewis, F. M., & Rimers, B. K. (Eds.). (1990). *Health Behavior and Health Education: Theory, Research, and Practice*. San Francisco, CA: Jossey-Bass.

2 Witte, K. (1997). Research review theory-based interventions and evaluations of outreach efforts [electronic version]. *Planning and Evaluating Information Outreach among Minority Communities: Model Development Based on Native Americans in the Pacific Northwest*. Retrieved January 29, 2006 from http://nnlm.gov/archive/pnr/eval/witte.html.

Key Element	Definition	Strategies for Behavior Change
Barriers	Something that would prevent an individuals from carrying out a recommended response.	Be aware of physical or cultural barriers that might exist, attempt to remove barriers.
Benefits	Positive consequences of performing recommended response.	Communicate the benefits of performing the recommended response.
Subjective Norms	What an individual thinks other people think they should do.	Understand with whom individuals are likely to comply.
Attitudes	An individual's evaluation or beliefs about a recommended response.	Measure existing attitudes before attempting to change them.
Intentions	An individual's plans to carry out the recommended response.	Determine if intentions are genuine or proxies for actual behavior.
Cues to Action	External or internal factors that help individuals make decisions about a response.	Provide communication that might trigger individuals to make decisions.
Reactance	When an individual reacts against a recommended response.	Ensure individuals do not feel they have been manipulated or are unable to avert the threat.

Major Theories of Behavior Change

1. Social Cognitive Theory[3,4]

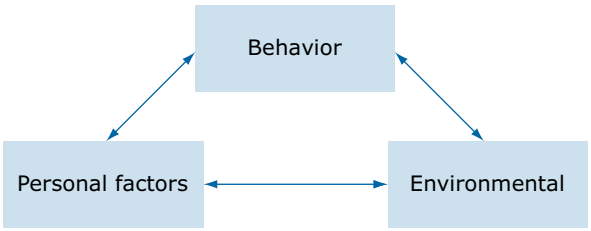

Figure 1. Social Cognitive Theory Model

Bandura's Social Cognitive Theory proposes that people are driven not by inner forces, but by external factors. This model suggests that human functioning can be explained by a triadic interaction of behavior, personal and environmental factors (see *figure 1).* This is often known as *reciprocal determinism*. Environmental factors represent situational influences and environment in which behavior is preformed while personal factors include instincts, drives, traits, and other individual motivational forces. Several constructs underlie the process of human learning and behavior change.[3] These variables may also intervene in the process of behavior change[4].

- *Self-efficacy* — A judgment of one's ability to perform the behavior.
- *Outcome Expectations* — A judgment of the likely consequences a behavior will produce. The importance of these expectations (i.e., *expectancies)* may also drive behavior.
- *Self-Control* — The ability of an individual to control their behaviors.
- *Reinforcements* — Something that increases or decreases the likelihood a behavior will continue.

3 Bandura, A. (1986). *Social Foundations of Thought and Action*. Englewood Cliffs, New Jersey: Prentice-Hall.

4 Perry, C. L., Barnowski, T., & Parcel, G. S. (1990). How individuals, environments, and health behavior interact: Social learning theory. In K. Glanz, F. M. Lewis & B. K. Rimer (Eds.), *Health Behavior and Health Educaiton: Theory Research and Practice*. San Francisco, CA: Jossey-Bass.

- *Emotional Coping* — The ability of an individual to cope with emotional stimuli.
- *Observational Learning* — The acquisition of behaviors by observing actions and outcomes of others' behavior.

How can this theory inform your practice?

- To increase levels of self-efficacy it may be important to provide resources and support to raise individual confidence. Others have suggested that to raise self-efficacy behavior change should be approached as a series of small steps.[4]
- Bandura[3] writes that even when individuals have a strong sense of efficacy they may not perform the behavior if they have no incentive. This seems to suggest that if we are interested in getting others to enact behavior change it may be important to provide incentives and rewards for the behaviors.
- Shaping the environment may encourage behavior change. This may include providing opportunities for behavioral change, assisting with those changes, and offering social support.[4] It is important to recognize environmental constraints that might deter behavior change.

2. Theory of Planned Behavior[5,6,7]

The theory of planned behavior (*figure 2)* suggests that behavior is dependent on one's *intention* to perform the behavior. Intention is determined by an individual's *attitude* (beliefs and values about the outcome of the behavior) and *subjective norms* (beliefs about what other people think the person should do or general social pressure). Behavior is also determined by an individual's *perceived behavioral control,* defined as an individual's perceptions of their ability or feelings of self-efficacy to perform behavior. This relationship is typically dependent on the type of relationship and the nature of the situation.

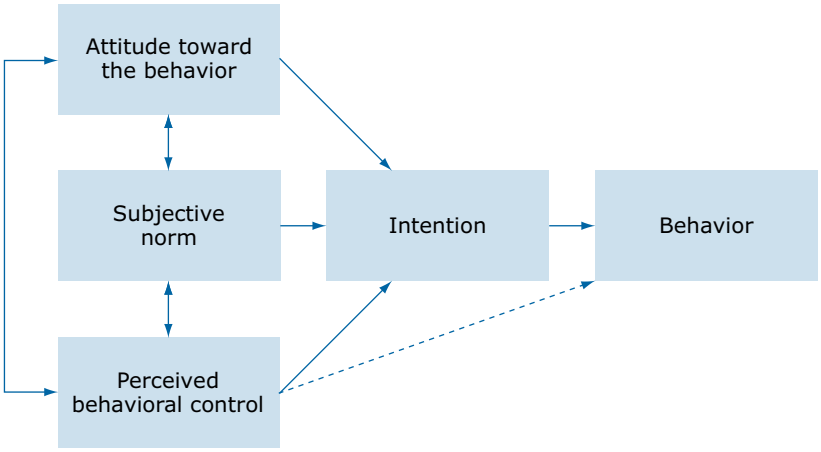

Figure 2. Model of Theory of Planned Behavior

How can this theory inform your practice?

- Intention has been shown to be the most important variable in predicting behavior change, suggesting that behaviors are often linked with one's personal motivation.[8] This suggests that it may be important to present information to help shape positive attitudes towards the behavior and stress subjective norms or opinions that support the behavior.
- For perceived behavioral control to influence behavior change, much like with self-efficacy, a person must perceive that they have the ability to perform the behavior. Therefore, as Grizzel[7] suggests, perceived control over opportunities, resources, and skills needed is an important part of the change process.

5 Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes, 50*, 179–211.

6 Armitage, C., & Conner, M. (2001). Efficacy of the theory of planned behaviour: A meta-analytic review. *British Journal of Social Psychology, 40*, 471–499.

7 Grizzell, J. (2007, 1/27/2007). Behavior Change Theories and Models. Retrieved January 28, 2007, from http://www.csupomona.edu/~jvgrizzell/best_practices/bctheory.html.

8 Godin, G., & Kok, G. (1995). The theory of planned behavior: A review of its applications to health-related behaviors. *American Journal of Health Promotion, 11*, 87–98.

3. Transtheoretical (Stages of Change) Model[9]

The transtheoretical model (figure 3) proposes change as a process of six stages. *Precontemplation* is the stage in which people are not intending to make a change in the near future (often defined as the next 6 months). *Contemplation* is the stage where people intend to change (within the next 6 months). People in this stage are aware of the pros of changing but also can identify the cons. *Preparation* represents the stage where people have a plan of action and intend to take action in the immediate future (within a month). *Action* is the stage in which people make the behavior change and *maintenance* represents the stage where people work to prevent relapse. Finally, *termination* represents that stage where individuals have 100 percent efficacy and will maintain their behavior. This stage is the most difficult to maintain, so many people remain a lifetime in maintenance.

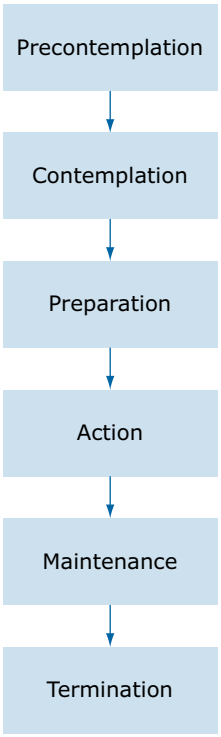

Figure 3. Stages of Change

How can this theory inform your practice?

- It is essential to match behavior change interventions to people's stages. For example, if an individual is in the precontemplation stage it is important to raise their awareness about a behavior in order for them to contemplate making a behavior change.
- Without a planned intervention, people will remain stuck in the early stages due to a lack of motivation to move through the stages. Prochaska, Johnson, and Lee[7] suggest a series of activities that have received empirical support, which help individuals progress through the stages:
  - Consciousness-Raising — increasing awareness of the causes (providing educational materials, confrontation, media campaigns, feedback, etc.)
  - Dramatic Relief — producing an emotional experience which is followed by a reduced affect if some action can be taken (personal testimonies, media campaigns, drama)
  - Self-reevaluation — inviting individuals to make cognitive and emotional assessments of their self image (clarify values, provide healthy models, using imagery)
  - Environmental reevaluation — assessments of how the presence or absence of a behavior might impact one's social environment (documentaries, personal stories, family interventions)

What if attitude change (as opposed to behavior) is your goal?

Behavior change may not always be your goal. It may become a priority to change attitude or public opinion about some issue. You might also wish to change attitude before behaviors. Whatever your goal, it is important to understand how individuals adopt attitudes. Existing research is also helpful in defining the process of attitude change.

CONCEPTUALIZING ATTITUDE

Scholars Zanna and Rempel[10] view attitude as having many causes. They view attitude not as something stable or predisposed to the individual, but as something that might change based on internal or external cues. Figure 4 illustrates how attitude is generated from cognition (a source of information), affect (feel-

9 Prochaska, J., Johnson, S., & Lee, P. (1998). The transtheoretical model of behavior change. In S. Schumaker, E. Schron, J. Ockene & W. McBee (Eds.), *The Handbook of Health Behavior Change*, 2nd ed. New York, NY: Springer.

10 Zanna, M. P., & Rempel, J. K. (1988). Attitudes: A new look at an old concept. In D. Bartal & A. W. Kruglanski (Eds.), *The social psychology of knowledge*, 315–334. Cambridge, UK: Cambridge University Press.

ings, emotions associated with an object that can influence attitude), and past behaviors. Individuals evaluate new sources of information against previous or other information and evaluate it as favorable or unfavorable.

CONSIDERATIONS FOR CHANGING ATTITUDE (ZANNA & REMPEL, 1988)

When presenting information to change attitudes it is important that the information is consistent and congruent so that individuals can form a single attitude about an object.[10]

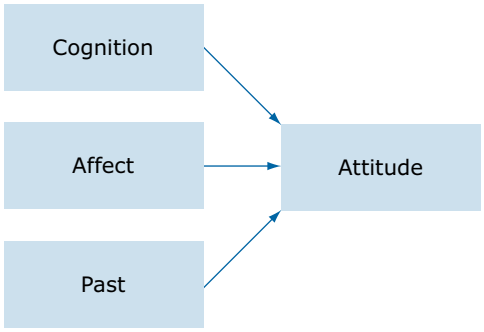

Figure 4. Zanna and Rempel's Conceptualization of Attitudes

- When attempting to change attitudes it may be advantageous for persuaders to use multiple methods. These methods may include a) disseminating information, b) including messages that are high in affect or emotion, or c) messages that connect attitudes to past behaviors.[10]
- Since individual characteristics are usually stable over time, Herek[11] suggests that efforts should focus on changing perceptions about groups or objects and creating situations that will foster attitude change. Herek also suggests "priming" whereby situational factors prime a person to be more receptive to a message (for example, asking about a related issue for which the individual might hold a favorable position).
- Remember that attitude may not directly cause a behavior change! Kim and Hunter[12] showed that behavior intent acts as a mediator in attitude-behavior relationships. Behavioral intent is someone's willingness to engage to various behaviors. This implies that when striving to change attitudes (and eventually behaviors) it is important to stress the benefits of performing the behavior, the social appropriateness of performing the behavior, and positive affect for the behavior.[12]

11 Herek, G. (1986). The instrumentality of attitudes: Toward a neofunctional theory. *Journal of Social Issues, 42:2*, 99–114.

12 Kim, M. S., & Hunter, J. E. (1993). Relationships among attitudes, behavioral intentions, and behavior: A meta-analysis of past research, part 2. *Communication Research, 20:3*, 331–364.