

# Developing and Evaluating Theory-Based Educational Content for WEB Applications

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## INTRODUCTION

There are many types of Web applications pertinent to health information and patient education. Numerous applications are developed simply to provide an information environment so that a user can learn about a particular health topic. Less frequently, applications are developed and evaluated toward the goal of assisting people to adopt healthful behaviors. This latter approach recognizes the pivotal role of health behavior in improving health status and that information, while necessary, is not sufficient to change health behavior. We offer steps to briefly illustrate how behavioral theory can facilitate the development, implementation and evaluation of educational content for Web applications of the latter type that are designed to change health behavior.

## DEVELOPING EDUCATIONAL CONTENT

### Step 1: Defining a behavioral Goal

*If you don't know where your going, any road will take you there.* This well-known cliché holds true when developing web applications. A behavioral goal will guide the developer through all phases, including the identification of educational content, choice of intervention strategies, and evaluation. Types of behavioral goals vary and may include increasing asymptotic screening, changing lifestyles, improving patient compliance to medical regimen, or enabling patients to make informed decisions regarding treatment options.

### Step 2: Defining intervention objectives

Intervention objectives are designed to influence the most important set of underlying factors that require change to initiate and sustain the process of behavior change. Each factor identified as causal to the target behavior is associated with an intervention objective. It is assumed that these factors, when modified, will bring about the targeted health behavior change as stated in the goal. Behavior theories inform us about the most important factors that influence a specific health behavior. Theories that have prominence in behavior change are The Health Belief Model (HBM); Social Cognitive Theory (SCT), Transtheoretical Model (also known as Stages of Change). No single theory has been universally accepted as superior, and the decision about which to use will depend upon the review of more than one

theoretical theme, and the selection of those that have been proven especially applicable and appropriate to the type of behavior being targeted.

### Step 3: Linking objectives to content

Once the factors associated with a behavior are identified, and stated as intervention objectives, they are linked to educational content. For example, if a factor associated with smoking is that the smoker does not perceive his risk of lung cancer to be related to smoking, an objective could be "to increase perceived risk of lung cancer due to smoking". The educational content to be developed now has a definitive purpose - to increase perceived risk. Content should reflect awareness of the cultural context of behaviors and the language usage of the target population. This information is obtained from targeted users during the formative research process.

### Step 4: Evaluation

Determining intervention impact involves comparing the behavioral changes of program users, measured at 3- to 6-months after they have received the intervention, with changes occurring naturally over the same period of time among comparable controls. If a behavioral-theory-guided approach has been used, it is not necessary to construct new measures. The assessment instrument used to determine the target behavior (specified by the behavioral goal) and causal factors (identified in intervention objectives) is used. It is here that the clarity and plausibility of the behavior goal and intervention objectives generated in the process of planning provide the foundation for evaluating intervention impact.

## CONCLUSIONS

We have briefly provided steps to illustrate how behavioral theory can guide the development of educational content for Web applications. These steps are designed to promote systematic attention to the linkages between behavioral goals, intervention objectives and program content. It is said that we live in an information age brought forth by information technology. However, it is clear that we must do more than provide information. To realize the benefits of Web applications designed to change health behaviors, an approach that combines the functionality enabled by technology with theories to guide behavior change is needed.

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