

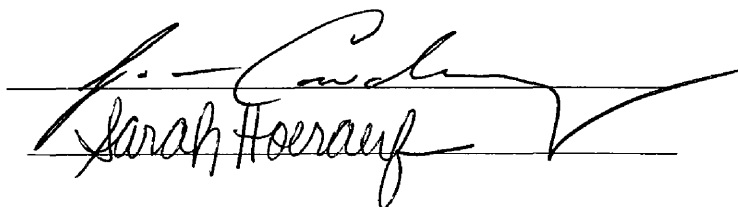
ACCEPTABILITY AND APPEAL OF A WEB-
BASED SMOKING PREVENTION
INTERVENTION FOR ADOLESCENTS

By
Amy E. Parlove

Presented to the Health Education
Faculty at the University of
Michigan-Flint in partial
fulfillment of the requirements for
the Master of Science in Health
Education

First Reader

Second Reader



The image shows two handwritten signatures in black ink. The top signature is written over a horizontal line and appears to be 'J. Caudin'. The bottom signature is also written over a horizontal line and appears to be 'Sarah Hoeray'. Both signatures are cursive and somewhat stylized.

ABSTRACT

Cigarette smoking has been identified as the most important source of preventable morbidity and premature mortality worldwide (American Lung Association, 2002). Statistics show that youth who do smoke report having their first cigarette while in middle school (Eissenburg & Balster, 2000). This project helps expand current knowledge of adolescent smoking prevention programs by demonstrating an understanding of the preference of adolescents (acceptability of web as medium) and the presentation (appealing design elements). A qualitative usability study was conducted using focus groups. Results found that the Internet is a good choice for delivery of a prevention program due to its accessibility, including the availability in most schools. By using this non-traditional approach, health education and promotion needs to work in parallel with the following: school, parent and/or guardian, and community. This will assist in the future direction of health education programs delivered via the Internet.

TABLE OF CONTENTS

Chapter I: Introduction..... 5
 Purpose..... 8
 Research Questions..... 9
 Significance..... 9
 Definitions..... 10
 University of Michigan Health Media
 Research Laboratory..... 11

Chapter II: Review of Literature..... 12
 Epidemiology..... 12
 School-based Smoking Prevention Programs..... 14
 Internet Use..... 20
 Web Prevention Interventions..... 23
 Web-based Smoking Interventions..... 26
 Focus Groups..... 30
 Behavior Change Theory..... 31

Chapter III: Methodology..... 41
 Subjects..... 41
 Variables..... 41
 Design..... 42
 Procedures..... 42
 Protocol..... 45
 Analysis..... 49

Chapter IV: Results..... 51
 Focus Group Narrative Report..... 51
 Focus Group Feedback Survey Results..... 62

Chapter V: Discussion..... 66
 Conclusions..... 66
 Recommendations..... 70

References..... 73

Appendices..... 92

ACKNOWLEDGMENTS

I wish to express sincere appreciation to Dr. Joan Cowdery and Ms. Sarah Hoerauf for their commitment and assistance in the preparation of this thesis. In addition, special thanks to my family who were understanding and supportive.

Chapter I

Introduction

According to the Centers for Disease Control (2000), approximately 80% of adult smokers started smoking before the age of 18 and every day, nearly 3,000 young people under the age of 18 become regular smokers. The American Lung Association (2000) reports that approximately one-third of these youth or adolescent smokers will eventually die of a smoking-related illness. While Michigan has seen a significant reduction in smoking among 9-12 graders from 38.2% (Michigan State Board of Education, 1998) to 27.6% (Michigan Department of Community Health, 2002), these rates remain high.

Statistics show that youth who do smoke report having their first cigarette while in middle school (Eissenburg & Balster, 2000). Almost 80% of adult smokers had their first cigarette by age 14 and developed a daily smoking habit by age 18 (Eissenburg & Balster, 2000). This demonstrates

then, that the key opportunities for prevention of this health risk is in childhood and adolescence.

School-based programs can have a significant impact on smoking behavior among young people and are most effective when part of a comprehensive, community-based effort (Satcher, 2000). Implementing effective school-based programs, along with community and media-based activities, can prevent or postpone smoking onset in 20 to 40 percent of U.S. adolescents (Satcher, 2000).

In conjunction with over 25 national, federal, and voluntary agencies, the Centers for Disease Control (CDC) has developed the *Guidelines for School Health Programs to Prevent Tobacco Use and Addiction*. Of the key principles outlined, it states that the curriculum should be introduced in elementary school and then intensified in middle/junior high school, which is when students are exposed to older students who use tobacco at higher rates (National Center for Chronic Disease Prevention and Health Promotion, 1997). Unfortunately, less than 5 percent of schools nationwide have implemented the major components of the CDC's recommended guidelines for school-based programs

to prevent tobacco use (Satcher, 2000).

There are a number of teen smoking prevention interventions, but even effective interventions will have limited impact unless the intervention is readily available and is easy to implement in a target population (Pallonen, 2001). Using computers and the Internet for a smoking prevention intervention allows users the ability to access the program at any time. More than 25 million kids ages 2-17 are online in America and millions more will be coming online from both home and school (Grunwald Associates, 2000). Teenagers report that they are more likely to be on the Internet at school than at home (Grunwald Associates, 2000). By the fall of 2000, 98% of public schools were connected to the Internet as compared to 35% in 1994 (Williams, 2000). Over half of public schools with access to the Internet reported that computers with access to the Internet were available to students outside of regular school hours (Williams, 2000).

What will adolescents use in order to seek information and/or help on smoking issues and why would they use it?

Purpose

This thesis project will focus on two unique areas of smoking prevention for adolescents. The first intent of the project is to determine the acceptability of the web as a delivery medium (as compared to other mediums) for a smoking prevention intervention. The second intent is to identify design elements for inclusion in a web-based smoking prevention intervention that are appealing to adolescents. This project will inform a larger web-based program designed to teach adolescents how they can remain non-smokers and/or how they can acquire skills that support smoking cessation.

This project will help expand current knowledge of adolescent smoking prevention programs by gaining a better understanding of the preference of adolescents (acceptability of medium) and the presentation (appeal). The potential success of web-based prevention interventions relies on the abilities of health educators to create new and innovative tools. This approach contributes to the health educator's abilities to develop such tools by putting the creativity of learning in the hands of the

target audience, resulting in a program designed FOR adolescents BY adolescents.

Research Questions

1. Do adolescents find the delivery medium (Internet in a classroom setting) of the smoking prevention intervention preferable as compared to other types of intervention media?
2. What design elements should be included in a web-based smoking prevention intervention to make it appealing to adolescents?

Significance

An intervention that is web-based is practical for multiple reasons, it: reaches a wide audience, is inexpensive to implement, is easy to update and collect data, and is easily accessible. To date, there are a limited number of web-based health education programs that have been evaluated, and even less research has been done with adolescents to evaluate the acceptability and appeal of such programs. This thesis will contribute to filling

this void, and will demonstrate the potential for future use of this type of intervention.

In summary, the three points of significance that support this project are as follows:

1. Teen smoking is a problem.
2. Schools are a logical location for prevention programs.
3. The Internet is a good choice for delivery of a prevention program due to its accessibility, including the availability in most schools.

By answering the questions of "adolescent preference and appeal", the focus of this project will assist in the future direction of health education programs available on the Internet.

Definitions

Delivery medium – video, print materials, Internet, classroom teacher, word of mouth

Web design elements – graphics, sound (voiceovers), interactive games, surveys, personalization

ASHES – Anti-Smoking Health Education Sources; Web-based

program developed by the University of Michigan Health
Media Research Laboratory

Information Superhighway – Internet, World Wide Web

University of Michigan Health Media Research Laboratory

This thesis project will address valuable adolescent preference and presentation (appeal) issues that will contribute to an existing project called "Testing the Effectiveness of an Internet-based Tailored Smoking Intervention in Adolescents." This project, also known as ASHES, was developed by the University of Michigan Health Media Research Laboratory (HMRL). The HMRL is a group comprised of health educators, behavioral scientists, graphic designers, and computer and multimedia engineers. The HMRL conducts research and develops innovative health education interventions.

Chapter II

Review of Literature

Epidemiology

Cigarette smoking has been identified as the most important source of preventable morbidity and premature mortality worldwide (American Lung Association, 2002). From 1995-1999, smoking killed over 440,000 people in the United States each year, and is responsible for one in every five deaths (American Lung Association, 2002). An estimated 6.4 million children (8,830 in 100,000) will die prematurely from a smoking-related disease if the current tobacco use patterns continue in the United States (American Lung Association, 2002).

Conducted in 2000, the United States National Youth Tobacco Survey (NYTS) surveyed 35,828 students in grades 6-12 (Centers for Disease Control, 2000). The results of the United States NYTS showed 18% of these students currently smoke cigarettes. 55.8% of current smokers expressed their desire to stop smoking and 58.2% tried to stop smoking during the past year (Centers for Disease Control, 2000).

The results also reported that 48.6% of students had discussed in class, during the past year, reasons why people their age smoke (Centers for Disease Control, 2000). The United States Youth Tobacco Surveillance (2000) reports that 15.5% of middle school students use some form of tobacco. Among middle school students, the male students (17.6%) were significantly more likely than female students (12.7%) to use tobacco (Morbidity and Mortality Weekly Report, 2001). Among middle school students, Hispanic (16.0%), Black (17.5%), and White (14.3%) were significantly more likely than Asian (7.5%) students to use a tobacco product (Morbidity and Mortality Weekly Report, 2001).

Statistics show that youth who do smoke report having their first cigarette while in middle school (Eissenburg & Balster, 2000). Almost 80% of adult smokers had their first cigarette by age 14 and developed a daily smoking habit by age 18 (Eissenburg & Balster, 2000). This demonstrates then, that the key opportunities for prevention of this health risk is in childhood and adolescence. This means that health educators face a serious challenge in smoking

prevention for adolescents. Adolescents are a primary target for health prevention and promotion initiatives, but it is often difficult to engage teens in a serious examination of health consequences because they believe that negative consequences are vague and too far in the future to be of any concern (Skinner, Maley, Smith, Chirrey & Morrison, 2001).

School-based Smoking Prevention Programs

There are numerous smoking prevention programs, varying in approach and effectiveness, designed to target adolescents (Perry, n.d.). Traditionally, efforts to reduce the onset of smoking among adolescents have involved the school systems (US Department of Health and Human Services, 1989). Nearly all children can be reached through schools (Iverson & Kolbe, 1983) which are primary vehicles for their health education (Ellickson, 1994). The 1964 publication of the first Surgeon General's report on smoking and health, advocated smoking prevention programs directed at high school and college students (Public Health Service, 1964), although more recent statistics suggest targeting elementary and middle school students. "In

theory, school-based programs would interfere with the development of smoking behavior before smoking became firmly established" (Perry, n.d., Introduction section, para. 1).

In 1987, the National Cancer Institute (NCI) convened a panel of experts in order to establish the essential elements of school-based smoking prevention programs (US Department of Health and Human Services, 1991). The following eight features should be considered both necessary and sufficient for effective programs: program impact, focus, context, and length; ideal age at intervention; need for peer and parental involvement; teacher training; and program implementation (Glynn, 1989).

The Hutchinson Smoking Prevention Project (HSPP), conducted from 1984 through 1999, implemented a randomized control trial of smoking prevention to determine the long-term impact of a theory-based, social-influences, grades 3-12 intervention (Peterson, Kealy, Mann, Marek & Sarason, 2000). The teacher-led HSPP intervention used a social-influences approach (Flay, 1985) that included the essential elements of a school-based prevention program

(Glynn, 1989). The goal of the project was to address the challenges of trial design and execution in the school setting (Peterson et al., 2000). The HSPP is the most rigorous study to date of school-based smoking prevention; although, consistent with previous randomized trials in school-based smoking prevention that have used the social-influences approach, there is no evidence that this approach is effective in the long-term deterrence of smoking among youth (Peterson et al., 2000). Clayton, Scutchfield, and Wyatt (2000) suggest that "we must move beyond simple models of main effects (i.e. increase knowledge of influences from media and peers to smoke and skills to resist these influences to prevent smoking) to more complex, robust causal models. This would entail reorienting the prevention field from the main effects question (what works?) to the moderated model question (what works for whom, under what condition, how, and why?) (p. 1964)."

In a meta-analysis of school-based smoking prevention programs (published between 1974 and 1991) based on peer- or social-type programs, the results suggest that the

average effect was quite limited in magnitude (Rooney & Murray, 1996). Literature even suggests that the "evaluation of program implementation can help illuminate negative results of school-based smoking prevention programs" (Kishchuk, O'Loughlin, Paradis, Masson & Sacks-Silver, 1990, p. 448). No statistically significant impacts of smoking prevention programs on children's knowledge, attitudes, intentions, or behavior were detected in the three quasiexperimental evaluations (Kishchuk et al., 1990).

Two prevention programs that provide skills for resisting social influences (resistance skills) have been shown to be particularly effective (Perry, n.d.). Both the Life Skills Training (LST) program (Botvin, 1986) and the Minnesota Smoking Prevention Program (MSPP) (Murray, Davis-Hearn, Goldman, Pierie & Luepker, 1988) targeted junior high schools and enlisted classroom teachers and older peers to engage the students. Perry (n.d.) suggests that "only the social influence approaches have been scientifically demonstrated (through replicated research studies) to reduce or delay adolescent smoking in school-

based programs" (Conclusion section, para. 15). But, without additional education and community interventions, the effects of these programs have not been sustainable (Perry, n.d.).

Knowledge of predictors of early initiation of smoking is vital if we are to develop appropriate interventions targeted at those most at risk for starting smoking (Harrell, Faan, Shrikant, Bangdiwala, Deng, Webb & Bradley, 1998). In a prospective study of smoking habits in children from the third and fourth grades through the eighth and ninth grades, the mean age of initiation in this cohort, 12.3 years (Harrell et al., 1998), is lower than the age of 14 and 14.5 years reported by Eisenburg et al. (2000) and the Bogalusa Heart Study (Baugh, Hunter, Webber & Berenson, 1982) respectively. Harrell et al. (1998) concluded that race, socioeconomic status (SES), and pubertal stage are important predictors of smoking initiation. The results of this study indicate the need to begin smoking prevention in elementary and middle schools and a need to especially target low socioeconomic students (Harrell et al., 1998). Given that we are seeing younger and younger smokers, it is

important to identify predictors in this age group, in order to develop effective programming.

Although tobacco prevention programs are frequently cited in the literature, many adolescent smokers will develop long-term tobacco addiction (Pierce & Gilpin, 1996), potentially suggesting the need for a more comprehensive approach in order to achieve long-term success. In addition, the behavior change curriculum for smoking prevention must be implemented effectively in order for adolescents to realize the benefits (Kealy, Peterson, Gaul & Dinh, 2000). Implementation failure is a problem commonly documented in the literature (Kealy et al., 2000).

These results infer that in addition to the school-based educational programs, health educators are charged with creating other methods that will provide adolescents with access to new smoking prevention resources. By exploring different methods of new and innovative technology, health educators can attempt to empower adolescents to resist the temptation to smoke.

Strecher (2000) states that "broad-based programs pull out small pieces of information to create an

untailored message that tries to be everything to everybody" (p. 18). General behavior change tools try to address as many behavioral-change factors as possible and may include the following: risk versus risk perception, stages of change, motivation and motives, interaction-style preferences, self-efficacy, and barriers to change, social environment, and previous change experiences (Strecher, 2000). General tools can include videos, self-help guides, booklets or programs, media exposure, and brochures (Strecher, 2000).

Internet Use

"The Internet began in the 1960s as a U.S. Department of Defense communication network. Soon after, university researchers and professors began to use it to communicate with others in their fields. Internet use really took off in the early 1990s with the arrival of the web, which made it easier to find and view information online. Today, millions of people throughout the world are connected to the Internet. No one-no

country, organization, or company—is in charge of the Internet; it’s growing and being changed by its users every day” (US Department of Education, 1997).

Millions of children already use the Internet, and millions more are coming online each year (Nielsen, 2002). By the fall of 2000, 98% of public schools were connected to the Internet as compared to 35% in 1994 (Williams, 2000). Unlike previous years, there were virtually no differences in school access to the Internet by school characteristics (e.g., poverty level and metropolitan status) in 1999 or 2000 (Cattagni & Westat, 2001). Over half of public schools with access to the Internet reported that computers with access to the Internet were available to students outside of regular school hours (Williams, 2000). The three most important uses of the Internet on a regular basis for students in grades 1-12 included e-mail, educational courses or doing research for school, and searching for information (National Center for Education Statistics, 2000). In 2000, the ratio of students per instructional computer with Internet access in public

schools was approximately 7:1 (National Center for Education Statistics, 2000).

Even among schools with high concentrations of poverty, Internet connectivity is increasing (National Center for Education Statistics, 2000). Poverty level is measured by the percentage of students eligible for free or reduced-price lunch (Cattagni & Westat, 2001). In 1999, 38% of public schools with high concentrations of poverty had access to the Internet, whereas 60% were connected in the year 2000 (National Center for Education Statistics, 2000).

As compared to traditional educational tools (i.e. self-help materials, video, instructor, etc.), the Internet provides an advantage over these methods by allowing individuals to choose information that he/she thinks is relevant to his/her behavior (Strecher, 2000). The majority of smoking-related websites provide a lot of general information, such as smoking statistics, what smoking does to your body and tips on how to quit smoking. The next generation for smoking prevention is tailoring individual messages through use of the Internet. For example, by using a questionnaire, an individual may choose

their specific barriers to behavior change and/or information that they are in most need of in order to start a change. Based on these individual characteristics as filled out in the questionnaire, the results are an individually tailored message about their current smoking and/or initiation of smoking. This approach enhances the individual's Internet experience.

Web Prevention Interventions

The increasing availability of information technology creates an innovative channel for clinical prevention and health promotion with the ability to reach a large number of young people (Skinner et al., 2001). The Internet provides an environment that can be graphically appealing, anonymous, and nonjudgmental, that can incorporate mutual support and be accessible 24 hours a day, and is paced at the user's speed (Abate, 1999; Abrams, 1998). Health promotion programs that are interactive and involve peer-led components have been shown to be the most effective (Botvin & Botvin, 1997; Dusenbury & Falco, 1997; Ellickson, 1995; Lynagh, Schofield, & Sanson-Fisher, 1997; Tobler &

Stratton, 1997). The Internet is the ideal environment; one that creates this peer-to-peer interactivity.

There are several benefits of using the Information Superhighway in a school setting. For example,

- √ Research information on any topic
- √ Access assistance with homework
- √ Improve technology and communication skills
- √ Connect with other students and/or other people of interest (i.e. pen pals, experts, teachers)

The Internet provides "an extremely powerful tool for health education and brief interventions regarding alcohol, drug, and tobacco use" (Skinner et al., 2001, p. 298).

Skinner et al. (2001) believe that prevention and treatment programs (delivered via the web) with youth should include the following six relevant aspects:

1. Quick dissemination of information and ability to reach a large number of youths in all areas of a country.
2. Vibrant graphics and innovative effects that youths find highly engaging.
3. Multiple pathways or means for youths to gain access

to health information and brief interventions (e.g. schools, local libraries, homes, community and health care settings)

4. Extensive linkages to related topics, such as discussion groups, lifestyle assessments and guided-change programs, specific health information and interactive games related to health issues.

5. Information that can be readily updated and refreshed in order to provide a new look.

6. Connectivity and mutual support, allowing users to assist others and to create an environment that stimulates collective action" (p. 299).

Because the Internet is such a new option for prevention programs, there is not a lot of data to compare to traditional prevention programs. One study of 255 participants, randomly assigned to one of three conditions (paper-based, web-based, web-based with interruption), compared web-based assessment techniques with traditional paper-based methods of commonly used alcohol use measures (Miller, Neal, Roberts, Baer, Cressler, Metrik & Marlatt, 2002). Although the results showed no significant

differences between assessment techniques, Miller et al. (2002) suggest that "web-based methods are a suitable alternative to more traditional methods because this cost-efficient alternative has the advantage of minimizing data collection and entry errors while increasing survey accessibility" (p. 56).

Web-based Smoking Interventions

The Internet has the potential to provide innovative opportunities for reaching the youth population. It's a non-traditional approach to health education and promotion that has been used in various ways to target teens.

The TeenNet project and website (www.teennetproject.org) is focused on increasing the number of teens engaged in health promotion activities, such as smoking prevention and cessation (Skinner et al., 2001). The first website of the project was launched in 1997 and called CyberIsle, which was based on the concept of a *teens-only* island (Skinner et al., 2001). A specific website dedicated to youth smoking prevention and cessation called Smoking Zine integrates several components,

including interactive, multimedia information on health issues, assessments, individualized feedback, and self-change strategies (based on *stages of change*) (Skinner et al., 2001).

There is little empirical support for the effectiveness of web-based smoking prevention approaches, but recent interventions in tobacco prevention and control have shown positive efforts toward research in this area. For example, the Cleveland Clinic and the Youth Tobacco Prevention Program have designed a tobacco prevention program called Word of Mouth (Youth Tobacco Prevention Program, n.d.) "Word of Mouth takes an innovative hands-on approach that incorporates successful prevention strategies as well as the use of technology to improve distribution and success of the program" (Youth Tobacco Prevention Program, About Us section, para. 2). The school-based program targets students in grades 4 through 8 and offers traditional classroom programming and web-based classroom programming (Youth Tobacco Prevention Program, n.d.). A five-year study is currently underway to evaluate the program's effect, intention to use, knowledge about tobacco, refusal skills,

and attitudes (Youth Tobacco Prevention Program, n.d.). Preliminary findings have shown that this program is effective in preventing students from using tobacco as well as strengthening student's intentions for the future (Youth Tobacco Prevention Program, n.d.). In addition, projects like "Internet Home-based Treatment for Adolescent Smokers" use interactive, home-based computer systems that have demonstrated positive health outcomes with adult populations (Patten, n.d.). By modifying the existing program to accommodate adolescents and by evaluating the efficacy of the program, the desired outcome is to deliver the module via the Internet (Patten, n.d.).

The next generation of web-based programs are beginning to utilize a more tailored and interactive approach. Tailored interactive expert system interventions and information technology delivered via the web will be central elements for more effective interventions. An expert system can be defined as "a software system that mimics the deductive and inductive reasoning of a human expert" (Velicer, Prochaska, Bellis, DiClemente, Rossi, Fava & Steiger, 1993, p.271). These types of interventions

provide a combination of clinical approach (tailoring) and the public health approach which wants to reach a large population (Internet) (Pallonen, 2001).

For example, Strecher et al. (1994) conducted two studies in North Carolina that included adult cigarette smokers who were family practice patients. Participants were selected on specific criteria (i.e. 40 to 65 years of age, length of time a patient, etc.), interviewed by phone, and then randomly assigned to an experimental group (received tailored health letters) or a comparison group (generic health letter or no letter) (Strecher, Kreuter, Den Boer, Kobrin, Hospers, & Skinner, 1994). Smoking status was assessed at either 4 months or 6 months and results from both studies showed statistically significant results (Strecher et al., 1994). Thirty-one percent of participants that received the tailored health letters reported quitting after 6 months while only 7.1% quit in the control group (Strecher et al., 1994).

Velicer et al. (1993) demonstrated the efficacy of computer-tailored interventions for smoking cessation in an adult population using four different studies. The impact

of tailored interventions was shown in comparison with other types of interventions including smoking clinics, nicotine replacement, self-help materials and community interventions (de Vries & Brug, 1999; Velicer, Prochaska, Bellis, DiClemente, Rossi, Fava & Stieger, 1993). Results showed smoking cessation rates of individuals that received the tailored intervention between 22% and 26% (Vries & Brug, 1999; Velicer et al., 1993).

Tailoring has demonstrated positive results in adult smokers, but no studies have been done with adolescents. For tailored approaches to be effective, it is imperative that they be designed to meet the needs and preferences of the target audience. This can be accomplished in a multitude of ways including conducting focus groups with members of the target population.

Focus Groups

Focus groups are informal sessions in which representatives of the target population are asked to discuss their thoughts on a specific topic or product (Green & Kreuter, 1991). Focus groups are a rich source of

qualitative data. The use of this data/information helps to generate ideas, develop more effective instruments, assess needs and interests, as well as learn the language of our target audience.

Focus groups have many advantages over other qualitative methods. For example,

- √ They are inexpensive
- √ Participants use their own words
- √ Able to cover a wide range of topics
- √ Direct interaction with users
- √ Responses build upon each other
- √ Clarification of responses is available

Behavior Change Theory

"There is nothing so useful as good theory" (Lewin, 1935, Glanz, Lewis & Rimer, 1997, p. 20). It is commonly cited in the health promotion literature to call for more and better application of theory in programs and research (Marin and others, 1995; Lasater and others, 1992). In a literature review of theory use, slightly less than half of

the articles relevant to health promotion and behavior reported use of one or more theories (Glanz et al., 1997). The interchange of strategies between researchers and practitioners is important in order to guide the translation of theory into practical methods (Glanz and Rudd, 1993).

Van Ryn and Heaney (1992) believe that "application of well-defined and carefully tested theories to the program development process holds tremendous advantages for health education in terms of coherence, effectiveness, and evaluation of interventions" (Glanz et al., 1997, p. 20). Theory and research comprehend the why, what, and how of behavior change (Glanz et al., 1997).

Health Belief Model

The Health Belief Model was developed in the 1950's by a group of social psychologists to explain the failure of people to participate in disease prevention programs (Hochbaum, 1958; Rosenstock, 1974). The theory evolved from the limited success of these Public Health Service programs (Strecher & Rosenstock, 1997). In 1974, Kirscht applied people's responses to symptoms of a diagnosed illness to

the theory (Strecher & Rosenstock, 1997).

The key variables applied in the Health Belief Model include the following: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action and self-efficacy (Strecher & Rosenstock, 1997).

In general, Strecher and Rosenstock (1997) believe that

“individuals will take action to ward off, to screen for, or to control an ill-health condition if they believe it to have potentially serious consequences, if they believe that a course of action available to them would be beneficial in reducing either their susceptibility to or the severity of the condition, and if they believe that the anticipated barriers to (or costs of) taking the action are outweighed by its benefits” (p. 44).

Because of consistent findings that cigarette smokers already perceive a general health threat from smoking, the Health Belief Model is not widely used in cigarette smoking research (Strecher & Rosenstock, 1997). Although current cigarette smokers, ex-smokers and non-smokers may have

similar beliefs about the harmful effects of smoking, their perceived susceptibility may be quite different (Strecher & Rosenstock, 1997). In a study among 2,785 patients of community-based family practitioners, smokers were more likely to perceive a high personal risk of heart attack, cancer, and stroke than non-smokers (Strecher, Kreuter & Kobrin, 1995). However, smokers were more likely to underestimate their risk for heart attack, cancer, and stroke than non-smokers, therefore underestimating the magnitude of the health risk (Strecher et al., 1995).

Self-efficacy Model

Self-efficacy is defined as "the conviction that one can successfully execute the behavior required to produce the outcomes" (Bandura, 1977, Strecher & Rosenstock, 1997, p. 47). Bandura introduced the concept of self-efficacy in 1977 and in 1998, Rosenstock, Strecher, and Becker added the concept to the Health Belief Model in order to increase its explanatory power (Strecher & Rosenstock, 1997). Self-efficacy is also a major concept in Social Cognitive Theory and the Transtheoretical Model. The implication in this theory is a behavioral change approach that utilizes both

observational and interactive learning techniques which can help identify and target each sequence of a specific behavior (Bandura, 1977a, 1977b, 1986; Strecher & Rosenstock, 1997).

In order for behavior change to succeed, people must “feel threatened by their current behavioral patterns (perceived susceptibility and severity) and believe that change of a specific kind will be beneficial by resulting in valued outcome at an acceptable cost, but they must also feel themselves competent (self-efficacious) to overcome perceived barriers to taking action” (Strecher & Rosenstock, 1997, p. 47). There is plenty of literature to support the importance of self-efficacy and its role in initiation and maintenance of behavioral change (Bandura, 1986; Marlatt & Gordon, 1985; Strecher, DeVellis, Becker & Rosenstock, 1986).

The Transtheoretical Model

The Transtheoretical Model (TTM) emerged from leading theories of psychotherapy and behavior change (Prochaska, Redding & Evers, 1997). TTM uses *Stages of Change* to integrate processes and change from major intervention

theories (Prochaska et al., 1997). Ten processes of change were identified by a comparative analysis and included among the many traditional theories: consciousness raising from Freud, contingency management from Skinner, and helping relationships from Rogers (Prochaska et al., 1997).

“The Transtheoretical Model conceives behavioral change as a process involving progress through a series of five stages” (Prochaska et al., 1997, p. 61). Individuals use the *Processes of Change* to progress through the five stages of change (Prochaska et al., 1997). The *Processes of Change* include the following: consciousness raising, dramatic relief, self-reevaluation, environmental reevaluation, self-liberation, helping relationships, counterconditioning, contingency management, stimulus control, and social liberation (Prochaska et al., 1997). The *Stages of Change* include the following:

- Precontemplation - no intention to take action within 6 months
- Contemplation - intends to take action in next 6 months
- Preparation - intends to take action in next 30 days

and has taken steps with behavior toward goal

- Action - changed overt behavior for less than 6 months
- Maintenance - changed overt behavior greater than 6 months
- (Termination) - no temptation and 100% self-efficacy (Prochaska et al., 1997).

Two additional constructs, decisional balance and self-efficacy, are reflected in the Transtheoretical Model.

“Decisional balance reflects an individual’s relative weighing of the pros and cons of changing” (Prochaska et al., 1997, p. 65). The self-efficacy construct has two parts: confidence and temptation (Prochaska et al., 1997). The confidence concept was adapted from Bandura’s self-efficacy theory (Bandura, 1977, 1982) and temptation describes the intensity to resist urges of the undesired behavior while encountering difficult situations (Prochaska et al., 1997).

The Transtheoretical Model is a dynamic theory and the research is vibrant, particularly in smoking cessation studies (Prochaska et al., 1997). Research applications

“shift from an action paradigm to a stage paradigm in order to increase reach and interact with a much higher percentage of populations at risk” (Prochaska et al., 1997, p. 69).

Social Cognitive Theory (Social Learning Theory)

In 1941, Miller and Dollard introduced Social Learning Theory (SLT) to explain the imitation of behavior between humans and animals (Baranowski, Perry & Parcel, 1997). The original concepts of SLT were based on learning principles and motivational ideas of Hull (1943) that “social learning attends to others’ responses when motivated by an acquired drive” (Baranowski et al., 1997). The Social Learning Theory principles evolved over the next 55 years. In 1986, Bandura published a comprehensive framework for understanding social behavior in humans (Baranowski et al., 1997). Social Learning Theory is now most often referred to as Social Cognitive Theory (SCT).

The major constructs in SCT, which are important in understanding health behavior, are the following: environment, situation, behavioral capability, expectations, expectancies, self-control, observational

learning, reinforcements, self-efficacy, emotional coping responses, and reciprocal determinism (Mischel, 1973; Bandura 1977b, 1986). Because of its personal, behavioral and environmental focus, SCT is an attractive, robust theory that applies a multilevel change strategy (Strecher & Rosenstock, 1997). This enables health educators the opportunity to address the dynamics of individual behavior in health education and health promotion programming.

Given the imperativeness of having a strong theoretical foundation for behavior change interventions, including smoking prevention, the program that is the focus of this research was developed using a multiple theory approach. This project will inform a larger web-based program designed to teach adolescents how they can remain non-smokers and/or how they can acquire skills that support smoking cessation. The ASHES program, delivered via the Internet, gives students (in the intervention schools) access to the program website and survey sections. Subjects are assessed on smoking status, attitudes about smoking, and perceptions and experiences with smoking. Survey responses from intervention group participants

provide the basis for the tailored advice they receive in the Internet-based intervention (Pallonen, 2001).

The intervention website and survey were developed by a team of researchers at the University of Michigan using multiple theories. The theories used to generate information for and to develop the questions for the website and survey tool included the ones reviewed in this section: Health Belief Model, Self-efficacy Model, Transtheoretical Model, and the Social Cognitive Theory. Examples of the survey tool and feedback include the following:

√ Information is tailored based on *stage of change*. Is the individual close to experimenting with cigarettes?

√ Temptation and confidence levels are assessed in order to deliver validated smoking messages, which are designed to increase self-efficacy.

√ Dependent on *stage of change*, behavioral strategies are given as advice based on which *process of change* is best suited for the individual.

Chapter III

Methodology

Subjects

The target audience is sixth, seventh and eighth grade students. The total study population was 27 students from three selected Michigan middle schools. Group A included 8 sixth grade students. Group B included 10 eighth grade students. And Group C included 9 eighth grade students. All students attending the selected schools had the opportunity to participate in the discussion groups, which were filled on a first come, first serve basis.

Variables

The two primary variables that this project will address are appeal and preference.

Appeal - adolescent's perception of the presentation of a smoking prevention website

Preference - adolescent's acceptability of the Internet as a delivery medium of a smoking prevention program

Design

A qualitative usability study was conducted using focus groups. The purpose of the focus groups was to establish preference of learning medium and to identify design elements for inclusion in a web-based smoking prevention intervention. Feedback obtained in the focus groups was used to establish what type of medium and format appeals to adolescents. Additionally, the information will be used to determine the feasibility and enhancement of an existing Internet-based anti-smoking intervention program for adolescents.

Procedures

The following procedures have been approved by the University of Michigan Internal Review Board (IRB) (See Appendix A for IRB Notice of Outcome).

Participant Recruitment

A letter was sent to potential middle school teachers describing the project and the desire to conduct focus

groups with his/her class (See Appendix B for the Letter to Teachers). A follow-up phone call was made to each teacher and dates were set accordingly. Each middle school teacher informed their students about the opportunity to participate in the focus group and then he/she disseminated consent forms for the students to take home (See Appendix C for the Informed Consent). The students from each class that returned a signed (by parent/legal guardian) informed consent participated. On the day of the focus group, each student participant and one research staff member reviewed and signed the consent form previously signed by his/her parent (or legal guardian).

Ground Rules

Prior to the start of each focus group, participants were informed of the ground rules. These included the following:

DO

- Take turns speaking by raising your hand
- Listen respectfully
- Talk openly and honestly - tell us what you really think, not what you think we want to hear

- Agree to disagree
- Keep what's said in this room confidential

DO NOT

- Interrupt
- Attack each other, even if you disagree with what's said
- Share what's been said outside this room
- Laugh at or criticize another person or his/her opinions

Confidentiality

All group members were asked to keep the content of all group discussions confidential. The participant needed only to give his/her first name during the group session. Because the student was with a group of other students from his/her school, we couldn't guarantee that a participant's verbal answers during discussion remained confidential among other students. However, students were asked to complete a non-disclosure form on the day of the focus group (See Appendix D for the Non-Disclosure Form).

All written information collected was confidential

(first names only were included on tape and in transcription). This means that only the researchers of the study were able to see the comments.

Protocol

During a 45 minute discussion, focus group participants were asked to describe and explain their views and feelings about preference of delivery medium for smoking information. The students then discussed how and why they use the Internet and what does and does not appeal to them on the Internet. Then after viewing a sample of an existing web-based smoking prevention intervention (ASHES), students were asked about design elements they would prefer or that would enhance the existing intervention. The group discussion was tape-recorded for further review by the researchers of the study.

Participation in the focus groups was entirely by parent/guardian's and child's own free choice. After having agreed to become a participant, the student also had the opportunity to drop out of the study by his/her own free will at any time with no effect on his/her school program,

grade, or other activities.

As compensation for participation in the group, movie ticket certificates valued at \$10 were distributed to each participant.

Location and Room Set-up

The location for the focus groups was in a classroom in each selected middle school during school hours. The room set-up was dependent on the ability to adapt the classroom. A round table for open and comfortable conversation as well as ample room for computer set-up was most ideal. The computer and a projector displayed the ASHES program for participants to easily view.

Focus Group Implementation

The focus group began with introductions of staff and students and the review and approval of group ground rules. The purpose of the group was established and then open discussion focusing on "preference" began (see below for discussion guidelines and question focus). After this topic was adequately discussed, the students were asked to review an existing smoking prevention website. After the students had time to review the website, the group resumed

discussions on “appeal” (see below for discussion guidelines and question focus).

Discussion Guidelines

The following outline describes the guidelines in which the research staff, who conducted the focus groups, followed:

- I. Introduce yourselves
- II. Describe the overall project
- III. Describe purpose of discussion and the importance of the student’s participation
- IV. Proceed with preference questions and questions regarding Internet use
- V. Review the current web design of the smoking prevention program
- VI. Discuss the likes and dislikes of the web design
- VII. Administer focus group feedback survey
- VIII. Say thank you and pass out movie theater gift certificates

Discussion Question Focus

A. Open Discussion

1. Where might you access information on smoking?

- What would you most likely use as support for smoking prevention/cessation information? Why?
2. What would you like to see on a website about smoking prevention for adolescents?
- Describe the images (pictures, people, video)
 - Describe the layout of the website (color, patterns, font)
 - Describe any sounds or voices
 - What else would you include?
 - What are some things you wouldn't want included?

B. Review ASHES website

Interviewer/Moderator Guide

The moderator's role was to keep the group process and dynamics under control at all times. The moderator asked only six to eight questions to encourage discussion. He/she set ground rules prior to opening any discussion.

Data Collection/Recording

The group discussion was tape-recorded for later review by the researchers of the study. A note-taker was also present. The tape was transcribed and notes were

incorporated into the transcription. Students were asked to complete a focus group feedback survey at the end of the session in order to evaluate their experience with the focus group (See Appendix E for the Focus Group Feedback Survey). The focus group feedback survey included seven satisfaction questions.

Budget

Currently, the ASHES research project is funded through the Michigan Department of Community Health. In the overall budget, a line item for focus groups was assigned. The \$350 allotment covered incentive expenses. All other expenses incurred were covered by the University of Michigan Health Media Research Laboratory's general budget.

Analysis

Before the tapes and notes were transcribed, the research staff (moderator and note-taker) met and debriefed on the focus group discussions. Questions included the following:

- What were the important themes or ideas?
- How did these differ from what we expected?

- How did these differ from the other focus groups?
- Were there any unexpected findings?

After the research staff debriefed, and the notes and tapes were transcribed from the focus groups, a narrative report was written to present the focus group results. A narrative report is a traditional focus group report that typically is composed of the key questions or the big ideas that have emerged from the discussion (Krueger, 1998). The descriptive model of the narrative report is a summary paragraph for each question, followed by illustrative quotes (Krueger, 1998). Following this reporting, an overall summary and conclusion of the focus groups will include factors that tie together themes and bridge ideas over the questions.

Chapter IV

Results

The following is a narrative report that outlines the focus group results. Three focus groups were conducted. Focus group A included 7 White females and 1 White male. Focus group B included 6 White females and 4 White males. Focus group C included 4 White females and 5 White males.

Focus Group Narrative Report

Q: Where or who might you go to for smoking information?

Why might you go to those places?

People rather than places were most often cited. Parent, teacher/counselor or friend seemed to be who the students were most comfortable with in discussing an issue such as smoking. "Who" seemed more important to the participants than the "where".

"I would go to my mom because she used to smoke, and she still knows what it feels like to smoke, so she would tell me not to do it." (Group A: 5/23/02)

"...you could go on the Internet, like, to places that you

know or that somebody told you, or stuff like health issues like you said and to figure out how to stop smoking or to not even smoke." (Group A: 5/23/02)

"Maybe like at school, a teacher...like a science teacher or someone you know teaches stuff like..." (Group B: 5/30/02)

One student commented that the computer is a good place to go for smoking information and two students disagreed. Here are their comments:

"I disagree with the computer thing, just because there's so much stuff..." (Group B: 5/30/02)

"A lot of the information is false on the Internet, and also, like your friends, because your friends might not know, they probably know as much as you do, and if they know more, it might not be, like, correct, and so you might get the wrong information." (Group B: 5/30/02)

This question was not asked in Focus Group C.

Q: Why might you go to the Internet to seek out smoking information?

Specifically in Group A, positive discussion surrounded the idea of seeking out smoking information using the Internet. In general, the Internet was easy to

use and had a lot of information that one could access to learn more about smoking. Ideas like interactive smoking tools that carried an individual through the negative effects of smoking were discussed.

"Because the Internet is generally easy to use and it has lots of information" (Group A: 5/23/02)

"You could use the Internet also because you could see some pictures of what smoking does to your brain" (Group A: 5/23/02)

"You could like, talk to somebody in a chat room or something and they don't have to know who you are." (Group A: 5/23/02)

"And they will also tell you not to smoke, or um, what it does to you and how you could die from it and it will hurt your heart and stuff." (Group A: 5/23/02)

This question was not asked in Focus Group C.

Q: What are some reasons why you use the Internet and when do you use it?

Homework, researching for a school assignment or project, e-mail, shopping, and just for fun were reasons most cited by the students on why they use the Internet.

The students elaborated on this question by talking about some specific sites that they like to visit. Sites that they were able to buy items, create different things and play games seemed most popular.

"I mostly go either for homework or just to play games, and I usually go to Google or I go to ZooDisney to play games"

(Group A: 5/23/02)

"I also go when I just like, do homework and research, and, like I usually go to Google to find stuff, and ...what's it called, like where you can type in some words and it shows you what's there..." (Group A: 5/23/02)

"Talking to friends." (Group B: 5/30/02)

"Shopping." (Group C: 12/7/01)

The students reported Internet use everyday to weekly. Most students had a family computer at home. Internet use at home and Internet use at school seemed to be equally split. The student's expressed that there were designated times in their library and/or media center that they have access to the Internet during school hours.

"Sometimes not every day, but like every other day I'll go on it for like half an hour, because in my household we

don't really have the Internet that much." (Group A:
5/23/02)

"More at school." (Group B: 5/30/02)

"Everyday." (Group C: 12/7/01)

Q: What makes websites cool? What makes you go to them?

Interactivity was a reoccurring theme. Games, interesting information, kid voting polls, interesting facts about an idol, movie clips, and emailing the "stars" all seemed to entice the students and/or make a website more attractive to them than another without these attributes. Other attributes that appealed to the students were music, graphics and pictures, and bright colors.

"Well, Animal Planet's a lot more fun than Dollmania, because Dollmania you only get to make dolls. But Animal Planet's fun because they have like games that like, sometimes its used for math, and we have to figure out like, what spots belongs to the animals, and you get a certificate or whatever when you 're done, and it's mostly games, but in some sections there's like, information, and it's really cool. You can learn about different animals."
(Group A: 5/23/02)

"The game ones are fun to play." (Group B: 5/30/02)

"Well, yeah, like if they have more pictures, you get more attracted to them, you want to look at them more because they look...interesting." (Group B: 5/30/02)

"Well, they each have different kinds of twists - they're (their) own individual twist." (Group C: 12/7/01)

"I really hate reading, but like if you have pictures then you can kind of get a feel for it - or like a video..." (Group C: 12/7/01)

Q: What websites don't appeal to you?

"I don't like the ones that are all about ads, like buy this and it goes on and on about how good it is, and then they tell you in the little print at the bottom, this is the ...(inaudible)" (Group B: 5/30/02)

"Um, I don't like the ones that you have to click on like a million things to like get to the part that you want, 'cause like, (inaudible) each page, and then you have to read through it all." (Group B: 5/30/02)

"Just text and nothing else, you know. Just random, just white - black and white. Just fill-in." (Group C: 12/7/01)

"I hate when you go to a website and you have to click on 7 different links to get where you want." (Group C: 12/7/01)

The students from Focus Group A were not asked this question.

Q: What are some images that come to mind when you think about the phrase "teen smoking"?

Images such as dirty lungs and pictures of smokers missing part of their face were brought up early in our discussions. Billboards and television commercials were discussed. Focus seemed to turn to the "type of person" that is seen as a smoker. A majority agreed that smokers were seen as "loners" or "bad" kids, skipping school and smoking in the back alley.

"...they're in the back of an alley, sharing a cigarette, and like laughing about it, and they think it's so cool to smoke so they walk around town just smoking, and laughing." (Group A: 5/23/02)

"Billboards - they make you think. You pay attention to them." (Group C: 12/7/01)

(While discussing billboards and commercials) "It gets its point across in a funny way that like grabs your attention." (Group C: 12/7/01)

Q: When you think of these images do you think of kids your own age or do you think of kids older than you?

Initial discussion centered around high school age kids, but as the discussion progressed, the group began a discussion about kids their age that do smoke.

"Sometimes, like my cousin right now smokes, and she's my age. So she's trying to stop but it's hard for her. And I see a little bit more of junior high schoolers and high schoolers now than I used to." (Group A: 5/23/02)

"Usually for me, it seems like it's more high schoolers. And not as much kids my age, but I don't know." (Group A: 5/23/02)

"So I think that like maybe their age or older." (Group B: 5/30/02)

"(Be)cause teenagers are likely to listen to a teenager and teenager is more likely to listen to his friends." (Group C: 12/7/01)

Q: If you had to describe it to me, what would a cool website look like that talks about anti-smoking?

Two themes emerged from this discussion: visual appeal and content appeal. To make the site visually appealing, suggestions were offered such as music, modern look or feel, colorful and flashy design, and possibly some type of cartoon images. The students offered a role model as the host of the site, chat rooms, question and answer section, advice, games and quizzes as suggestions on what would make the content interesting and inviting.

"Like a game where people are asking you to smoke and you try to talk them out of it. And it gets harder and you get more points." (Group A: 5/23/02)

"Or you could like have a section where they could type in a question that they can't answer where their parents don't know about it, and you could give them the answer and tell them more about it." (Group A: 5/23/02)

"Maybe like an athlete section? Like to say not to take drugs 'cause if you're an athlete, like if you're a football player, you'd have trouble catching the ball."
(5/23/02)

"Well, I think it'd be really cool to have like music playing in the background..." (Group A: 5/23/02)

"Maybe like a real interview with a person who like admitted that they did something wrong and stuff, and like it actually hurt them, instead of just like reading about it, they could like actually hear it or something." (Group B: 5/30/02)

"Advice - if you know somebody who's smoking and you want them to stop. Ways to help them stop, talk to them about it." (Group C: 12/7/01)

"Um, it's got to be good writing. I mean you don't want to have something that's like a textbook or something like this happy-go-lucky don't smoke. Oh cool - kids who don't smoke. It's gotta be realistic and it's gotta be interesting reading to kinda catch your eye." (Group C: 12/7/01)

"...like videos, like cartoons, like short cartoons..." (Group C: 12/7/01)

Q: Please comment on the ASHES website.

The focus groups reviewed the ASHES website. Feedback from Group A (5/23/02) on the ASHES website was hand-

written by the students. The following are some of their hand-written comments:

"I like the people at first. I like all the questions and choices. I think it needs more designs and colors. Little things you can click on and music/sound."

"I like the moving eyes on the cartoons. I would suggest moving backgrounds or music. Games would make it more fun. The colors are cool. The imaginary people were cool and I would suggest showing what they will be like in ten years."

"The questions were good. More videos. More people."

Group B(5/30/02)and Group C (12/7/01) comments were similar in nature to comments from Group A (5/23/02). The groups felt that the ASHES website was repetitive and boring and that the following ideas could help enhance the experience: music, noise when you click, more colors and features, different font and real pictures.

"Maybe like some music in the background or something. Or like if you click on it and it makes like a little click noise..." (Group B: 5/30/02)

"More colors and more features." (Group B: 5/30/02)

"Maybe put like, in like purple, on the side or something, because there's nothing there, maybe facts or something where they could like learn more about like what it does to you." (Group B: 5/30/02)

"So, like change, make the music change so you don't have to hear the same thing constantly throughout the whole thing." (Group C: 12/7/01)

"Like a host to lead you through." (Group C: 12/7/01)

"I think you have one of those bars at the side that kinda like is a way of getting around the site so you can then like stop and ..." (Group C: 12/7/01)

Focus Group Feedback Survey

A Focus Group Feedback Survey was also conducted at each of the three focus group sites. (See Appendix F for the Focus Group Feedback Survey) The purpose of the Focus Group Feedback Survey was to evaluate participant satisfaction with the focus group. The following are the survey results:

The focus group was worth my class time today.

Focus Group A	Focus Group B	Focus Group C
---------------	---------------	---------------

100% of participants agreed	100% of participants agreed	100% of participants agreed
-----------------------------------	-----------------------------------	-----------------------------------

The focus group was fun and interesting.

Focus Group A	Focus Group B	Focus Group C
100% of participants agreed	66% of participants agreed	100% of participants agreed

The instructor gave easy to follow directions.

Focus Group A	Focus Group B	Focus Group C
100% of participants agreed	100% of participants agreed	100% of participants agreed

The instructor was helpful in directing the focus group.

Focus Group A	Focus Group B	Focus Group C
100% of participants	100% of participants	100% of participants

agreed	agreed	agreed
--------	--------	--------

The movie theater certificate was a cool incentive.

Focus Group A	Focus Group B	Focus Group C
100% of participants agreed	100% of participants agreed	100% of participants agreed

What did you like most about the focus group?

"I liked that we could share our opinions and not be embarrassed." (Group A: 5/23/02)

"I liked talking about what would make the website cool." (Group A: 5/23/02)

"Being able to help others." (Group B: 5/30/02)

"When we had open discussion about the Internet." (Group B: 5/30/02)

"The topic in general. I have friends that smoke." (Group C: 12/7/01)

"Movie certificate; listened to opinions." (Group C: 12/7/01)

What didn't you like about the focus group?

"I didn't like the website much without color." (Group A: 5/23/02)

"We didn't have enough time." (Group B: 5/30/02)

"I would have liked to look at the site on a separate computer." (Group C: 12/7/01)

Chapter V

Discussion

Conclusions

This project helps expand current knowledge of adolescent smoking prevention programs by demonstrating an understanding of the preference of adolescents (acceptability of the web as a medium) and the presentation (appealing design elements).

Teen smoking is a significant problem. The American Lung Association (2002) has identified cigarette smoking as the most important source of preventable morbidity and premature mortality worldwide. An estimated 6.4 million children will die prematurely from a smoking-related disease if the current tobacco use patterns continue in the United States (American Lung Association, 2002).

Schools are a logical location for prevention programs. School-based programs can have a significant impact on smoking behavior among young people and are most effective when part of a comprehensive, community-based effort (Satcher, 2000). Implementing effective school-based

programs, along with community and media-based activities, can prevent or postpone smoking onset in 20 to 40 percent of U.S. adolescents (Satcher, 2000).

The Internet is a good choice for delivery of a prevention program due to its accessibility, including the availability in most schools. Millions of children already use the Internet, and millions more are coming online each year (Nielsen, 2002). By the fall of 2000, 98% of public schools were connected to the Internet as compared to 35% in 1994 (Williams, 2000). As compared to traditional educational tools, the Internet provides an advantage over these methods by allowing individuals to choose information that he/she thinks is relevant to his/her behavior (Strecher, 2000).

The results of this project provide support for application of this new approach toward these significant issues. This will assist in the future direction of health education programs delivered via the Internet.

Research Question #1. Do adolescents find the delivery medium (Internet in a classroom setting) of the smoking prevention intervention preferable as compared to other types of intervention media?

Results suggest that the Internet is a viable choice for seeking out smoking information. The focus groups commented on ease of use of the Internet and the ability to access a large amount of information to learn more about smoking prevention and cessation.

Participants, when asked where they might access smoking information, did prefer speaking with a person rather than seeking out alternative mediums such as the Internet. A parent, teacher/counselor and friend all seemed to be who the students were most comfortable with in discussing an issue such as smoking.

Homework, researching for a school assignment or project, e-mail, shopping, and just for fun were reasons most cited by the students on why they use the Internet. The Internet was available and easily accessed (everyday to weekly) by students from both the family computer at home and the computer at school. Therefore, using the Internet

for a school assignment and/or researching information on smoking with support from a teacher/counselor and potentially a parent, is convenient, interactive and innovative.

Research Question #2. What design elements should be included in a web-based smoking prevention intervention to make it appealing to adolescents?

Interactivity was a reoccurring theme with the students. Mediums such as music videos, computer games and hand-held computer games use a dynamic approach that appeals to the teen population. By providing a like experience through the Internet, teens will be able to access, utilize, interact and learn about smoking prevention.

Visual appeal and content appeal were important characteristics in a smoking prevention website. Attributes such as voting polls, movie clips, games and quizzes, and e-mail attracted students to their favorite websites. Music, graphics and pictures, and bright colors will create a modern look and feel to the serious and challenging

subject of teen smoking.

Peers play a strong role in delivering a positive message to one another. By focusing the website on teens talking to teens, the information and advice is relayed in a manner that is non-authoritative and non-threatening. By putting the creativity of learning in the hands of teens, a program designed FOR adolescents BY adolescents will result.

Recommendations

The Internet provides innovative opportunities for reaching the teen population. By using this non-traditional approach, health education and promotion needs to work in parallel with the following: school, parent and/or guardian, and community.

The school is a logical location for smoking prevention education delivered via the Internet. Schools facilitate and support education by providing an avenue for the delivery of prevention information to each student. By engaging a captive audience, the teens are drawn in by this innovative tool and have the ability to create an

individual experience. Teachers and counselors can enhance the method in which the material is delivered by providing clear and appropriate directions as well as guidance through the website.

A parent and/or guardian will act as the catalyst to the process by encouraging open and honest interaction with their children. Utilizing information that is provided through the school and Internet, the support will enable the teens to become more confident and self-assured about smoking situations and decisions.

The community is the support network for the school and family. Information and activities can add to the existing intervention in order to reinforce messages, interactions and decisions.

Because the Internet is such a new option for prevention programs, there is not a lot of data to compare to traditional prevention programs. This project and its results suggest future research in a number of areas:

1. Measure use of an existing adolescent smoking prevention website and assess change in smoking behavior.

2. Evaluate the implementation of a multi-group (i.e. school, family, community) adolescent smoking prevention website.
3. Compare a tailored and non-tailored smoking intervention for adolescents delivered via the Internet.
4. Demonstrate and examine different design elements for inclusion in an adolescent smoking prevention website.

By identifying and implementing different areas of research, the future of smoking prevention in adolescents remains promising.

References

- Abbate, J. (1999). *Inventing the Internet*. Cambridge, MA: MIT Press.
- Abrams, M. (Eds.) (1998). World Wide Web: Beyond the Basics. Englewood Cliffs, NJ: Prentice-Hall.
- American Lung Association (2000). Teenage Tobacco Use. New York, New York.
- American Lung Association (2002). Trends in Tobacco Use. Best Practices and Program Services. Epidemiology and Statistics Unit.

Bandura, A. (1977a). Self-Efficacy: Toward a Unifying Theory of Behavior Change. In Glanz, Lewis & Rimer (Eds.), *The Health Belief Model* (pp.41-59); *The Transtheoretical Model and Stages of Change* (pp. 60-84); *Social Cognitive Theory* (pp. 153-178). San Francisco, CA.

Bandura, A. (1977b). Social Learning Theory. In Glanz, Lewis & Rimer (Eds.), *The Transtheoretical Model and Stages of Change* (pp. 60-84); *Social Cognitive Theory* (pp.153-178). San Francisco, CA.

Bandura, A. (1986). Social Foundations of Thought and Action: A Social Cognitive Theory. In Glanz, Lewis & Rimer (Eds.), *The Health Belief Model* (pp.41-59); *The Transtheoretical Model and Stages of Change* (pp. 60-84). San Francisco, CA.

- Baranowski, T., Perry, C.L. & Parcel, G.S. (1997). Social Cognitive Theory. In Glanz, Lewis & Rimer (Eds.), *Social Cognitive Theory* (pp.153-178). San Francisco, CA.
- Baugh, J.G., Hunter, S.M., Webber, L.S., Berenson, G.S. (1982). Developmental trends of first cigarette smoking experience of children: The Bogalusa Heart Study. *American Journal of Public Health*, 72, 1161-1164.
- Botvin, G.J. (1986). Substance abuse prevention research: Recent developments and future directions. *Journal of School Health*, 56, 369-374.
- Botvin, G.J., & Botvin, E. (1997). School-based programs. In J. Lowinson, P. Ruiz, R. Millman, & J. Langrod (Eds.), *Substance Abuse: A comprehensive textbook* (pp. 764-775). Baltimore: Williams & Wilkins.

Campaign for Tobacco-Free Kids (1999). The Toll of Tobacco in Michigan. Washington, DC.

Cattagni, A. & Westat, E.F. (2001). Internet Access in U.S. Public Schools and Classrooms: 1994-99. National Center for Education Statistics, Stats in Brief, NCES 2000-086, Office of Educational Research and Improvement, U.S. Department of Education.

Centers for Disease Control (2000). United States National Youth Tobacco Survey Fact Sheet. National Center for Chronic Disease Prevention and Health Promotion. Global Tobacco Prevention and Control. http://www.cdc.gov/tobacco/global/gyts/factsheets/US_factsheet.htm

Clayton, R.R., Scutchfield, F.D., Wyatt, S.W. (2000). Hutchinson Smoking Prevention Project: a New Gold Standard in Prevention Science Requires New Transdisciplinary Thinking. *Journal of the National Cancer Institute*, 92(24), 1964-1965.

- De Vries, H. & Brug, J. (1999). Computer-tailored interventions motivating people to adopt health promoting behaviors: Introduction to a new approach. *Patient Education and Counseling, 36*, 99-105.
- Dusenbury, L. & Falco, M. (1997). School-based drug abuse prevention strategies: From research to policy and practice. In R. Weissberg, T. Gullotta, R. Hampton, B. Ryan, & G. Adams (Eds.), *Enhancing Children's Wellness* (pp. 47-75). Thousand Oaks, CA: Sage.
- Eissenberg, T. & Balster, R.L. (2000). Initial tobacco use episodes in children and adolescents: Current knowledge, future directions. *Drug and Alcohol Dependence, 59*, Supplement 1, S41-S60.
- Ellickson, P.L. (1994). Getting and keeping schools and kids for education studies. *Journal of Community Psychology, CSAP Special Issue*, 102-116.

- Ellickson, P. (1995). Schools. In R. Coombs & D. Ziedonis (Eds.), *Handbook on drug abuse prevention* (pp. 93-120). Toronto: Allyn & Bacon.
- Flay, B.R. (1985). Psychosocial approaches to smoking prevention: a review of findings. *Health Psychology, 4*, 449-488.
- Fritz, Deborah J. (2000). Adolescent Smoking Cessation: How effective have we been? *Journal of Pediatric Nursing, (15)5*, 299-306.
- Glanz, K., Lewis, F.M., Rimer, B.K. (1997). Linking Theory, Research, and Practice. Health Behavior and Health Education: Theory, Research and Practice, San Francisco, CA.
- Glanz, K. & Rudd, J. (1993). Views of Theory, Research, and Practice: A Survey of Nutrition Education and Consumer Behavior Professionals. *Journal of Nutrition Education, 25(5)*, 269-273.

Glynn, T.J. (1989). Essential elements of school-based smoking prevention programs. *Journal of School Health*, 59(5), 181-188.

Green, L.W. & Kreuter, M.W. (1991). Social Diagnosis. Health Promotion Planning: An Educational and Environmental Approach, 2nd Edition, Mayfield Publishing Company, Mountainview, CA.

Grunwald Associates (2000). Children, Families, and the Internet 2000. Available: <http://www.grunwald.com/survey>.

Harrell, J.S., Bangdiwala, S.I., Deng, S., Webb, J.P., & Bradley, C. (1998). Smoking Initiation in Youth: The Roles of Gender, Race, Socioeconomics, and Developmental Status. *Journal of Adolescent Health*, 23, 271-279.

- Hochbaum, G.M. (1958). Public Participation in Medical Screening Programs: A Sociopsychological Study. In Glanz, Lewis & Rimer (Eds.), *The Health Belief Model* (pp.41-59). San Francisco, CA.
- Hull, G.L. (1943). Principles of Behavior. In Glanz, Lewis & Rimer (Eds.), *Social Cognitive Theory* (pp. 153-178). San Francisco, CA.
- Iverson, D.C., Kolbe, L.J. (1983). Evaluation of the national disease prevention and health promotion strategy: establishing a role for the schools. *Journal of School Health, 53*, 294-302.
- Kealy, K.A., Peterson, A.V., Jr., Gaul, M.A., Dinh, K.T.(2000). Teacher training as a behavior change process: principles and results from a longitudinal study. *Health Education and Behavior, 27(1)*, 64-81.
- Kirscht, J.P. (1974). The Health Belief Model and Illness Behavior. *Health Education Monographs, 2*, 387-408.

Kishchuk, N., O'Laughlin, J., Paradis, S., Masson, P., Sacks-Silver, G. (1990). Illuminating negative results in evaluation of smoking prevention programs. *Journal of School Health, 60(9)*, 448-451.

Krueger, R.A. (1998). Written Reports. Analyzing & Reporting Focus Group Results, 11(6), 109-113.

Lasater, T., and others (1992). Task Group VI: Social Marketing Planning Model: An Approach to Programs and research for Groups from Diverse Backgrounds. In D.M. Becker and others (Eds.), *Health Behavior Research in Minority Populations: Access, Design, and Implementation*. NIH publication no. 92-2965. Bethesda, MD: U.S. Department of Health and Human Services.

Lewin, K. (1935). A Dynamic Theory of Personality. In Glanz, Lewis & Rimer (Eds.), *Linking Theory, Research and Practice* (pp.19-35). San Francisco, CA.

Lynagh, M. Schofield, M. & Sanson-Fisher, R. (1997).

School health promotion programs over the past decade: A review of the smoking, alcohol and solar protection literature. *Health Promotion International*, 12(1), 43-59.

Marin, G. and others (1995). A Research Agenda for Health Education Among Underserved Populations. In Glanz, Lewis & Rimer (Eds.), *Perspectives on Using Theory* (pp.441-449). San Francisco, CA.

Marlatt, G.A. & Gordon, J.R. (1985). Relapse Prevention. In Glanz, Lewis & Rimer (Eds.), *The Health Belief Model* (pp.41-59); *The Transtheoretical Model and Stages of Change* (pp. 60-84). San Francisco, CA.

Michigan Department of Community Health (2002). 2001

Michigan Youth Tobacco Survey.

<http://www.michigan.gov/mdch/1,1607,7-132-8347-17854--,00.html>.

Michigan State Board of Education (1998). 1997 Michigan Youth Risk Behavior Survey. Lansing, MI.

Miller, N.E. & Dollard, J. (1941). Social Learning and Imitation. In Glanz, Lewis & Rimer (Eds.), *Social Cognitive Theory* (pp.153-178). San Francisco, CA.

Miller, E.T., Neal, D.J., Roberts, L.J., Baer, J.S., Cressler, S.O., Metrik, J., Marlatt, G.A. (2002). Test-retest reliability of alcohol measures: is there a difference between internet-based assessment and traditional methods? *Psychology of Addictive Behaviors*, 16(1), 56-63.

Mischel, W. (1973). Toward a Cognitive Social Learning Reconceptualization of Personality. In Glanz, Lewis & Rimer (Eds.), *Social Cognitive Theory* (pp.153-178). San Francisco, CA.

Morbidity and Mortality Weekly Report (2001). Youth Tobacco Surveillance-U.S., 2000, 50, SS-04.

Murray, D.M., Davis-Hearn, M., Goldman, A.I., Pierie, P. & Luepker, R.V. (1988). Four- and Five-year follow up results from four seventh-grade smoking prevention strategies. *Journal of Behavioral Medicine*, 11, 395-405.

National Center for Chronic Disease Prevention and Health Promotion (1997). Guidelines for School and Community Programs: Preventing Tobacco Use and Addiction.

National Center for Education Statistics (2000). Quality of Elementary and Secondary School Environments: Student's Use of the Internet. Indicator 45.
<http://nces.Eds.gov/programs/coe/2000/section4/indicator45.html>

Neilsen, Jakob (2002). Kid's Corner: Website Usability for Children. <http://www.useit.com/alertbox/20020414.html>

- Pallonen, U.E. (2001). *Testing the Effectiveness of an Internet-based Tailored Smoking Intervention in Adolescents*. University of Michigan Comprehensive Cancer Center, Health Media Research Laboratory, Ann Arbor, Michigan.
- Pallonen, U. Murray, D., Schmid, L., Pirie, P. & Luepker, R. (1990). Patterns of self-initiated smoking cessation among young adults. *Health Psychology, 9(4)*, 418-426.
- Patten, C.A. (n.d.). Internet-Home Based Treatment for Adolescent Smokers. National Cancer Institute. Abstract retrieved March 2, 2003 from <http://cancercontrol.cancer.gov/grants/abstract.asp?ApplID=6377023>

Perry, C. (n.d.). School-based Adolescent Tobacco Use Prevention. Retrieved January 19, 2003, from the University of Minnesota, Maternal and Child Health Web site:

<http://www.epi.umn.edu/mch/HealthyGenerations/HealthyG1c.html>

Peterson, A.V., Kealey, K.A., Mann, S.L., Marek, P.M. & Sarason, I.G. (2000). Hutchinson Smoking Prevention Project: long-term randomized trial in school-based tobacco use prevention—results on smoking. *Journal of the National Cancer Institute, 92(24)*, 1979–91.

Pierce, W. & Gilpin, E. (1996). How long will today's new adolescent smoker be addicted to cigarettes? *American Journal of Public Health, 86(20)*, 253–256.

Prochaska, J.O., Redding, C.A. & Evers, K.E. (1997). The Transtheoretical Model and Stages of Change. In Glanz, Lewis & Rimer (Eds.), *The Transtheoretical Model and Stages of Change* (pp. 60–84). San Francisco, CA.

Public Health Service (PHS) (1964). Smoking and health. Report of the advisory committee to the Surgeon General of the Public Health Service. US Department of Health, Education, and Welfare, Public Health Service. PHS Publication No. 1103.

Rooney, B.L., Murray, D.M. (1996). A meta-analysis of smoking prevention programs after adjustment for error in the unit of analysis. *Health Education Quarterly*, 23(1), 48-64.

Rosenstock, I.M. (1974). Historical Origins of the Health Belief Model. In Glanz, Lewis & Rimer (Eds.), *The Health Belief Model* (pp.41-59). San Francisco, CA.

Satcher, David, MD, PhD (2000). Reducing Tobacco Use: A Report of the Surgeon General-2000.

Skinner, H., Maley, O., Smith, L., Chirrey, S., Morrison, M. (2001). New Frontiers: Using the Internet to Engage Teens in Substance Abuse Prevention and Treatment. Adolescents, Alcohol, and Substance Abuse: Reaching Teens through Brief Interventions. New York, New York. pp. 297-318.

Strecher, V.J. (2000). Tailored Messaging for Health Education, *The Bulletin*, 44(1), 17-23.

Strecher, V.J., DeVellis, B.M., Becker, M.H. & Rosenstock, I.M. (1986). The Role of Self-Efficacy in Achieving Health Behavior Change. In Glanz, Lewis & Rimer (Eds.), *The Health Belief Model* (pp.41-59). San Francisco, CA.

Strecher, V.J., Kreuter, M.W., DenBoer, D., Kobrin, S.C., Hospers, H.J., & Skinner, C. S. (1994). The effects of computer-tailored smoking cessation messages in family practice settings. *Journal of Family Practice*, 39, 262-270.

Strecher, V.J., Kreuter, M.W., Kobrin, S.C. (1995). Do cigarette smokers have unrealistic perceptions of their heart attack, cancer and stroke risks? In Glanz, Lewis & Rimer (Eds.), *The Health Belief Model* (pp.41-59). San Francisco, CA.

Strecher, V.J. & Rosenstock, I.M. (1997). The Health Belief Model. In Glanz, Lewis & Rimer (Eds.), *The Health Belief Model* (pp.41-59). San Francisco, CA.

Tobler, N. & Stratton, H. (1997). Effectiveness of school-based drug prevention programs: A meta-analysis of the research. *Journal of Primary Prevention*, 8(1), 71-128.

US Department of Education (1997). US Department of Educational Research and Improvement. Office of Educational Technology. Parent's Guide to the Internet. <http://www.Eds.gov/pubs/parents/internet/>

U.S. Department of Health and Human Services (USDHHS)
(1989). Reducing the health consequences of smoking:
25 years of progress. A report of the Surgeon General.
U.S. Department of Health and Human Services. Public
Health Service, Centers for Disease Control, Center
for Chronic Disease Prevention and Health Promotion,
Office on Smoking and Health. DHH Publication No.
(CDC) 89-8411.

U.S. Department of Health and Human Services (USDHHS)
(1991). Strategies to control tobacco use in the
United States: A blueprint for public health action in
the 1990's. U.S. Department of Health and Human
Services, Public Health Service, National Institutes
of Health, National Cancer Institute, NIH Publication
No. 92-3316.

Van Ryn, M., Heaney, C.A. (1992). What's the Use of Theory?
In Glanz, Lewis & Rimer (Eds.), *Linking Theory,
Research and Practice* (pp.19-35). San Francisco, CA.

Velicer, W.F., Prochaska, J.O., Bellis, J.M., DiClemente, C.C., Rossi, J.S. Fava, J.L., & Steiger, J.H. (1993). An expert system intervention for smoking cessation. *Addictive Behaviors, 18*, 269-290.

Williams, C. (2000). Internet Access in U.S. Public Schools and Classrooms: 1994-99. National Center for Education Statistics, Stats in Brief, NCES 2000-086, Office of Educational Research and Improvement, U.S. Department of Education.

Youth Tobacco Prevention Survey (n.d.). *Word of Mouth*.

Retrieved March 2, 2003, from Cleveland Clinic Web site:

<http://www.clevelandclinic.org/health/Wordofmouth/aboutus.html>

Appendices

Appendix A

IRB Notice of Outcome



The University of Michigan Medical School
 Institutional Review Board for Human Subject Research (IRBMED)
 4558 Krzyz Medical Research Building 1, 200 Zina Pacher, Ann Arbor, Michigan 48109-0570
 Telephone: 734 763 4768 • Telefacsimile: 734 763 9603 •
 Electronic Mail: irbmed@umich.edu • Internet Web Location: <http://www.med.umich.edu/irbmed>

NOTICE OF OUTCOME OF REVIEW OF HUMAN SUBJECT RESEARCH

Pallonen, Unto (Principal Investigator) -- IRBMED #: 2000-0830

Project Title: Testing the Effectiveness of an Internet-based Tailored Smoking Intervention in Adolescents.

Sponsor & Its Identifier Code: Michigan Department of Community Health -- Local Identifier Code: NA

PI's Fax #: 647-7543 -- Submit Date: 12/04/2001 -- Receipt Date: 12/04/2001

Previously Approved: Direct involvement of human subjects (prospective); Research solely using surveys, interviews, focus groups, observations, or other similar methods.

Supporting Documents: Consent for Focus Groups (11/01/2001), Consent for Intervention Trials (12/01/2001), Consent for Follow-up survey (12/1/2001), Focus Group Protocol (11/01/2001), Revised Study Protocol (12/15/2001), Non-disclosure for Focus Groups (10/30/2001), Recruiting Materials for Focus Groups (11/01/2001), Recruiting Materials for intervention trials (12/01/2001), Survey Instruments (11/01/2000)

Application Type: Amendment: Consent Document, Amendment: Study Protocol, Scheduled-Continuation Review

FDA-Regulated Test Articles: No test article used.

Vulnerable Subjects: Children

Informed Consent Process: Assent, Comprehensive written

Initial Risk Level: No More Than Minimal -- **Submission Risk Level:** No Increase

Outcome: Approved

Decision Date: 01/10/2002

Approval Date of Most Recent Version of Consent Document: 11/01/2001

Expiration Date of Project Approval: 01/09/2003

Information on the project and the outcome of the review by the IRBMED appear in the descriptive paragraph above. The content of the submitted material conforms to relevant regulations of the United States Government and the University of Michigan. If the descriptive paragraph indicates that a "Comprehensive Written" informed consent process is to be implemented, all copies of the consent document are required to display the following information in the descriptive paragraph: [1] IRBMED Archive Number, [2] Approval Date of Most Recent Version of Consent Document, [3] Expiration Date of Project Approval. If the descriptive paragraph acknowledges that the project has been terminated, all activity involving human subjects will have come to an end, and will not resume unless reviewed and approved by the IRBMED as a new or extension project.

The investigators are required to report to the IRBMED [1] planned changes in any aspect of the study, and do not implement any change without receiving approval, except to eliminate immediate hazard to subjects, [2] any serious or unexpected adverse events, and [3] any new information on the project that may adversely influence the risk/benefit ratio.

The investigators are responsible for applying to the IRBMED to receive Scheduled-Continuation Review and Approval of the project about six weeks prior to the "Expiration Date of Project Approval" shown in the descriptive paragraph. In case IRBMED approval is not secured prior to Expiration Date, subject recruitment activity will cease, and no research interventions will be administered to the research subjects except to eliminate immediate hazard.

When submitting applications to the IRBMED, the investigators are required to send one printed and signed copy, and one electronic copy of those documents prepared in their office, using a common word-processing application for Macintosh or Windows operating systems. Electronic documents should be saved to a diskette in the interchange readable text format (RTF), and their labels should include the suffix ".rtf".

A list of IRBMED members is available at the IRBMED Internet web site ("Membership Roster (IRBMED)"). This Notice of Outcome document and the membership roster may be submitted to sponsors of the research.

Note: If this research study will take place in the General Clinical Research Center (GCRC), please remember to send the GCRC a copy of all IRBMED approval letters and approved consent forms. Send to: GCRC, A7119 UH, Box 0708 or fax to 936-4024. GCRC phone: 936-9090. Email: markst@umich.edu GCRC Website: <http://www.med.umich.edu/gcrc/>

Copies to:
 Principal Investigator
 Medical School Assoc. Dean for Research & Graduate Studies
 Division of Research & Development Administration

Robert Cody, M.D.,
 Professor of Internal Medicine
 Co-Chair, IRBMED

Appendix B

Letter to the Teachers

UMCCC 0830 Project Title: *Testing the Effectiveness of an Internet-based Tailored Smoking Intervention in Adolescents*

This form was approved by the University of Michigan Medical School Institutional Review Board for Human Subjects Research on 1/04/2000, expiration date 1/04/2001. Principal Investigator is Unto Pallonen, PhD and Co-investigators include the following: Victor Strecher, MPH, PhD, Thomas Braun, PhD, Barbara Guthrie, PhD, RN, Ovide Pomerleau, MS, PhD.

Date

Teacher Name

School

Address

City, State, Zip

Mr./Ms./Mrs. _____,

Welcome back to school! I hope your summer was fun and relaxing. My name is Amy Parlove and I am working with the University of Michigan Comprehensive Cancer Center on a web-based smoking prevention intervention. The program is a continued development of the ASHES (Anti-Smoking Health Education Sources) project. The program is designed to teach teens how they can remain non-smokers or how they can acquire skills that support smoking cessation.

The intent of my letter is to request participation from students in your class in a focus group. The purpose of the focus group is to identify design elements for inclusion in a web-based smoking prevention intervention that are both effective and appealing to teens. This information will be used to enhance the above-mentioned Internet-based anti-smoking program.

The focus group experience would provide a nice benefit to your students. By participating in the focus group, they will be able to openly share individual thoughts and opinions on the smoking project website while providing the project with invaluable information that will

help re-design elements on the site. Ultimately, their input will help other smoking programs available on the Internet as well.

Listed below are the participation needs for the focus groups:

- √ Availability of a date and location in early October
- √ 6-10 students from your class to participate
- √ 45 minutes of class time (possibly during home room, study period)
- √ Disseminate and collect consent forms (provided by UM)

Please consider this opportunity for your students. I look forward to talking with you in approximately 1 week to discuss your potential interest. Please do not hesitate to call me at any time to ask questions. My phone number is (734) 763-6099 and my email address is aparlove@yahoo.com.

Sincerely,

Amy E. Parlove

UMCCC Health Media Research Laboratory

Appendix C

PARENT'S INFORMED CONSENT AND CHILD'S INFORMED ASSENT

UMCCC 0830 Project Title: *Testing the Effectiveness of an Internet-based Tailored Smoking Intervention in Adolescents*

INTRODUCTION: Your child has been invited to participate in a small focus group to learn more about what teenagers like and dislike about the Internet. Findings will be used to improve a web-based smoking prevention program. Altogether about 30 students who are in grades 6 to 8 in Michigan middle schools will be included in the study. All students in your child's class have the opportunity to participate in the discussion groups, which will be filled on a first come, first served basis.

PURPOSE: The purpose of the focus groups is to discuss the current website (smoking prevention program) and identify what additions would improve the design of the site so that it is both effective and appealing to teens.

WHAT HAPPENS DURING GROUP DISCUSSION: The group will include five to ten students in grades 6 to 8 and will be led by two group leaders, who are members of the study staff. During a 30 minute discussion, your child and all other members of the group will be asked to describe and explain their views and feelings about the design of the current web-based smoking prevention intervention. The group discussion will be tape-recorded for review by the researchers of the study.

CONFIDENTIALITY: All information collected will be confidential. This means that only the researchers of the

study and other members of the group will hear your child's comments. Only first names will be used in the group, and included on tape and in transcription. Only members of the study staff will have access to the transcription.

RISKS AND BENEFITS: As compensation for your child's participation in this group, we will be distributing movie ticket certificates valued at \$10. Your child's participation in the study will also help design more effective web-based health education programs to prevent and reduce teen smoking, which may benefit others in the future.

Although we don't expect any risk or injury to occur, if your child experiences any discomfort, which may be related to this study, please contact the office of the Principal Investigator at the phone number or address listed below. Should your child get physically injured as a result of research-related treatments or procedures, the University of Michigan will provide first-aid medical treatment. Additional medical treatment will be provided, if the University determines that it is responsible for providing such treatment. However, the University does not provide compensation to a person injured while taking part as a participant in research.

If new information is obtained during the course of this research, which may indicate that the risks of harm to participants have increased significantly, the investigators will let you know, so that you may reconsider your willingness to let your child stay as a participant in the study.

COSTS: All costs of this study will be covered by research funds granted by the Michigan Department of Community Health.

RIGHT TO WITHDRAW: Your child's participation in this study is entirely by your and your child's own free choice. After having agreed to become a participant, your child may also drop out of the study by his/her own free will at any time with no effect on your child's school program, grade, or other activities.

QUESTIONS: To find out more about any aspect of this study, including your child's rights as a participant, you may contact the Principal Investigator:

Unto E. Pallonen
300 North Ingalls, Room 5D04
Ann Arbor, MI 48109-0471
tel. (734) 763-6099.

If you have any questions or concerns about your child's rights as a research participant, or any grievance, you may also contact the Office of Patient-Staff Relations, L5003 Women's Hospital, University of Michigan Medical Center, Ann Arbor, Michigan 48109-0275; telephone (734) 763-5456. Co-investigator's on the project include the following: Victor Strecher, MPH, PhD, Thomas Braun, PhD, Barbara Guthrie, PhD, RN, Ovide Pomerleau, MS, PhD.

One copy of this document will be kept together with the investigators' research records for this study. A second copy will be given to your child to keep.

(i) Stu

Section 1.01 TO BE FILLED OUT AT HOME BY PARENT OR GUARDIAN

Voluntary Consent: I have read the information above, and I understand the meaning. I am aware that, like in any research, the investigators cannot always predict what may happen or possibly go wrong. I have been given sufficient time to consider if I should let my child join this study. I hereby consent my child by my own free choice to take part in the study as a research participant.

My Child's Name: _____
Birth Date: _____

Please circle the description which fits the best: Mother Father
Legally-appointed guardian

Printed Name of Parent/Guardian: _____
Consenting Signature of
the Parent/Guardian: _____ Date: _____

This form was approved by the University of Michigan Medical School Institutional Review Board for Human Subjects Research on 1/04/00, expiration date on 1/04/01

Section 1.02

Section 1.03

Section 1.04 TO BE FILLED OUT AT FOCUS GROUP BY STUDENT

I have read the information given above. The investigators personally discussed with me and told me more about the study, and answered my questions. I understand the meaning of this information. I am aware that, like in any research, the investigators cannot always predict what may happen or possibly go wrong. I have been given sufficient time to consider if I should join this study. I hereby agree by my own free choice to take part in the study as a research subject.

Name of the Participant: _____

Signature of the Child: _____ Date: _____

I have given this research participant information on the study, which in my opinion is accurate and sufficient for the subject to understand fully the nature, risks and benefits of the study, and the rights of a research subject. There has been no coercion or undue influence. I have witnessed the signing of this document by the participant.

Investigator's Name: _____

Investigator's Signature: _____

_____ Date: _____

(iii) Invest

Section 1.05 TO BE FILLED OUT AT HOME BY PARENT OR GUARDIAN

Voluntary Consent: I have read the information above, and I understand the meaning. I am aware that, like in any research, the investigators cannot always predict what may happen or possibly go wrong. I have been given sufficient time to consider if I should let my child join this study. I hereby consent my child by my own free choice to take part in the study as a research participant.

My Child's Name: _____

Birth Date: _____

Please circle the description which fits the best: Mother Father
Legally-appointed guardian

Printed Name of Parent/Guardian: _____

Consenting Signature of
the Parent/Guardian: _____ Date: _____

This form was approved by the University of Michigan Medical School Institutional Review Board for Human Subjects Research on 1/04/00, expiration date on 1/04/01

Section 1.06

Section 1.07

Section 1.08 TO BE FILLED OUT AT FOCUS GROUP BY STUDENT

I have read the information given above. The investigators personally discussed with me and told me more about the study, and answered my questions. I understand the meaning of this information. I am aware that, like in any research, the investigators cannot always predict what may happen or possibly go wrong. I have been given sufficient time to consider if I should join this study. I hereby agree by my own free choice to take part in the study as a research subject.

Name of the Participant: _____

Signature of the Child: _____ Date: _____

I have given this research participant information on the study, which in my opinion is accurate and sufficient for the subject to understand fully the nature, risks and benefits of the study, and the rights of a research subject. There has been no coercion or undue influence. I have witnessed the signing of this document by the participant.

Investigator's Name: _____

Investigator's Signature: _____ Date: _____

Appendix D

Non-disclosure Form

Project Title: Testing the Effectiveness of an Internet-Based Tailored Smoking Intervention in Adolescents

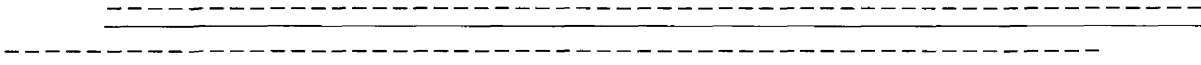
IRB Archive Number: 2000-0830

Expiration Date of Project Approval: 2002/01/04

Principal Investigator: Unto E. Pallonen, PhD

Date Prepared: 2001/10/30

Approval Date of Most Recent Version: 2001/11/01



Health Media Research Laboratory
University of Michigan Comprehensive Cancer Center

NON-DISCLOSURE STATEMENT

UMCCC 0014 Project Title: *Testing the Effectiveness of an Internet-based Tailored Smoking Intervention in Adolescents*

By signing this form, I agree that I will keep all information and comments shared by the members of this focus group private and confidential. While in group, I will only call on the other group members by their first names. After the group is over, I will NOT share the comments of other group

members with my friends, parents, teachers, classmates, or any individual other than the research investigator.

I understand that the research staff cannot guarantee that the other focus group members will keep statements confidential, however, each member of the group will sign this non-disclosure statement.

I also understand that the research investigators will take actions to keep the content of the focus group private and confidential. This means only the members of the study staff will have access to the notes and recorded transcription from this group. Only first names will be included on any records of this focus group.

The research staff has explained to me this form and the meaning of confidentiality. I have been given enough time to decide if I should join this study, and have had the chance to ask questions.

Name of Participant _____

Signature of Participant _____

Date _____

Investigator's Initials _____

Appendix E

Focus Group Feedback Survey

Fall 2001

1. The focus group was worth my class time today.

Agree

Disagree

2. The focus group was fun and interesting.

Agree

Disagree

3. The instructor gave easy to follow directions.

Agree

Disagree

4. The instructor was helpful in directing the focus group.

Agree

Disagree

5. The movie theater certificate was a cool incentive.

Agree

Disagree

6. What did you like most about the focus group?

7. What did you like least about the focus group?
