

Effects of an Asynchronous Online Course on Promoting Positive Attitudes towards Safer Sex
Practices for University-Age Young Adults

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ABSTRACT

Effects of an Asynchronous Online Course on Promoting Positive Attitudes towards Safer Sex Practices for University-Age Young Adults

Haleh Raissadat

The world is struggling everyday to find a way to deal with Sexually Transmitted Infections. The goal of this qualitative, build-and-evaluate research is to address one small aspect of this challenge —using online learning to promote positive attitudes towards safer sex behaviors among young adults, in this case Concordia university students between the ages of 18 and 24. This is a major challenge because 1) attitudes usually form in a social environment, and changing them through a stand-alone online learning module requires appropriate instructional strategies; 2) the target population of this research is at a critical juncture in its cognitive development. Conflicts might arise when adjusting to the new environment in university and societal and peer pressure. To examine the effectiveness of suggested instructional strategies, a needs assessment was performed on 16 sexually active participants with strong sexual knowledge and skills, who seemed to lack positive attitudes towards practicing safer sex. A 30-minute asynchronous online learning program was designed and developed to promote positive attitudes towards safer sex practices, and a formative evaluation of the module was conducted with 12 participants. The module was designed on the basis of discovery learning, self-assessment, peer education, social marketing, and practice. One unique feature of the course was the use of an electronic scrap paper, which allowed learners to reflect on their ideas while learning from peers' opinions. The formative evaluation

indicated that online education is favored and could be effective for promoting positive attitudes in sensitive healthcare subjects if appropriate learning strategies are used.

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DEDICATION

To my father and my mother

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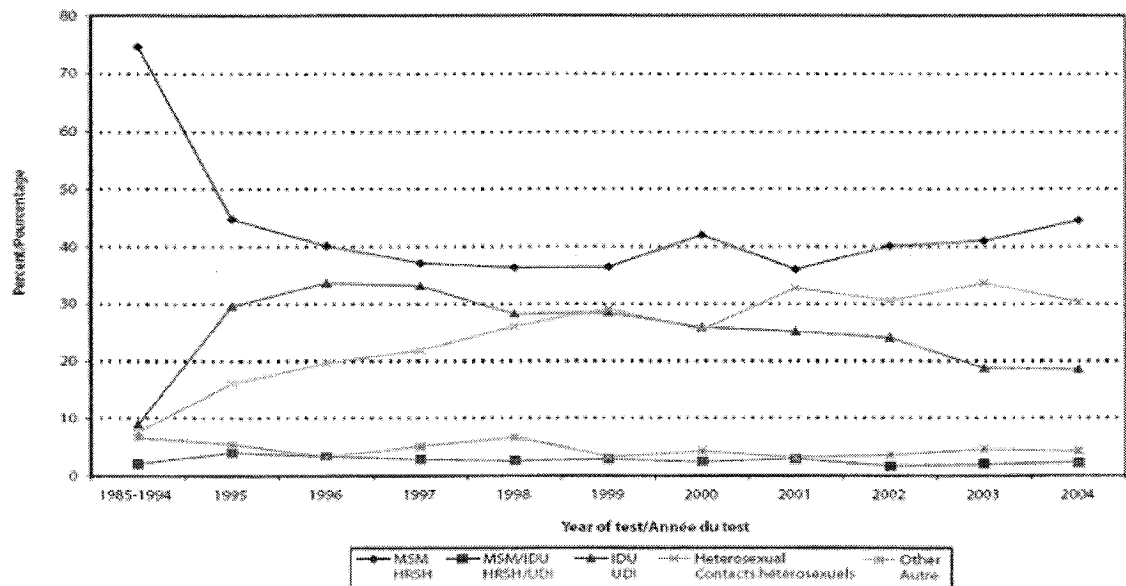
CHAPTER 1—BACKGROUND

The world is struggling everyday to find a way to deal with Sexually Transmitted Infections (STI) both to prevent individuals from contracting STIs and to cure those who are infected. The goal of this study is to address one small aspect of this challenge: using online learning to promote safer sex behaviors among young people. This chapter presents the background for the study. It first describes the problem of rising STIs among young adults and the challenges and opportunities for reaching this population with a message of safer sex. Next, it provides a brief overview of this study, stating the research question and briefly describing the project; and closes with a discussion of the significance of the study, its limitations, and the definitions used in it.

THE PROBLEM

Common belief is that, when young adults get to college or university, they are well aware of safer sex practices. Perhaps this belief exists because of pervasive sex education or because of many safer sex messages in the media. But perception is not reality. Public health statistics suggest that young adults do not practice safer sex behaviors and, as a result, public health officials are noticing a rise in STIs among young adults. Although by the time that teenagers in North America finish high school they might be aware that “safer sex behavior” and “consistent use of condoms” can tremendously reduce the risk of AIDS infection, AIDS remains the sixth highest cause of death among 15 to 24 year old individuals (Nangle & Grover, 2001). Moreover, the number of new cases is rising at an alarming rate. In Canada, the number of new cases grows by 4000

every year (AIDS Committee of Toronto, 2004) and the Public Health Agency of Canada (PHAC) reports a 20% rise in the number of cases in just the past five years. Especially alarming is an almost 15% increase in reported HIV/AIDS cases among women in the last few years in comparison to previous years and that almost 45% of the newly infected women are between 15 and 29 years old (PHAC, 2005). Figure 1.1 compares the HIV infection rates among different population groups between 1985 and 2004.



MSM: Men who have sex with men

HRSH: hommes ayant des relations sexuelles avec des hommes

IDU: Injection Drug User(s)

UDI: utilisateurs de drogues injectables

Figure 1.1: “Positive HIV test reports by exposure category and year of test” extracted from Public Health Agency of Canada website retrieved on July 5, 2005 from <http://www.phac-aspc.gc.ca/publicat/aids-sida/haic-vsac1204/figures/2.gif>

Other statistics provide some insight into this unwelcome growth in new HIV infections. Robertson (2005) reports a high level of sexual activity among teenagers —27% of girls and 28% of boys have sex by age 17— and, more disturbingly, 44% of young adults between the age of 20 and 24 are not using condoms while having sex.

In other words, perhaps the belief that young people are learning about safer sex practices is not true. Research conducted since 1981, when AIDS became a life-threatening issue, suggests that public education efforts do pay off (Human Rights Watch, 2006), but the efforts might not work if people do not feel a sense of urgency about this life-threatening issue.

That lack of urgency certainly might exist around this disease. One of the by-products of the early education and scientific developments is that the social construct of AIDS has changed through the years. "Public reaction toward AIDS has moved universally through stages of denial, scapegoating and blame before any constructive response to the epidemic has occurred" (Lear, 1995, p. 1312).

The end result is that many young people now believe that AIDS is a curable condition and do not perceive it as a serious problem (Hayden, 2005). According to sex educator Stephanie Mitelman (phone conversation, April 9, 2005), young adults might not perceive the risk because, if they are not gay or African American, they often do not consider themselves to be part of an at-risk population. She adds that, at their age, young adults typically do not worry about life-threatening consequences of their behaviors. Feeling invincible, they believe, instead, that, at worst, a treatment exists for whatever happens to them or, if they can live long with the assistance of drug therapies, the problem cannot be that serious.

When teenagers leave high school and become young adults, avenues for reaching them with education about safer sex practices become far more diffuse. Unlike the high schools, which can reach a majority of teenagers, no single institution reaches the majority of young adults. Many young adults do not continue their education beyond high school. Of those who do, sex education is not a required course in CEGEPs, colleges, and universities, unlike in high school in many countries.

Further complicating the situation on university campuses is that many young adults, especially undergraduates, are international students whose attitudes towards sex differs from that of the dominant culture. For example, Concordia University in Montreal has more than 3,000 international students in its undergraduate programs. Many come from countries that do not offer sex education in schools or do not openly discuss sexual issues with young people. Many students across Canada are also immigrants and, in keeping with the cultures of their homelands, parents might not have discussed issues of safer sex with their children.

In other words, even though the young adults in university are considered to be more emotionally and intellectually mature than high school students, they might not even have a high school education in safer sex or, if they do, might not be practicing it. The only way to bridge this gap in knowledge about safer sex and provide students with information to prevent STIs is to put strategies in place that motivate students to voluntarily learn about, and practice safer sex. For example, the Internet could be used to

shape understanding about sexuality, sexual identity, sexual techniques, and the ability to develop and maintain intimate relationships (Boies, 2002).

But how can this message be delivered to young adults? Although they do not have universal reach like high schools, as the primary source of health care to university students, health service centers on university campuses normally have both the opportunity and resources to reach this population.

One such center is Health Services at Concordia University. In addition to providing basic medical care, this center at Concordia—like those at most other university campuses—is committed to influencing health behavior change in a positive way. The mission statement of Concordia University's Health Services reflects this positive focus on health, a focus that is intended to assist individuals in functioning at higher levels of academic achievement, increased sense of well being, reduced physical and mental illness, increased capability to respond to change, decreased level of stress, and an increased ability to identify, access and use available health services (Concordia Health Services' Mission and Philosophy, 1994). Reducing STIs, especially life-threatening ones like HIV, is within this mission. To achieve it, Health Services at Concordia University offers a health promotion and wellness service, including seminars and other types of educational services. The health promotion service focuses on topics such as nutrition and body image counseling and education, drug and alcohol use, stress management, smoking cessation, and safer sex.

According to the annual publication (2004) of Health Services, sex education offered by Health Services is intended to help Concordia students maintain good personal sexual health by encouraging them to adopt healthy sexual behaviors and choose and use contraceptives. This education is provided through informational materials, workshops, and counseling. Specific topics addressed by Health Services include practicing safer sex, acquiring social skills to negotiate safer sex between partners, and avoiding unwanted pregnancy. With the help of health educators, peer educators, and health information nurses, Health Services has used different strategies—including videos, the Health Services website, flyers, the publication *A Student's Guide to Healthy Living*, and on-campus health fairs—to deliver the safer sex message.

Admittedly, however, not every student takes advantage of these opportunities.

According to Owen Moran, the main health educator at Concordia University's Health Services, (interview, November 9, 2004), reasons include:

- Sexual health not being the highest priority among many students.
- Students feel a level of embarrassment discussing sexual matters, even with a health educator.
- Different cultural interpretations of high-risk and safer sex behaviors.
- Contradictions between sexual practices, sexual health instructions, and one's religious or cultural beliefs.

As a result, despite the compelling evidence that safer sex practices can prevent STIs, and although students might be well aware that consistent use of condoms significantly

reduces the risk of being infected by a life-threatening disease such as HIV/AIDS, Moran observes that the students he comes in contact with still do not practice safer sex. His personal experience corroborates the research evidence. Yet Moran believes that education can have a positive impact on building safer sex practices. He notes that the literature suggests that one of the missing components of most education is building a positive attitude towards the use of condoms and that education can change this attitude. Furthermore, research in other aspects of communication suggests that people are more comfortable addressing sensitive topics with a computer (Sproull & Kiesler, 1991). So perhaps online education, offered privately, might provide a means of getting the safer sex message to its intended audience.

ABOUT THIS PROJECT

Can online education about safer sex practices really make a difference in young people's sexual behaviors? That's the question underlying this "build and evaluate" study. The following sections provide more details about it: the research question, a brief description of the way this study will proceed, the significance of the study, its limitations, and definitions of terms used in this study.

The Research Question

The goal of this study is to explore whether online learning can promote safer sex behaviors among young people. More specifically, in this project, I will assess whether online learning can promote a more positive attitude towards the use of condoms and, as a result, an increase in condom usage.

Brief Description of the Project

To answer this question, I designed and developed a unit of online learning that is intended to develop more positive attitudes towards the use of condoms and hope that, as a result, promote an increase in condom usage, among young adults between the ages of 18 and 24 at Concordia University in Montreal.

To make sure that the module is most likely to achieve its objectives when it is formally published, I conducted a formative evaluation, which assesses the learning content, its presentation, and the effectiveness of any evaluation instruments on the intended learners. I also revised the module to reflect the changes suggested by comments from the formative evaluation.

If the results suggest that the intervention is effective, I hope that the module designed and developed for this study will serve as a template for modules on related topics developed in the future. To assure the effectiveness of the module, instruments for the first three levels of summative evaluation named in the Kirkpatrick Model (1998) will be developed and pilot tested, though an actual summative evaluation would happen after this project.

Significance of this Project

This project is significant because it explores the use of online learning to affect not only behavioral change, but also attitudinal change. Although many studies have looked at

online learning in the cognitive and psychomotor domains, few explore the impact of online learning on the affective domain. As the literature review will suggest later, consistent condom use is the result of not only behavioral changes but attitudinal ones. Therefore, developing and evaluating this module provides insight not only into dealing with the specific challenge of promoting safer sex, but in the broader issue of using online learning to address affective objectives. This challenge of addressing the affective domain is compounded by the challenge of addressing cultural and social values, which are inherent in any sex education.

The project is also significant because it addresses a population at a critical juncture in its cognitive development. The years spent in university correspond to a developmental period in which the complex processes of starting and building relationships are solidified (Lagana & Hayes, 1993). University students' stages of cognitive development are between adolescence and adulthood, functioning as members of both groups yet, at the same time, neither (Lear, 1995). During university years, individuals adjust the values learned at home to a new environment, to sexual knowledge acquired in the university setting, and to societal and peer pressure. Conflicts might arise as part of this adjustment, especially for those whose personal values are not already well defined (Renshaw, 1989).

Last, this project also has practical value. An effective online module may help health care professionals, whose resources are already stretched thin, reach the largest number of young adults in the shortest period of time and in the most cost-effective way.

Limitations of this Study

Four issues limit this study. The first is the recognition of the limited effect that a brief online module can have when addressing an issue that is deeply rooted in religious, cultural and personal values. As is discussed in the literature review in the next chapter, attitudes towards safer sex are among the ones most strongly influenced by religion, culture, and personal values. This module is only intended to shape individual's values, not those of entire communities. Therefore, some major impediments to transfer of learning exist. In some cases, messages may not be reinforced in the learners' communities. In others, learners might choose not to participate because of religious, cultural, or personal beliefs.

The second limitation is the focus of the study. Although the online module will not focus on people of a specific sexual orientation because the content is mostly the same for all, the intended audience of the study itself is heterosexual individuals. I specifically want to see how online modules can affect the behavior of heterosexual young adults. Should an instance arise when sexual orientation needs to be specified, such as in the selection of participants for formative evaluation, the selection criterion would be heterosexuality. I am interested in this group, because they are the majority of the undergraduate student population.

The third limitation is that the content of the online module itself is tightly focused on condom usage and related attitudes; it is not intended to serve as a comprehensive module

on all safer sex practices. In other words, this intervention focuses only on a limited set of behaviors and related attitudes, and its effectiveness will ultimately be assessed only on changes in that limited set of behaviors and the related attitudes.

Last, any changes in behavior used to assess the effectiveness of the module are self-reported ones. Participants will not be observed using the new behaviors; they will merely be questioned about whether they are using them.

Definitions Used in this Study

AIDS: Acquired Immunodeficiency Syndrome (AIDS) is the late stage of HIV infection and is a life-threatening disease (Health Canada, 2005). *See also HIV.*

Behavior: An observable and measurable action. In terms of sexual activity, behavior refers to both lifestyle components (such as diet and level of activity) and cognitive components (such as positive self-esteem and positive body image) (Moran, 2001).

Health: “The state of being well and free from illness in body or mind” (*Oxford Dictionary*, 1996).

HIV: Human Immunodeficiency Virus (HIV) is the virus that attacks the immune system, resulting in a chronic, progressive illness and leaving infected people vulnerable to opportunistic infections and cancers (Health Canada, 2005). *See also AIDS.*

Sex education: A learning activity that equips individuals with informational, motivational, and behavioral skills for participating in sexual activities and avoid contracting communicable diseases (Barak & Fisher, 2001) and developing related feelings of low self-esteem.

STD: Sexually Transmitted Disease. In this study, the term STI is used instead.

STI: Sexual Transmitted Infection. STIs include chlamydia, gonorrhea, trichomonos, public lice and scabies, genital herpes, genital warts (HPV), human papillomavirus, hepatitis B, syphilis, and HIV/AIDS (Health Canada, 2004). Sexually Transmitted Diseases have been renamed as STIs to emphasize the fact that the disease is communicable.

Undergraduate: Group of university students, who has not yet received a bachelor's or diploma degree and are normally between the ages of 18 and 24.

CHAPTER 2—LITERATURE REVIEW

“The new source of power is not money in the hands of a few, but information in the hands of many” (Naisbitt, 1984).

Everyone should have the right to receive effective sex education that is respectful of their religious and cultural background (Goldman & Bradley, 2001). Although that is not true of all countries, fortunately Canada is one country that generally believes in providing sex education to its people.

But what makes sex education effective? This chapter explores what the literature suggests. As Barak and Fisher (2003) note, an effective sex education program is interdisciplinary, so this literature review is too, covering aspects of sociology, psychology, medicine and, of course, education. This chapter starts by exploring why young adults engage in high-risk sexual behavior. It continues with an exploration of culture, gender, religious beliefs, and sexual behavior. Next, it explores instructional issues underlying sex education.

While reading this chapter, please note that safer sex behavior refers specifically to the consistent use of condoms (because that is the topic of the study), so the terms are used interchangeably. Also, I will focus generally on all STIs rather than considering a specific one, because the desired behavior of increased condom usage should result in a

reduction in the chances of contracting all STIs (though the seriousness of different STIs admittedly varies).

WHY YOUNG ADULTS ENGAGE IN HIGH RISK SEXUAL BEHAVIOR

Research has tried to identify the reasons that young people engage in high-risk behavior in sexual relationships and, more specifically, neglect to practice safer sex. Not using condoms is one of those behaviors. Lear (1995) suggests the following reasons why young adults do not use them:

- Judging partner's sexual health based on visible signs of sexual diseases, especially by men.
- Not perceiving oral sex as a way of getting infected, even among those who use condoms consistently for intercourse.
- Drunkenness.
- An existing level of trust between partners and awareness of the partner's previous relationship(s), especially in sexual relationships among friends.
- When a casual relationship becomes more committed, especially for women.
- Mislabeling a casual relationship as a romance, so partners are less likely to believe that their behavior is high risk.

At the core of this situation is the issue of trust. "HIV has made the issue of trust in sexual relationships a potential question of life and death" (Lear, 1995, p. 1321). In a sexual relationship, trust means not only questioning the sexual present of partners, but also questioning their sexual history. Past practice of safer sex and monogamy with a

current partner are two different issues. Partners earn sexual trust in different ways, depending on the individuals' personalities and their current relationships. Trust could be solely developed based on statements about past relationships or may require an HIV test (Lear, 1995). In other words, different partners need different levels of evidence to develop trust and, in many cases, some people are developing trust with insufficient levels of evidence or based on superficial characteristics.

CULTURE, GENDER, RELIGIOUS BELIEFS, AND SEXUAL BEHAVIOR

Beliefs about the roles that men and women play in sexual relationships, which behaviors are acceptable at different points in their relationships, and what is acceptable to discuss and negotiate with sexual partners are largely defined by a variety of forces, including the culture in which a person is raised, the religion in which they are raised, their gender, and how culture and religion view their gender roles. These beliefs are built over a long period of time and take a similarly long time to change. The following sections explore the role of each of these and then describe their impact on the sexual behavior of young people.

The Role of Culture

According to the *Oxford Dictionary* (1996), culture is the “art, literature, music and other intellectual expressions of a particular society or time” (p. 285). These “intellectual expressions” represent opinions and beliefs and these, in turn, shape behaviors. Culture is acquired in schemas over a period of time, rather than bit by granular bit. Individuals

internalize these schemas and these schemas guide individuals' behavior and their interpretations of others' behavior (Munck, 1998).

Different cultures perceive sexual matters in different ways. If a sexual behavior is completely acceptable in one culture – even if perceived as sexual abuse in another – it is most likely practiced with little or no resistance among partners. One example is in which women are obedient in marital relationships and engage in sexual activities when they have no desire to do so, rather than solely when they are physically and mentally ready. Another example of a different cultural perception is that sexual matters, especially premarital sexual relationships, are taboo in some cultures. Therefore, partners talk about it as little as possible with each other or others, even if they have serious questions about their sexual health.

The Role of Gender

Similarly, culture often defines sexual roles. Some cultures view women and men as equals while, in others, “there is a continued social ambivalence about female sexuality that ideologically separates women as sexual agents from women as sexual victims” (Lear, 1995, p. 1314). Belief systems about sex roles “are learned and culturally determined” (Lottes & Kuriloff, 1992, p. 675).

Lear (1995) elaborates on how genders in different cultures may have different desires and expectations from their partners: “In mainstream American culture, men are expected to initiate the first sexual encounter, with women deciding how far things will go, and

being responsible for contraception or refusal” (p. 1313). She continues, “in spite of greater sexual freedom today, women too often still feel obliged to tell a new partner that they don’t want to have sex when they do. Men therefore learn to not accept a refusal as definitive” (p. 1315).

Gender behavior also differs in terms of the way people exchange information among friends. “Among men, feelings about relationships were often expressed through joking” (Lear, 1995, p. 1319). In contrast, women discussed and monitored their friend’s sexual behavior more explicitly. In addition, different genders perceived the risks in sexual relationships differently. “Men tended not to question partners about their sexual histories, using appearance more often than women to evaluate a potential partner, and worrying about their risk of exposure after a sexual encounter” (Lear, 1995, p. 1319). Lear adds that, in contrast, women tend to evaluate risk in terms of the type of relationship more often than men (Lear, 1995).

The Role of Religious Beliefs

Religion also plays a significant role in shaping attitudes towards sex. According to the *Oxford Dictionary* (1996) religion is “a controlling influence on one’s life; a thing that one feels very strong about” (p. 988). Bullough (2001) defines religion as a conservative force, which is based on a set of beliefs concerning the cause, nature, and purpose of the universe. These beliefs, in turn, are based on traditions involving scriptures, prophecy and revelations, which are incorporated into the theology of a particular religion. The difficulty with religious traditions is their slowness to change in a world that is rapidly

changing. Bullough (2001) adds that religious teachings about sex in the Western world are based on the assumptions that the major purpose of sex is procreation. For example, some religions prohibit birth control and abortion. Some religions promote a subservient role for women in marital relationships, in which women are men's helpmates and under their control. But the rise of the birth control pill in the 1960s, followed soon afterwards by efforts to control population growth, have challenged and clashed with the beliefs and practices promoted by these religions, although some religions have revised their teachings on sexual ethics to acknowledge current practices and technologies in secular society, such as the Jewish Reconstructionist and Reform movements, and the Unitarian movements.

The Effect of Culture, Gender Roles, and Religious Beliefs on Sexual Behavior

Culture, gender, and religious beliefs have a varied effect on the sexual behavior of young adults. In many instances, young people acknowledge the admonition against sexual intercourse, but participate in it anyway. Cultural conditioning about gender roles and behaviors, instead, prevents them from addressing issues of safer sex in a sexual situation.

This inconsistency is especially apparent when exploring the ways that young adults do and do not negotiate safer sex. A study among African American college students (2000)—one of the highest at-risk groups for contracting HIV— suggests, “attention to behavioral skills for negotiating safer sex and training in the proper use of condoms are

key elements in reducing high risk behaviors” (Drew, 2000, p. 391). Lear (1995) believes some of the main barriers to safer sex negotiation are as follows:

- Students lack a vocabulary and common language to negotiate safer sex. Sometimes, individuals interpret the same word differently, which can lead to confusion and misunderstanding between partners in their relationships. But often, little is spoken in a relationship, at least in its early stages. Much of the communication is non-verbal. Moreover, some young adults believe that talking about sex may take away the excitement of it.
- Use of alcohol, which impairs judgment. “Among young adults, the necessity for safer sex comes precisely at a time of experimentation with alcohol and sex that makes its negotiation problematic. The challenge for health education is to help them traverse this period as safely as possible” (p. 1311).
- Young adults feel shame and shyness about sexual issues. When a community does not openly discuss sexual matters, all partners often feel uncomfortable discussing them. This is particularly true among women, who assume a shy attitude, even if they are experienced, because they do not necessarily want the reputation of being sexually experienced. “Many women feel embarrassment about every stage of condom use Buying condoms, carrying them and asking for their use are all difficult” (p. 1314).
- Perceived gender roles affect safer sex negotiations. As long as sexual relationships are defined by men pressuring and women resisting, open discussion about safer sex and alternative sexual discussion will remain difficult. When women can acknowledge their desire for sex and men do

not need to pressure or second-guess them, both sexes should be able to negotiate more openly about safer sex and sexual boundaries. (p. 1321)

In addition, Mitelman (telephone conversation, May 13, 2005) suggests that negotiating the use of condoms may make one partner feel that the other partner mistrusts him or her.

INSTRUCTIONAL ISSUES UNDERLYING SEX EDUCATION

Because cultural beliefs, gender roles, and religious beliefs build over time and require extensive time to change (if at all), it is unrealistic to expect that a single brief learning module can change them. Perhaps it should not even aspire to. But what can a module of instruction for sex education realistically hope to accomplish, and which instructional strategies are most likely to achieve these goals? The following sections explore these questions. The first section explores models about changing attitudes towards sexual behavior. The second explores specific instructional strategies for changing attitudes. The next section explores issues associated with young adult learners and sex education programs. The last section considers the use of technology to provide informational and learning materials about sexual behavior.

Models about Changing Attitudes toward Sexual Behavior

As just mentioned, although a single module of sex education itself is not likely to change long-held cultural values, gender roles, or religious values, it can affect attitudes and that, in turn, might change immediate behaviors in the short-run. Furthermore, to affect

changes in behavior, instructional designers must acknowledge the cultural values, gender roles, and religious values that learners hold.

Specifically, how can instructional designers approach the design of modules that address these issues? A variety of models suggest how attitudes are developed and changed in general and, more specifically, how attitudes towards sexual behavior are developed and changed. The next sections first review models about addressing the general design of instructional programs affecting attitudes: The Knowledge, Attitudes, and Behaviors Model and the Social Marketing Model. Then it presents a general model for promoting changes in health-related behaviors: The Transtheoretical Model. Next, a model for promoting changes in behavior related to sexual health, the Reproductive Health Behavior Sequence for Changing Sexual Behavior, is presented. Afterwards, this section presents a series of specific strategies for designing units of instruction that address attitudinal issues.

The Knowledge, Attitudes and Behaviors (KAB) Model

The Knowledge, Attitudes, and Behaviors (KAB) model is a well-known model for promoting behavior change (Schooler, 1995). It suggests three steps for promoting behavior change (Cupples & McKnight, 1994; Dobs, Masters, Rajaram, Stillman, Wilder, Margolis, & Becker, 1994):

1. The acquisition of knowledge about the behavior and its importance.
2. The development of an appropriate attitude towards the behavior and the value of performing it.

3. The acquisition of skills necessary to incorporate the behavior into everyday life.

Smith and Ragan (1999) believe it is easier to teach cognitive and psychomotor domains of knowledge. But to change cognition and behaviors, attitudes must sometimes change, too (Peters, 2004). Kamradt and Kamradt (1999) define attitude as “personal strategies for living, for being who we are. We rely on our attitudes because they have repeatedly proven their worth at allowing us to pursue our needs and values with maximum success and minimum discomfort” (p. 578). Smith and Ragan (1999) add, “an attitude includes both knowing how to do something and choosing to do it” (p. 252). They continue, “The most salient influence an attitude has on an individuals’ behavior is on choices that he or she makes” (p. 252). Therefore, to encourage safer sex behavior, one needs to “choose” to do it, make it one’s personal strategy and part of one’s value system.

Although fairly successful in promoting short-term behavior change, interventions designed according to the KAB model are usually unsuccessful in the long term (Daltroy, 1985 ; Dobs, et al., 1994; Kemenade, Maes, & Broek, 1994 ; Scalzi, Burke, & Greenland, 1980). Also, the KAB model assumes that the learners are fairly homogenous, which is a false assumption in societies, like Canada’s, which are increasingly heterogeneous, with populations that represent different ethnic backgrounds, income levels, previous experience, and lots of other individual influences. What might work better, then, is designing programs targeted toward specific audience subgroups (Schooler, 1995).

The Social Marketing Model

The Social Marketing Model focuses on how individuals perceive themselves being accepted in their own environment. According to the Social Marketing Model, people are more willing to adopt a new behavior if it leads to social acceptance.

The implication for sex education is that, if certain behaviors are promoted as socially desirable, then people might choose to adopt them. For example, Lear found that, among college students, most accepted condom use for genital or anal intercourse as a fact of modern sexual life (1995). Her study also indicated that friends have the most significant influence on whether one practices safer sex, because teenagers and young adults have a high need to be accepted by peers.

But Lear (1995) also found a flip side to social marketing. The sexual behaviors reported by young adults might reflect the messages that are socially desirable and might not reflect their realities. These young adults might not practice safer sex at all, or, if they do, might do so inconsistently, but report otherwise to maintain their social image.

Because it has the potential to reach and influence the sexual behavior of large segments of the population quickly and cost-effectively (Marcus, Owen, Forsyth, Cavill, & Fridinger, 1998), the Social Marketing Model is advocated by some. Others, however, criticize the Social Marketing Model because they feel that a marketing perspective largely ignores the social, economic, and environmental factors that influence individual

behaviors. But perhaps this view is naive; one of the fundamental aspects of marketing in general and, therefore, social marketing in particular, is awareness of the total environment in which people operate and how understanding this environment can shape the health promotion strategies (Marcus et al, 1998). Lefebvre and Flora (1988) suggest social marketing principles can emphasize the importance of developing health promotion campaigns that are “tailored” to audience needs. Products and services that are developed to be sensitive and appropriate to audience members are more informative, persuasive, and therefore more effective.

The Transtheoretical Model

The Transtheoretical model “integrates current behavioral status with a person’s intention to maintain or change his or her pattern of [health] behavior. The core of this model is five stages of motivational readiness for change” (Marcus et al., 1998, p. 364). This model divides populations into subgroups according to their "stages of change".

Specifically, Prochaska, DiClemente, and Norcross (1992) note that individuals move through five stages in the process of changing behaviors:

1. Precontemplation (awareness of the problem and a need to change)
2. Contemplation (motivation to make a change)
3. Preparation (skill development to prepare for the change)
4. Action (initial adoption of the new activity or behavior)
5. Maintenance (continuing to follow the new activity and integrating it into the lifestyle)

To bring about a change in behavior, Marcus et al. (1998) note:

Interventions based on the Transtheoretical Model utilize the concept of matching treatment to the individual's stage of readiness for change and have been shown to be more effective than no treatment or treatments not tailored to motivational readiness. The concept of matching interventions to level of motivational readiness for change and recognizing that some people are not yet ready for behavior change but may be ready to make changes in their thinking about behavior change serve as important complements to the social marketing approach. (p. 364)

When used in trying to change health-related behaviors, a physician evaluates the stage of change that a person is in - in terms of making a behavior change - and provides that person with an intervention message tailored to that stage and that is either pre-printed or computer generated. This indicates an important benefit: the ability to coordinate primary care with a low-cost, wide-reaching behavior-change intervention.

One drawback of such interventions based on the stage of change model is their dependence on pre-existing individual differences as the guide for program design and delivery. Therefore, it is not clear how population-wide changes can be achieved through this model (Schooler, 1995). But some changes have occurred. For example, Bowen and al (1995) found that tailoring messages to participants' stage of change has resulted in success in changing various health-related behaviors, including AIDS risk reduction.

The Reproductive Health Behavior Sequence for Changing Sexual Behavior

The Reproductive Health Behavior Sequence for Changing Sexual Behavior, proposed by Barak and Fisher (2003), characterizes the process that young adults go through to take increasing ownership of, and responsibility for, their sexual health. Figure 2.1 presents the sequence of change in sexual behavior to promote sexual and reproductive health.

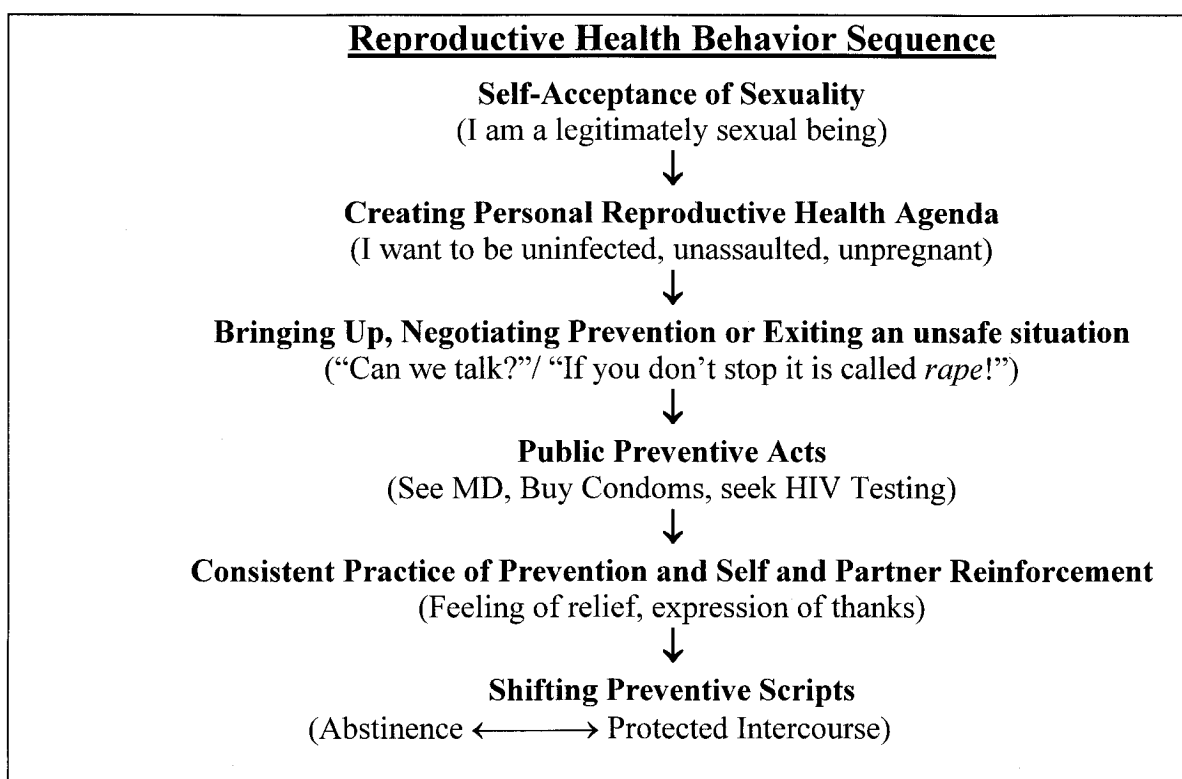


Figure 2.1: A sexual and reproductive health promotion behavior sequence (Barak & Fisher, 2003)

Instructional Strategies for Promoting Attitudinal Change

Instructional designers can draw on a variety of principles and strategies that integrate these models to design materials that are specifically intended to change attitudes towards sexual behaviors. The following sections describe these strategies: the process by which

attitudes change; general issues for designing information and instruction about health issues; specific issues for designing instruction to change attitudes about sexual behavior; specific content to address in courses on Sexually Transmitted Infections (STIs); and ways to evaluate the effectiveness of these programs.

The Process by Which Attitudes Change

People naturally have different levels of resistance toward attitude change (Levine & Badger, 1993). As a result, changing attitudes is a process. Before attitudes can change, people must overcome resistance. This process begins with the presentation of persuasive messages. In their research, Bednar and Levie (as cited in Smith and Regan, 1999) found messages that incorporate the following principles are more persuasive:

- Refer to material from sources with high credibility. In fact, Levine and Badger (1993) found that the credibility of sources, the use of content that causes fear or warns the learner of a bad consequence, and the way that words emphasize a message, all influence the process of changing attitudes.
- Provide messages that are relevant to the specific needs of the targeted audience. The next section, “Instructional Strategies for Changing Attitudes” suggests some specific ways of doing this.
- Present both sides of the argument.
- Communicate face-to-face rather than through some sort of media, which suggests that a live instructor might be more effective than an asynchronous online module.

After presenting the new attitude, the intervention should provide learners with opportunities to actively participate so learners can *activate* (try out) the new attitude (Kamradt & Kamradt, 1999).

In the process of activating the new attitude, *dissonance* might occur. Dissonance is a situation in which the new attitude clashes with the old, tightly held ones. To address dissonance, Bednar and Levie (as cited in Smith and Regan, 1999) suggest that instructors must work towards helping learners believe in the new attitude. This might involve making step-by-step improvements towards the new attitude. The ethical challenge in making step-by-step improvements in sexual behaviors is that one mistake can result in a life-long, life-threatening medical condition.

Punishment and reward systems are often suggested as part of the process of addressing dissonance. The problem with this is that the attitude changes only as long as the punishment or reward stays in effect. For STIs, the punishment is living with an STI, which may or may not be cured (especially with HIV); and the reward might be a socially desirable state of health.

General Issues for Designing Information and Instruction about Health Issues

For designers of information and instruction about health-related issues, one ongoing question is whether customized and personalized information is more effective than the using same material for all learners—the one-size-fits-all approach traditionally used in health education. According to Kreuter and Holt (2001),

Findings showed that the tailored and personalized materials were perceived as more personally relevant than the general materials [and] customizing health information to address an individual's unique needs can significantly improve the chances that the information will be thoughtfully considered by the recipient, and even stimulate changes in self-assessment and behavioral intention ... (p. 207)

The authors conclude, "individually tailored health-education materials are more effective than generic materials in promoting changes in a variety of health-related behaviors" (p. 206).

To create an individually tailored education, Diaz and Cartnal (1999) recommend developing a student-centered learning environment that meets individual needs. To do so, instructional designers need to collect relevant demographic data about learners, and adapt the teaching methods to the preferences of learners. The benefit of tailoring content to the preferences of learners, according to Kreuter and Holt (2001), is that doing so elicits greater attention, greater comprehension, greater likelihood of discussing the content with other people, greater intention to change the behaviors addressed by the content, and therefore greater likelihood of behavior change. Marcus et al. (1998) elaborate on this point:

Health education materials designed for the general population may be perceived as unattractive, irrelevant, or unclear by some population subgroups. Thus, it is critical that written materials include information that is culturally sensitive; uses appropriate language; includes the target culture's attitudes, beliefs, and community leaders; and

is written at a grade level that permits comprehension of the health message for less-educated groups or those for whom English is not the primary language. At this time, little is known about how to reach those who are socially isolated or who may not come in contact with print materials distributed in health care clinics. (p. 373)

Health information and instruction can be personalized in one of two ways:

customization, which is commissioning the design and development of material for a specific group of learners; and personalization, which is taking generic content and finding ways to make it relevant to a given learner, such as placing the learner's name in the greeting message or including or omitting content based on information known about the learner (Kreuter & Holt, 2001). However, Kreuter and Holt (2001) wonder how much tailoring is enough. They found that "good-fitting nontailored materials had outcomes as good as or even better than the outcomes for tailored materials" (p. 208). They specifically wonder which variables define personalized content and how personalization works to learners' advantage.

Specific Issues for Designing Instruction to Change Attitudes about Sexual Behavior

Although education is not the only way to change one's sexual behavior, much research confirms that properly designed sex education is still an effective way to promote safer sex practices (Turner, Garrison, Korpita, Waller, Addy, Hill, & Mohn, 1994).

Before considering specific suggestions for handling content, first consider the variety of models that instructional designers can employ in designing learning programs intended to change attitudes about specific aspects of sexual behavior. These models include:

- Elaboration Likelihood Model (ELM), which suggests two ways to change attitudes: peripheral and central. A peripheral approach to changing attitudes occurs when people are not motivated to hear a message but will pay attention to peripheral cues such as the proficiency, attractiveness, or trustworthiness of the presenter (Petty & Cacioppo, 1986, 1981). Learners are likely to adopt the attitude if they find they are attracted to the messenger (a change for peripheral reasons to the attitude at hand). But because the attitude change results from surface issues rather than a true substantive change in position, the change in attitude is transitory, and only maintained for a short period of time.

In contrast, a central change occurs when the core belief system of the learner changes. It is the message (or intervention) itself—not the messenger (as in the peripheral change)—that causes a central change in attitude (McNeill & Stoltenberg, 1989).

To ensure a permanent behavior change, sex education should ultimately aim for a central change in attitude change.

- Social judgment theory, which describes “how attitudes change through a judgment process involving internally held subjective reference scales of acceptability that people use to judge their own positions or values in contrast to competing values

offered by persuasive communication” (Smith & Ragan, 1999, p. 252). Because the need to feel accepted, liked, and supported—as well as the need to avoid criticism and rejection—are central to the human experience, achieving the desirable goals and avoiding the negative ones fills a large portion of people’s lives (Hogan & Shelton, 1998).

To enforce safer sex behavior, learners need to hear the message that practicing unsafe sex is socially unacceptable, not liked, and not supported, and they could get criticized and rejected by their society for practicing unsafe sex.

- Social learning theory, which explains that attitudes can change through learning from direct experience (that is, the consequence of one’s own behavior), vicarious experience (that is, through observation of a model or through reading and hearing about something), or emotional association (Smith & Ragan, 1999).

The social environment has an impact on an individual’s learning process and changes in attitude. According to this model, specifically increasing the number of people who adopt safer sex attitudes and behaviors can force others to adopt the same attitudes and behaviors.

In addition to using these models to guide the design of instruction, instructional designers must address several practical issues when designing instruction intended to change attitudes about sexual behavior. First, for learners to adopt it, the new attitude must be an attractive replacement for the old one (Kamradt & Kamradt, 1999). For

example, in the case of condom usage, eliminating the perception of *medicalization*, which takes away the “excitement” of sexual encounter (Mitelman, telephone conversation, May 13, 2005); or learning that different textures of condoms have the potential to make the sexual relationship more pleasurable, might generate attractive replacements for old attitudes.

Second, to encourage adoption of the attitude, designers must encourage learners to try the new activity or concept at least once because experience breaks down barriers (Kamradt & Kamradt, 1999). This trial might entail a demonstration of the desired behavior by a respected role model or practicing the desired behavior in either a hands-on activity or role-play situation, then providing reinforcement for the desired behavior.

Content to Address in Courses on Sexually Transmitted Infections

As suggested by both the KAB, Transtheoretical, and Reproductive Health Behavior Sequence for Changing Sexual Behavior models described earlier, changes in attitudes and sexual behaviors occur in phases, starting with the acquisition of knowledge and ending with a permanently maintained behavior.

But what content should be included in a program promoting such a change? First are some key behaviors. In their critical review of sex education programs for high school and college students, Lagana and Hayes (1993) recommend a variety of specific behaviors that should be the main focus of sex education programs:

- Promoting responsible decision-making.

- Encouraging communication on sexual issues and rehearsing tasks to increase communication skills.
- Modeling responsible reactions to situations, such as peer pressure.
- Promoting a more positive attitude toward condoms. Brown (1984), the developer of Attitude Toward Condoms (ATC) scale, suggests that condom use should not be viewed as interrupting intercourse, interfering with arousal, and creating discomfort and embarrassment.
- Providing follow-up sessions to allow further monitoring of the behavior. Because the ultimate goal of sex education is to develop a permanent change in behavior, monitoring provides a means of assuring the long-term effect of this change.

The second type of content to address in a sex education course is “attention to behavioral skills for negotiating safer sex and training in the proper use of condoms” (Drew, 2000, p. 391), which “are key elements in reducing high risk behaviors” (Drew, 2000, p. 391).

A third type of content to address in a sex education program is changing attitudes (as has been noted several times in this review of the literature). Consider what Ybarra (1994) found in a study of the effect of sex education on at-risk women: consistent use of condoms has to become second nature, but that cannot happen solely by changing the information people have. Attitudes and behaviors must change as well.

A fourth type of content to address in a sex education program is the development of interpersonal and social skills, especially as they pertain to sexual encounters. Lear (1995) suggests that, when developing attitudes, educators specifically focus on developing social and interpersonal skills that incorporate those new attitudes. According to Argyle (1969), interpersonal skills are the ability to control the behavior of others by counseling, persuading, explaining, and suggesting rather than by ordering, criticizing, and coercing them. Social skills are the ability to interact and communicate with others to assist status in the social structure and other motivations. Lear (1995) adds that people are naturally motivated to establish positive relationships with each other and to be accepted and respected by those whose opinions are important to them. This occurs through the use of social skills (Hogan & Shelton, 1998).

A fifth type of content to address in a sex education program is the promotion of positive attitudes towards sex. Wilson (2003) recommends that partners should create a mutually satisfactory erotic encounter. Such an encounter involves communicating and negotiating each other's sexual desires and needs, with success in the process largely depending on the partners being open and honest with one another. Training should not only encourage social skills in sexual encounters, but should also explain how to deal with ordering, criticizing, and being forced into unsafe sex. For example, sex education must teach women the social skills needed to refuse unsafe sex. Wilson (2003) suggests that one of the most effective ways of doing so is through the use of practical examples, through which people can "learn to communicate and negotiate by acting or role-play without full sexual engagement, with real or imaginary partners" (p. 28). Wilson (2003)

notes, however, that one of the flaws in sex education is that it does not offer sufficient hands-on experience or examples to imitate. Use of examples, role-playing, and sexual engagement (appropriately controlled and monitored) might be incorporated into online sex education to fill this gap.

McCormick (1997) adds a sixth type of content to address in a sex education program: a dynamic and interactive situation in which a group of students and teachers can share their experiences. By treating students as colleagues rather than as subordinates and by attending to both individual growth and group process, teachers also become students who take emotional risks in the classroom, open themselves to new information, and are willing to listen to students' criticisms and suggestions for improvement. Admittedly, this is only feasible in environments that can support classroom-based learning.

Evaluating the Effectiveness of These Programs

Although sex education programs are intended to change behaviors, because of the nature of those behaviors, direct evaluation of either immediate learning or long-term impact poses a challenge; the actual behaviors cannot be observed.

What would be measured, then, are attitudes about safer sex behaviors and whether the learners are reporting that they are following the behaviors. Smith and Ragan (1999) propose the following to reliably assess learning and its impact in such a situation:

- Direct self-report or asking direct questions. The problem with this type of assessment is that people may get trapped in the idea of what is socially acceptable and give the answers they are expected to provide, rather than the ones that represent their true feelings or actual behavior.
- Indirect self-report and providing scenarios in which learners are presented with some sort of competition for their time or other resources, to determine learners' levels of commitment toward safer sex under more real-world circumstances. An example might be asking learners if they would continue safer sex practices if their partner refused and even threatened to leave.

Unfortunately, both types of assessment only assess what, not why. If someone were to respond “no” to the question about continuing safer sex practices if a partner refuses to participate, designers would need to find out why so the instructional materials could be revised to address this issue.

Issues with Young Adult Learners in Sex Education Programs

Teaching young adults about sexual behavior poses a number of challenges. The first is their multi-cultural backgrounds. Research by Godow and LaFave (1979) suggests that sex education can help young adults develop more liberal attitudes towards sex. These liberal attitudes mean that sexual behavior is a matter of individual choice rather than something that should be regulated by society or law and that sex is a natural, legitimate function. These beliefs might stand in opposition to the cultural values and religious beliefs in which the young adults were raised.

The second challenge in teaching young adults about sexual behavior is their different levels of skill and experience in practicing safer sex, which are affected by their socioeconomic backgrounds and previous experiences with sex education. Some young adults learn from previous schooling and informal learning through peers, family, and the media about the risks of sexual behavior and the precautions they can take. Many other young adults have not yet acquired negotiation skills. Others still need to learn about taking responsibility for themselves and their partners in a sexual relationship. Still others may have learned about all of these issues but not adopted safer sex behaviors. Another group of young adults might lack the most basic factual information.

Confounding the situation, many young adults between the ages of 18 and 25 are at a place in their lives when they believe they can make responsible decisions but often do not. Instructional designers should not over- or underestimate such abilities. “Education programs and interventions that underestimate adolescents' abilities to make realistic judgments about risk overstate the danger of behaviors considered undesirable, and risk being rejected entirely” (Lear, 1995, p. 1312).

The Use of Technology to Provide Informational and Learning Materials about Sexual Behavior

One of the most popular uses of the Internet is retrieving health-related information and education (Harris Interactive, 2001; Boies, 2002). The Internet offers the advantages of greater availability than medical professionals (where long waits to see doctors is a major

problem), and increased privacy, because people can seek information without the assistance or knowledge of another person (O'Neil, 2001).

In addition, the Internet has facilitated the speedy spread of research developments, much more quickly than they could be disseminated by journals, where publication can take up to a year ((Ball & Lillis, 2001). This, in turn, lets health professionals and others benefit from speedier knowledge about new and potentially life-saving procedures.

Unruh, Bowen, Meischke, Bush, and Wooldridge (2004) acknowledge another benefit of the Internet for providing health-related information and instruction: the ability to personalize instruction. A system can capture a learner's profile and use this information about the learner to provide individualized health information and recommendations.

In addition, online systems have the ability to simulate situations that learners might encounter in the real world and let them "experience" these situations in "safe" environments (Aldrich, 2002).

Access to this information makes their users significantly more informed. A survey by Harris Interactive and the Boston Consulting Group revealed that those who frequently visited online health information were two to three times more likely than infrequent Internet users to ask specific detailed questions from their health care providers, to make a self-diagnosis, and to request a specific treatment (Taylor & Leitman, 2001).

Internet and computer applications are not the only technologies that have been contributing to this field in the recent years. Media-based (TV or radio), print-based (newspapers or flyers), and other types of intervention, such as using the telephone to communicate health information are playing their own roles in many areas of health education, especially among socially disadvantaged groups to whom access to information, particularly from new forms of communication technology, may be limited (Marcus et al., 1998). Goldman and Bradley (2001) conclude:

for the first time in history, sexuality education will be potentially accessible by everyone over the Internet, which is technology-derived, personal, instantaneous, on demand, accessible any time and any place, not controlled by social or educational structures, inexpensive and individualized. It is concluded that the opportunities this promotes are almost limitless for enhanced personal understanding and improved interpersonal relationships of all kinds for everyone on the globe. (p. 197)

Although the technology offers many advantages for offering health information, it also risks the following disadvantages:

- Inappropriate access by users at certain ages. In addition to the possible problem of sexual predators, (McFarlane, Bull, & Rietmeijer, 2002), the Internet provides access to health-related information and services to young people at an age when their parents might legally and emotionally need to participate in health- and sex-related decisions.
- High-risk sexual behavior. “One use of the Internet is the initiation of risky sexual contact between anonymous partners (McFarlane, Bull, & Rietmeijer, 2000; Bull &

McFarlane, 2000; Bull, McFarlane, & Rietmeijer, 2001). Individuals who surf the Internet with the intention of finding sex partners (referred to as “online seekers”) are at greater risk for sexually transmitted diseases (STDs) than those who do not seek sex partners online (McFarlane et al., 2000). Boies (2002) also suggests that people at younger ages tend to use online sexual material for entertainment purposes as opposed to educational ones. McFarlane et al. (2002) recommend that these websites need to be equipped with sex education materials focused on decreasing high risk sexual behavior among those who initiate sexual contacts using these websites.

- Accuracy and credibility of information. It only takes a computer, an Internet connection and some computer skills to publish any material on the Internet. Health information made available on the Internet might be connected to efforts to sell products or services to consumers (Beredjiklian, Bozentka, Steinberg, & Bernstein, 2000; Lissman & Boehnlein, 2001; Sacchetti, Zvara, & Plante, 1999) and the learners might not be able to assure the validity and accuracy of the content (Ball & Lillis, 2001).

Because credibility of information is an issue, some researchers are concerned about strategies that Internet users take to verify the credibility of content and clear up discrepancies among different sites (Bernhardt, 2002). Studies suggest that Internet users find information from universities and medical facilities to be the most credible.

- Computer literacy. To use online health information, basic computer skills are required, which could make the use of such information more challenging. However, according to Boies (2002), the more learners visit online health education material,

the more they develop a positive attitude toward it. Furthermore, because most high schools and universities are emphasizing computer use in their curricula, using computers to access information should not be an issue among young people.

- Lack of human contact. One of the distinguishing features of asynchronous online courses is not only the absence of direct contact between students and their teachers (Diaz & Cartnal, 1999) but, more generally, the completely anonymous nature of asynchronous tutorials (Carliner, 2004). When receiving health information, this creates a problem. In terms of learning preferences, some students prefer the “human touch” of a live instructor (Bernhardt, 2002). In terms of information that is tied up with the emotions, as sexual information is, students might need someone with whom to discuss the content. If health information or instruction is provided online, provisions should be made to let learners contact a counselor or similarly knowledgeable professional to ask questions and receive support.
- Privacy. Health is a sensitive matter, especially sexual health. Although health records are a matter of privacy, accessing health information is not. Health information and instruction sites must therefore provide several types of privacy: the ability to retrieve information privately and the ability to remain confidential while searching (including blocking the monitoring, tracking, storing, and retrieving of personal information of people who visit health information sites) (Bernhardt, Lariscy, Parrott, Silk, & Felter, 2002).

CHAPTER 3—PROJECT METHODOLOGY

The purpose of this build-and-evaluate study is to design and develop a sample unit of an asynchronous online learning program for teaching behaviors and attitudes for preventing Sexually Transmitted Infections (STIs) and conduct a formative evaluation to assess its effectiveness with the intended audience. This chapter explains how the project proceeded. It first presents the research problem and then explains the choice of research paradigm. Next, it describes the research methodology and the participants in the study, and closes by describing efforts to ensure the credibility and trustworthiness of the data.

ABOUT THE PROJECT

Specifically, I designed a 30-minute asynchronous online module that teaches the use of one or more methods of preventing Sexually Transmitted Infections (STIs) and addresses related attitudes towards these issues. The learning program itself is stand-alone; that is, it is intended to be a self-contained unit of instruction. Because of its short length, it does not provide comprehensive coverage of STIs or all prevention methods. Rather, it focuses on condom usage and promoting positive attitudes towards condom usage, because that behavior has proven to sharply reduce rates of STIs.

CHOICE OF RESEARCH PARADIGM

Because this project involved designing and assessing a learning program, the appropriate research methodologies would allow me to discover the learning needs underlying it and explore its likely effectiveness. In research terms, the project involved the development

of emerging hypotheses, rather than testing existing ones. According to Creswell (2002), qualitative research is well suited toward the discovery and exploration of issues surrounding a central phenomenon, like a learning program. Qualitative research allows for learning about the views of individuals, assessing a process over time, and obtaining in-depth data from which hypotheses can emerge. This study, then, was based on the qualitative paradigm.

METHODOLOGY

Because this was a build-and-evaluate project, the methodology followed was one for instructional systems design. This project followed the Analysis-Design-Development-Implementation-and Evaluation (ADDIE) model of design, described in Smith and Ragan (1999) and Carliner (2003) (among others). Specifically, the project involved five phases of activity, which are described in the following sections.

Analysis (Also Known as Needs Assessment)

Instructional design is problem-solving (Rowland 1993). To design effectively, then, one must first effectively define the problem. For learning situations, effectively defining the problem involves (Carliner, 2003):

- Defining the main topic to be taught.
- Identifying the gap between current and ideal performance.
- Identifying the tasks in ideal performance.
- Describing the intended learners.
- Describing the intended learning environment.

- Identifying constraints on the project.

This information was obtained from the following sources:

- The literature review.
- Interviews with Subject Matter Experts on sex education for young adults.
- Interviews with the staff of the Concordia University Health Services department.
- Questionnaires and interviews with students who were representative of the target audience. Questionnaires were administered online. Interviews were conducted in one of several ways, based on the preferences of individual participants:
 - Anonymously through the use of online chat.
 - Over the phone
 - In person (if the participant preferred).

The text of the online interviews was recorded and saved to a file on the computer.

For interviews conducted by telephone or in person, I took detailed notes.

After collecting this data and analyzing it, I prepared a report of the requirements for the project. The components of these requirements included:

1. Learning objectives, which state the content that learners must master in an observable, measurable manner (Mager, 1984).
2. Drafts of summative evaluation instruments, which could be used to determine how effectively the program accomplished its stated goals. Although primarily designed for evaluating workplace learning, Kirkpatrick's model (1978) was used as a guide

for conceiving of the evaluation because, in some respects, this intervention is actually intended for training (that is, immediate use). In this model, learning is assessed at these levels:

- Reactions, which assesses learners' reactions to the program (Kirkpatrick, 1978). This level, called Level One, evaluates whether learners were satisfied with the learning experience.
- Learning, which assesses whether learners have achieved the instructional objectives (Kirkpatrick, 1978). This is called Level Two evaluation.
- Behavior, which assesses whether learners have transferred the learning into everyday behavior—that is, do their sexual behaviors represent those identified in the learning objectives. This is called Level Three evaluation.
- Results, which assesses the long-term impact of learner's behavior as a result of applying the lessons of the intervention in their environment. This is called Level Four evaluation. Note that, because this program was not being assessed for long-term impact, a Level Four evaluation was not developed for this program.

Design

The learning materials were designed to address the requirements stated in the report of the needs assessment. Design involved the following activities:

1. Preparing a high-level design, which involved a) structuring the content, b) providing a general plan for presenting the content to learners (Carliner, 2003), and c) choosing an instructional strategy that was best suited for conveying the stated objectives to the designated learners.

2. Preparing a detailed design, which involved preparing storyboards for each screen that identified:
 - The content to be presented on a given screen and the way in which the material was to be presented
 - The media used to present the content (such as graphics, audio, animation, and video)
 - Interface elements and programming needed (such as the handling of responses to questions and links that needed to be programmed) (Bunch, 1991).

After storyboards were developed, editorial and viewing guidelines were established for the project.
3. Conducting a preliminary review of the material by Subject Matter Experts (SMEs), who reviewed the design plans and storyboards to make sure that the content was accurate and the instructional strategies were appropriate for the topic as well as the intended age group.
4. Revising the design plans and storyboards to reflect comments from the SMEs.

Development

After the design plans were revised to reflect comments from SMEs, development of the actual lesson began. Development involved the following activities:

1. Preparing a draft lesson, during which storyboards were turned into actual screens, linked according to the sitemap, and converted to a functioning online learning program ready for use.

2. Conducting a formative evaluation, which assessed the likelihood that the draft materials would achieve their objectives with the designated audience, and the likelihood that the draft evaluation instruments could effectively assess satisfaction, learning, and behavior. Specifically, the following types of evaluations were conducted:

a. Review by experts to assess the accuracy of the content and the effectiveness of the learning strategies with the intended audience. The following people reviewed the content:

- An instructional design expert, who provided feedback on the effectiveness of the instructional strategy, the effectiveness of the presentation of the material for the intended audience, and the likelihood that draft evaluation instruments could assess satisfaction, learning, and behavior.

The instructional design expert in this study had four years of in teaching university students and has an MA in Educational Technology. He was also familiar with the design of asynchronous e-learning for use in education and training.

- Review by a Subject Matter Expert, who assessed the accuracy and completeness of the draft module, and the consistency of the perspective. The Subject Matter Expert in this study not only had comprehensive knowledge of sexual matters, but was a health educator, who has ten years of experience working with young adults.

Expert reviews were conducted as follows:

- A draft of the learning materials was distributed to the reviewers.

- A cover letter accompanied the draft, which provided instructions for conducting the review and criteria for evaluating the draft materials.
 - Reviewers were given two weeks to review the materials. They were also provided with instructions on how to return draft comments.
 - I met with the reviewers to address questions about the comments and resolve inconsistencies among review comments.
 - The draft materials were revised to reflect the comments received.
- b.** Editorial review, in which the materials were reviewed by an English language editor who acted as the first reader of the materials. When doing so, the editor checked larger editorial issues such as consistency and ease of use, as well as more discrete issues of style and grammar, such as unclear sentences, unclear directions, typographical, grammatical, and stylistic errors, and inconsistent and incorrect use of terminology. The editor in this study had three years of experience in editing texts for adults, as well as a BA in English.

The editorial review was conducted using the same methodology as the expert review.

- c.** Pilot test, which was conducted with people who were representative of the intended learners (Gordon, 1994). During the pilot, participants took the course under conditions similar to those that might actually exist when learners would take the course. I oversaw the pilot test and, when doing so, tracked a number of issues associated with taking the course:
- How learners responded to the content on both a cognitive and affective level

- The time needed for learners to complete the learning materials
- The performance of learners on all of the draft evaluation instruments
- The number and nature of specific errors learners experienced in using the interface of the program, the learning materials, and the evaluation instruments.

The pilot test was conducted as follows:

- A usability scenario was written, which described how the learning module would be assigned to learners. I prepared instructions for taking the learning module, which participants would take at a location of their choice, during a two weeks time period.

Note that, for privacy purposes, I would not observe them taking the course. This differs from a typical practice for a pilot test, but because of the sensitivity of the content, I felt that participants' need for privacy was more important than my need for observational data.

- Twelve participants who were representative of the target learners were recruited according to the guidelines established in the Participants section of this chapter.

If the participants did not have access to a private place where they could take the course, one was provided to them.

- To use the draft learning program, participants went through the following procedure:

- I provided participants with instructions for performing the pilot test.
- Participants took the module on their own time, at their own pace. Note that because of the sensitivity of the material, learners took the courses privately without observation.
- As they did so, they recorded their actions on an observation form, indicating such information as start and stop times and problems and issues that arose during their time taking the module.
- After participants completed the module, they were asked to complete the Level One, Level Two, and Level Three evaluations. I also asked participants to complete an observation form that focused on the clarity of the evaluation instruments.
- After participants completed the learning module and Level One, Level Two, and Level Three evaluations, I reviewed participants' observation forms.
- If the information provided on the observation forms required clarification, I conducted a debriefing interview with participants. I conducted debriefing interviews with three participants—one by telephone, two in person (I offered participants the choice). Questions included:
 - What were the objectives of the module?
 - What did the participant learn in the module?
 - What did the participant find to be the most effective parts of the module?
 - What parts could be improved by being clearer, presented more effectively, or more sensitively?

- How sensitive was the module to the participant’s gender, cultural values, and religious beliefs?
- How clear were the evaluation instruments? How could they be made clearer?

Of the 12 participants in the study, I conducted debriefing interviews with three participants.

The responses were compiled, and recommendations for improvement were identified and prioritized (as A—showstopper (must fix before proceeding), B—must address before publishing the course, or C—correct as time permits) (Carliner 2002).

After the reviews were completed, the course was revised to reflect comments from each of the three reviews. Then, I conducted one last set of reviews:

- Functional test, which made sure that each link and option available to learners worked as intended.
- Integration test, which made sure that the online learning program worked when other programs were running (Carliner, 2002).
- Load test, which made sure that several users can access the course at the same time.

PARTICIPANTS

This project had a variety of participants, who participated most actively during the analysis phase and the formative evaluation of the development phase. These participants included Subject Matter Experts (SMEs), editors, and people who were

representatives of the learners. The criteria for selecting SMEs and editors were stated in the previous section.

Two separate groups of participants were recruited. One group (16 individuals) participated in the needs analysis phase and the second group (12 individuals) participated in the formative evaluation (pilot test) phase.

Participants who were intended to represent learners represented a cross-section of undergraduate students at Concordia University. To ensure the necessary diversity in the sample and to assure “transferability” of the results of this study, individuals were chosen to represent these demographic characteristics:

- 18 to 24 years old.
- Enrolled as an undergraduate student at Concordia University in Montreal.
- Heterosexual individuals
- Sexually active, with strong background knowledge about safer sex behaviors, so that instruction can focus on attitudinal domain.
- Comfortable taking courses online.
- Culturally diverse, representing students of Christian, Hindu, Jewish, Muslim, and atheist backgrounds, as well as Canadian, Middle Eastern and North African, Caribbean, Eastern European, and East Asian cultures (because of the small number of participants, not all of these groups were represented, but effort was made to represent as many of them as possible).

The demographics of participants in the needs assessment phase and their recruitment procedure is explained in Chapter 4 (Report of the Needs Assessment) and the demographics of participants in the formative evaluation phase and their recruitment procedure is explained in Chapter 6 (Result of the Formative Evaluation).

ENSURING THE CREDIBILITY AND TRUSTWORTHINESS OF THE DATA

To assure the credibility and trustworthiness of the needs assessment and pilot test, the following measures were taken:

- To ensure that the results were credible, they were triangulated—that is, data were solicited from several different sources representing several different points of view. For the needs assessment, input was received from several subject matter experts, as well as an instructional design expert, people who were representative of the intended learners, and the literature. Similarly, the formative evaluation sought input from a variety of sources, including subject matter experts, instructional design experts, editors, and several people who represented the intended learners. Those participants were specifically being recruited to represent a diverse set of demographics, while meeting minimum eligibility requirements.
- To ensure that the results were trustworthy, they were reviewed by an auditor, who reviewed the data from both the needs assessment and the formative evaluation to determine whether the recommendations made and conclusions reached are rooted in the data.

CHAPTER 4—REPORT OF THE NEEDS ASSESSMENT

This needs assessment was conducted to determine the most important learning objective(s) in a 30-minute asynchronous online course that could promote positive attitude towards safer sex and promote safer sex behavior among the Concordia undergraduate students according to their current level of knowledge, attitude, and behavior.

The result of the needs assessment was used to identify the most essential content to cover in the course. In addition, the results would suggest ways to effectively design the course, choose an appropriate instructional strategy, and eventually successfully communicate the content to the intended learners.

This chapter explains how the needs assessment was conducted. It first presents a brief summary of the needs assessment procedure. Next, it describes the results of the needs assessment and the requirements for the resulting learning module.

BRIEF SUMMARY OF NEEDS ASSESSMENT PROCESS

The needs assessment was carried out in three phases. First, I recruited participants to complete a brief qualifying questionnaire, which identified whether they met the criteria of the target population for the course. The questionnaire asked for a) demographic information (from which I verified their gender; and whether or not participants were heterosexual and in the age group targeted); b) the level of their background knowledge

about Sexually Transmitted Infections (STIs); and c) the level of risk they take in their sexual behavior.

A sample of the qualifying questionnaire is provided in Appendix A.

To recruit these initial participants, an e-mail message explaining details of the study was sent to 2,196 Concordia undergraduate students through the auspices of Student Services Office, which gave permission to do so and supported this study. The message first described details of the study, then invited participation. A link at the end of the message directed readers to an electronic consent form which, upon their agreement, would direct them to the qualifying questionnaire. I sent three follow-up messages to ensure an appropriate level of participation.

From these four attempts, a total of 71 students (3.2%) completed the qualifying questionnaire. These 71 participants had the sought-after demographics and diversity, so I sent the needs assessment instrument to all of them.

In the second part of the process, the needs assessment instrument collected information about a) participants' background knowledge of STIs, b) their attitudes toward safer sex behavior, c) their sexual behavior, d) the type of previous sex education they have had, e) their preferred sources for health information (especially information about sexual health), and f) their preferred technology for receiving health information. The instrument was devised from information learned during the literature review and

suggestions from the Subject Matter Experts (SMEs). See Appendix B for a sample of the questions used in the needs assessment instrument, as well as the results.

Of the 71 participants who received the instrument, 30 completed it. Of them, only 16 of them were sufficiently qualified to be members of the sample. The other 14 were eliminated, because they did not meet the criteria. For example, even though they were not practicing safer sex, but they were in a safe sexual relationship. Therefore, they were eliminated from the list of participants.

The demographics of these 16 participants included:

- 8 women, 8 men (4 males and 4 females between the age of 18 and 21, and 4 males and 4 females between the age of 22 and 24)
- Sexually active heterosexual individuals
- 8 Canadians, 3 Chinese, 2 Americans, 1 Syrian, 1 Mexican, and 1 Kwaiti
- 12 single, 2 common-law, 1 divorced, and 1 married
- 8 atheist, 6 Christians, 1 Jewish, and 1 Moslem

Only participants with strong background knowledge about safer sex behavior and those who were under the impression they have strong background knowledge were chosen. In addition, I made sure that participants spanned the targeted age ranges (18 to 21 and 22 to 24) and that the numbers of males and females in each range were equal (four males and four females in each age range). Originally, I had only planned to conduct this detailed

needs assessment with 12 participants. However, since 16 people qualified and, demographically fitted the desired profile, I decided to use all of them.

To clarify the responses, I next conducted the third part of the needs assessment process—follow-up interviews with three of the participants. All were performed on a “one-on-one” basis but each was conducted as per the participant’s preference: one was conducted over the phone and two used online chat. In these interviews, I asked for clarifications about the situations in which they succeeded or failed to practice safer sex.

Then, I compiled the responses to prepare a report of the needs assessment, which is described in the next section.

RESULTS OF THE NEEDS ASSESSMENT

After compiling the responses to the needs assessment instrument, as well the follow-up interviews, the following conclusions were reached.

- Most did not consider condom use pleasurable (question 39). A 24 year old female said that she had tried different condoms. Not only she didn’t find them pleasurable, but also she was allergic to some of them.
- Some stated that they did not consistently use condoms in the following situations (question 28):
 - Too much under influence to care; in the heat of passion, when both partners could not control themselves; or condoms hindered the quality of their sexual experiences, usually to the extent that they prevented them from ejaculating.

- Not having access to condoms.
- Assuming all STIs are treatable in one way or the other.
- Lack of self esteem to ask for safer sex.
- Using birth control (for instances in which the condom was used to avoid pregnancy).
- Trusting their partner to be sexually healthy, even when the trust is not rational.
- Assuming their partner is healthy; by judging their personality, or knowing about their past relationships.
- Cost of condoms.
- Involved in a monogamous relationship.

The first, third, fourth, sixth, and seventh findings are consistent with the literature. .

(See Chapter 2 for a complete description of findings from the literature).

- Individuals stated the following reasons for continuing to have unsafe sex, in situations where there was no access to condoms (question 35):
 - They did not want to interrupt their sexual encounter to get condoms.
 - Lack of awareness about the serious consequences of practicing unsafe behavior.
 - They believed they were in a safe relationship, so they did not need to use condoms.
- Respondents did use condoms sometimes. The main reasons for condom use included avoiding pregnancy and protecting themselves or their partner against contracting STIs (question 14).

- Respondents considered the use of condoms a socially desirable behavior. They would not get insulted if their partners wanted to use condoms while having sex. More importantly, respondents believed everyone should be responsible for their own sexual health (question 26).
- No one stated his or her unsafe behavior was a result of peer pressure (question 22 and interviews). A 24-year-old female mentioned in the interview that, in one case, peer pressure actually made her practice safer sex in her casual sexual relationship.
- When asked in interviews how would they convince their friends to use condoms if they were not doing so, interviewees pointed out the following:
 - Trust (which came up in two interviews). Interviewees felt that a sexual partner, especially a new one, should not be taken at his or her word. Just because a partner says he or she has always practiced safer sex or has been tested and is clean, it is not necessarily true.
 - Men do not normally refuse safer sex, so do not be afraid to ask for it.
 - Make condoms as accessible as possible. For some, the bathroom is not accessible enough; put in a bowl beside the bed.
 - Do not rely on your partner to bring a condom. Carry one yourself.
 - Negotiate safer sex before the sexual encounter begins, not in the middle of it (a recommendation that is consistent with the literature).
- Respondents received their sex education from different sources such as parents, peers, and health care professionals; elementary and high school, and university; media, books, magazines, and Internet (question 45).
- As a source of information about health-related issues, respondents:

— Liked using the Internet because (question 47):

- It gives quick, easy, anonymous, and confidential access to various sources and online communities at any time and anywhere.
- It saves time compared to a visit with a healthcare professional.

Both of these findings are consistent with the literature (see Chapter 2 for a complete description of findings from the literature).

— Disliked using the Internet because it (question 49):

- Is not the most reliable source of information about sexual health.
- Only offers general information, not specific or individualized information.
- Sometimes reflects the writer's personal, political, or religious opinions as opposed to reality.

— Those who used the Internet as a source of information about sexual health were not necessarily using one specific website. They mentioned several, including these:

- <http://www.webmd.com/> (mentioned by 2 respondents)
- http://sexualityandu.com/home_e.aspx (mentioned by 1 respondent)

See Appendix B for copy of the needs assessment instrument and a complete report of the responses.

As a result of these responses, the following conclusions were reached:

1. There is room for improvement in students' knowledge, attitudes, and behaviors regarding sexual health (especially condom use), so the learning module could focus on all three domains—the psychomotor, cognitive, and affective. However, the

results of the needs assessment suggest that the most significant gap is in the affective domain, as the literature suggested. Learners seemed to have some knowledge and skills regarding safer sex behaviors, but they did not necessarily use them. For example, the needs assessment shows that respondents who knew why (cognitive) and how (psychomotor) they should use condoms, still did not use condoms.

Moreover, even though the module should focus on attitudes, because those attitudes work with skills and knowledge, the module might need to address psychomotor and cognitive content, too, to promote consistent condom use.

2. Respondents tended to overestimate their knowledge. They can be under the impression that they have strong background knowledge about safer sex practices (question 19), when, in fact, they don't. The results showed that even though respondents thought they were practicing safer sex, in fact, they were not. For example, some responded that only vaginal intercourse was a mean of becoming infected and that unprotected oral and anal sex was safe. Others expressed confidence that they can protect themselves from contracting STIs (question 23), but they were not aware of how STIs are contracted (question 8).
3. Respondents might have a wrong perception about their sexual behaviors. Even when they responded "yes" to the survey question about practicing safer sex (question 27), in the interview, they admitted to one or two experiences in which they did not practice safer sex because they were drunk or "in the moment."
4. Even though respondents considered the use of condoms a socially desirable behavior, they still would not consistently use condoms.

Reaching these conclusions was not easy because a number of challenges were faced when conducting this needs assessment. These challenges included the following:

- Hard to get participants who would share their sensitive private information about their sexual health.
- Even among those who participated, since the research was on a private sensitive health topic, I always expected some answers not to be truthful.
- Hard to get a random sample. Participation in this study was voluntary, so even though the invitation went out to a quite large group of students, only those who felt comfortable talking about this issue agreed to participate.

REQUIREMENTS FOR THE LEARNING MODULE

In response to these results, I determined that the learning module must address these concerns raised through the needs assessment:

1. The module needs to focus on attitude change, because most participants seemed to have some background knowledge about safer sex behaviors and the required skills to practice it, but chose to have unsafe sex anyways. In fact, the results of the needs assessment suggest a lack of positive attitudes towards practicing safer sex in general and condom use in particular.
2. The most significant sexual attitudes to be addressed included:
 - Not wanting to interrupt a sexual encounter to use condoms.
 - Lack of self esteem to ask for safer sex.
 - Not considering the use of condoms pleasurable.

- Wrong perceptions about the consistent practice of safer sex. Most participants provided examples when they had practiced unsafe sex, while they had mentioned in other questions they consistently practiced safer sex.
 - Recognizing condom use a socially desirable behavior.
3. The most significant sexual behavior to be addressed would be negotiating for safer sex (question 22 and 40 and one interviewee).

Working with these priorities, the learning objectives in Figure 4.1 were defined for this program.

At the end of this module, learners will be able to:

1. Define what an STI is
2. State how an STI is transferred from one person to another.
3. Describe what can cause an STI
4. Describe the consequences of STIs.
5. Given an STI, state whether a treatment is available and, if one is, what it is.
6. Identify the top five situations in which someone might not practice safer sex.
7. Define a strategy for practicing safer sex in each of those five situations.

Figure 4.1: Objectives for the Learning Program

To assess whether the objectives have been achieved, the learning module would use assessments representing the first three of the four levels of Kirkpatrick's evaluation scheme. (Because impact (Level Four) seemed beyond the scope of this project, it was not included.)

However, because the learning module is intended to help learners form new attitudes about private behaviors, evaluation would be based on self-reported data rather than observations and tests.

Specifically, evaluation would address the following:

- Satisfaction with the learning program (Kirkpatrick's Level One). Specific issues to be evaluated include the following:

- What part of the course did learners like the most? Why?
- What suggestions did learners have for improving this course?

See Appendix C for the complete instrument for evaluating learners' satisfaction with the course.

- Learning of the technical content (Kirkpatrick's Level Two). Specific issues to be evaluated include the following:

- Describe how the use of condoms means respecting oneself and a sexual partner.
- Describe the consequences of practicing unsafe sex.

See Appendix D for the complete instrument for evaluating the learning of the technical content.

- Long-term changes in behavior (Kirkpatrick's Level Three). Specific issues to be evaluated include the following:

- Would learners carry condoms with them if they were going out and there was a chance that they might end up having unsafe sex?

— If a person is in love with someone, and the partner wants to have sex but the person is not sure whether the partner has an STI, what would the person do?

See Appendix E for the complete instrument for evaluating the learners' long-term changes in attitudes and behaviors towards safer sex.

In addition to achieving the objectives described earlier, the learning module must also address the following practical issues:

1. Because it is believed that participants have a short attention span and limited time available to take this learning module (less than 30 minutes), the learning module should not exceed a half-hour. As a result, only the most significant issues identified by the needs assessment can be covered in this learning module.
2. To provide both privacy and convenience to learners, as well as achieve one of the stated goals of this research project, the learning module must be available online, in an asynchronous format. That also ensures that the module can be taken privately, at the learners' convenience.

CHAPTER 5: ABOUT THE LEARNING MODULE

The needs assessment suggested that the primary issues to address in the learning module were attitudes towards safer sex in general and condom use in particular. This chapter describes how I addressed those needs and the learning module that I ultimately produced. It first provides an overview of the learning module. Next, it describes the instructional strategies employed in the course and continues with a discussion of the evaluation strategies used. The chapter closes by describing other design issues that arose as I prepared the module

OVERVIEW OF THE LEARNING MODULE

As mentioned earlier, this learning module was intended to promote positive attitudes towards safer sex practices. Specifically, it needed to help learners define what an STI is, state how STIs are transferred from one person to another, describe what can cause STIs, describe the consequences of STIs, describe treatments for STIs (and when none exist), and handle situations in which they might not practice safer sex. Although I could assume that learners had some technical understanding about STIs, the needs assessment suggested that information about STIs needed to be reinforced.

The learning module specifically had these sections:

- Definition of STIs and safer sex practices.
- Reasons why people don't wish to practice safer sex.
- Promoting positive attitudes towards safer sex.

In addition, the module included two learning tools:

- Electronic scrap paper, which allows learners to reflect on their behavior and attitude.
- A practice sheet on negotiation skills for safer sex.

Although learners could go through the learning module in any order, they were encouraged to go through the course in the recommended order.

The course was developed using Microsoft Visual Interdev. The module was posted on a server hosted by Concordia's Department of Education. The content was available on the Internet and open to public, although I did not publicly advertise its availability outside of the people who participated in the formative evaluation.

INSTRUCTIONAL STRATEGIES USED

To ensure that learners could achieve these objectives, several instructional strategies were used, including discovery learning, self-assessment and peer education, social marketing, and practice. The following sections describe how these strategies were employed in this course.

Discovery Learning

The overall design of the learning module was based on discovery learning. Discovery learning is a type of learning in which learners draw on their past experience and prior knowledge to discover the truths that are to be learned (Bruner, 1961).

In the context of this learning module, the discovery was initiated in an opening activity, in which learners are asked to describe their sexual attitudes and behaviors, identify the unsafe practices embedded in these attitudes and behaviors and, as a result, “discover” new attitudes and behaviors about safer sex. This activity was facilitated using the electronic scrap paper and peer education strategies, which are described in more details in the next section.

Self-Assessment and Peer Education

To assist in the discovery process, I provided tools to help learners monitor their knowledge and attitudes. Specifically, I provided learners with a downloadable MS Word document that I called an electronic scrap paper. The electronic scrap paper is basically a template with a series of questions about learners’ sexual attitudes and behaviors. At various points in the learning module, the course directs learners to answer one or more questions on this electronic scrap paper—a private sort of self-assessment, because the responses would not be shared with others. Indeed, to protect their privacy, learners were not even expected to save the responses on the server, but they could save a copy on their own computers. See Figure 5.1 for a sample of the electronic scrap paper.

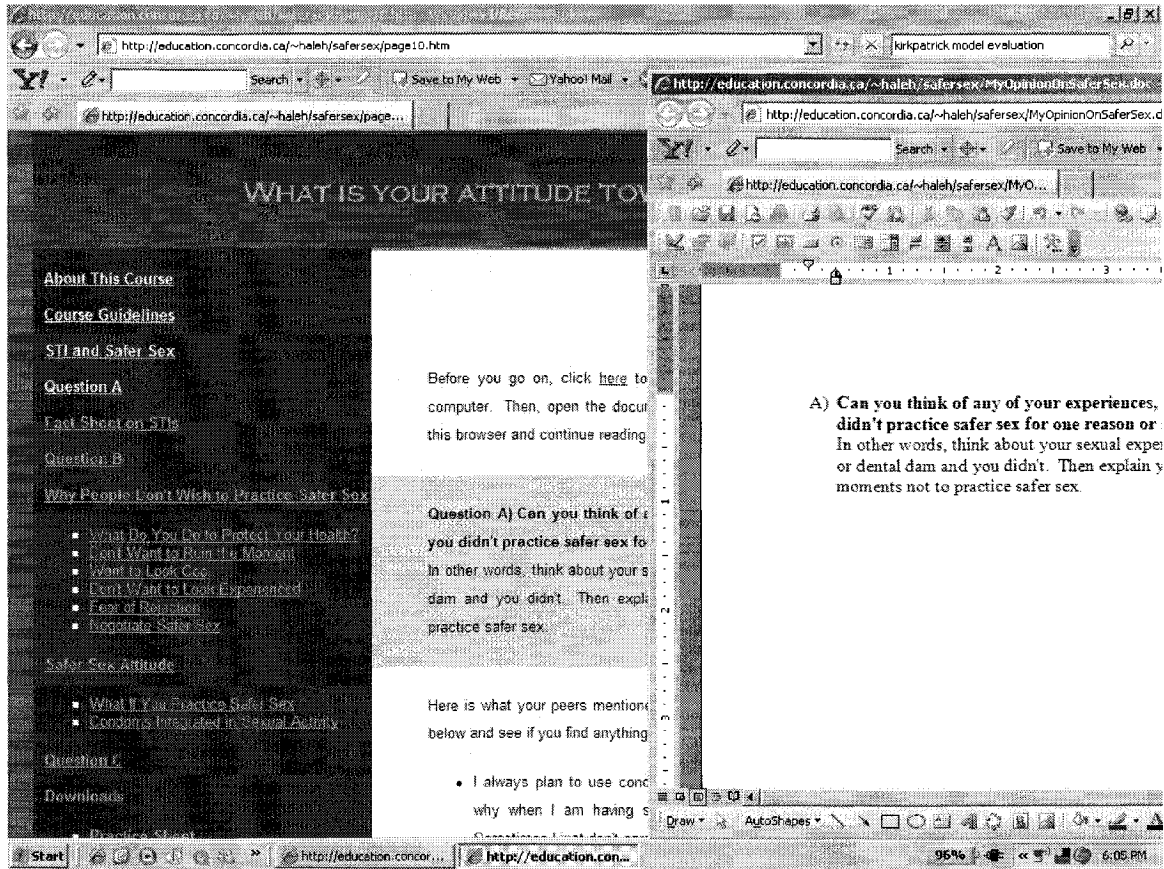


Figure 5.1: Electronic Scrap Paper

After learners responded to a question, the system presents information about how their peers have reacted in a similar situation. The literature suggests that peers are a valuable source of learning about sexual health, and this was one way to integrate it into an asynchronous learning experience, which might otherwise seem solitary. In this instance, peers' suggestions came directly from the responses to the needs assessment instrument. Figure 5.2 shows an example of a screen with peers' responses.

The screenshot shows a web browser window with the URL <http://education.concordia.ca/~haleh/safersex/page8.htm>. The page title is "WHAT IS YOUR ATTITUDE TOWARDS SAFER SEX?". The main content area is titled "Question C" and contains the following text:

You should now be able to define your strategies when faced with a situation where practicing safer sex is not the easiest action. Please switch back to MyOpinionOnSaferSex.doc and answer the question C.

Question C) How would you ensure that you would practice safer sex that next time you were faced with situations like the one(s) mentioned in question A?

Here is what your peers have suggested:

1. Carry condoms. You are responsible for your health.
2. Negotiate safer sex. before the sexual encounter begins, not when you are in the middle of it.
3. Remember, worrying about pregnancy or disease is one of the biggest desire killers, so let your partner know that taking precautions will only help you get into it the mood, which will almost certainly make it better for them too.
4. Statistics show that men do not normally refuse safer sex and sometimes even prefer it the

The left sidebar contains a navigation menu with the following items:

- About This Course
- Course Guidelines
- STI and Safer Sex
- Question A
- Fact Sheet on STIs
- Question B
- Why People Don't Wish to Practice Safer Sex
 - What Do You Do to Protect Your Health?
 - Don't Want to Ruin the Moment
 - Want to Look Cool
 - Don't Want to Look Experienced
 - Fear of Rejection
 - Negotiate Safer Sex
- Safer Sex Attitude
 - What If You Practice Safer Sex
 - Condoms Integrated in Sexual Activity
- Question C
- Downloads

Figure 5.2: Peers' Responses to One of the Discovery Learning Activities

After reading their peers' suggestions, learners are encouraged to review and, if desired, modify their responses in a different color—especially if they agree with their peers' comments.

At the end of the learning module, learners can observe how their attitudes towards safer sex practices have changed (if at all). Because the electronic scrap paper is private and not shared with anyone else, there is a better chance that learners be truthful to themselves. I hoped that, through its use, the electronic scrap paper would provide

learners with several self-assessment opportunities and, in response, that they would answer honestly—both initially and after reading the peers’ responses.

Social Marketing

To simulate this model in an online environment, the learning program emphasizes how safer sex practices are socially desired among peers. The course provides evidence—obtained from the literature review and the needs assessment—on how it is not only accepted, but also respected, by a partner to practice safer sex. In this learning module, the social marketing model is basically supported using the peer education strategy that was described in the previous section.

Practice

To provide learners with an opportunity to “practice” what they have learned about negotiating for safer sex, this learning module includes a tool to help them apply the lessons learned. Figure 5.3 shows a sample of this practice sheet on negotiating safer sex. Like the electronic scrap paper, it, too, is a downloadable MS Word document. It contains one side of a dialogue, in which a partner refuses to practice safer sex. After completing some of the formal presentation, learners complete their half of the dialogue. After learners complete their half of the dialogue, then can consult suggestions and guidelines at the end of the document.

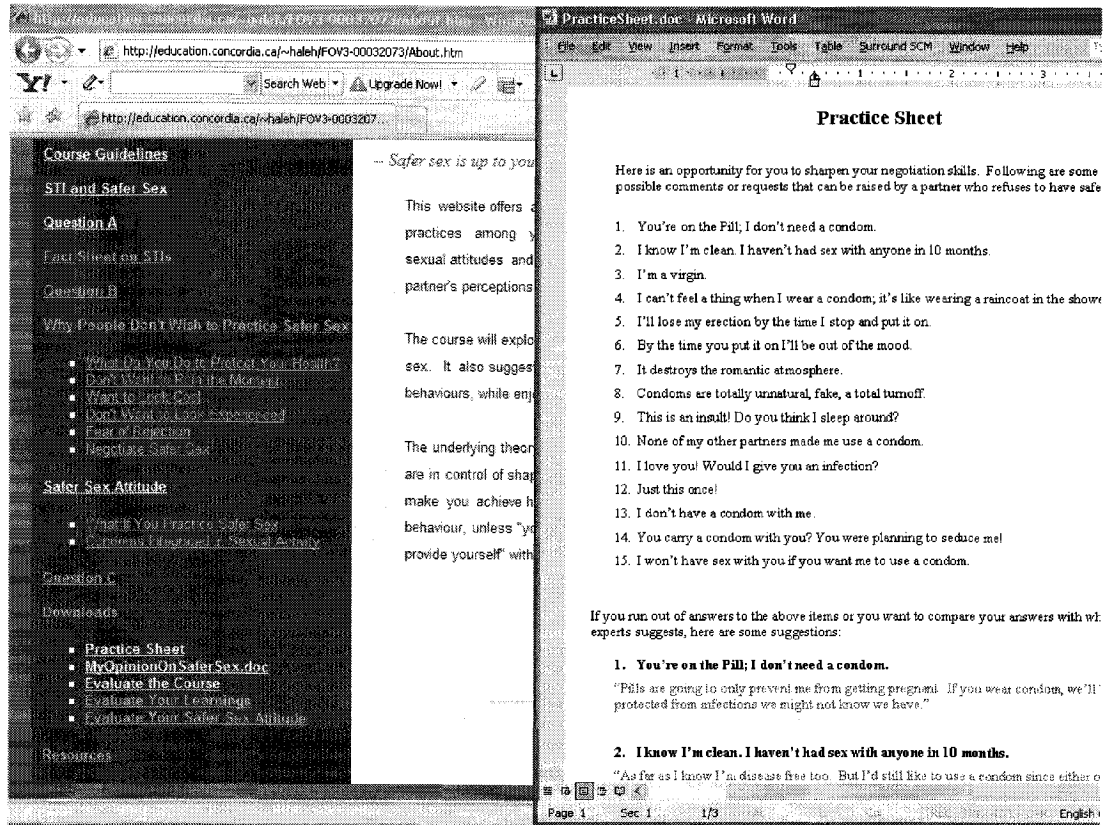


Figure 5.3: Practice Sheet on Negotiating Safer Sex

OTHER DESIGN NOTES

In addition to addressing instructional issues, the design of the module needed to address the following matters as well:

- Although it is recommended that learners follow the module in the recommended order, a menu is provided that lets learners surf the program in any order. Letting learners have control over their learning activity planning is certainly a strategy recommended for any type of e-learning involving adults (Brundage and MacKeracher, 1980).
- The course has a simple user interface. To avoid offending learners—who might have an emotional response to particular colors, sounds, images, and sexual jokes—

neutral colors were used, sound was not used, only informational images were provided, and no jokes were used. This simplicity was intended to ensure that those who usually shy away from these kinds of website feel more comfortable taking this learning module.

- The learning module only requires basic computer skills. These skills include surfing the web and editing in MS Word and saving the file.
- Forms for assessing reaction, learning, and behavior (Levels one, two, and three of the Kirkpatrick model) were available through the course website. The learning module recommends that learners go back to the website and complete the reaction evaluation immediately, learning evaluation after two weeks, and behavior evaluation after two months.

CHAPTER 6: RESULTS OF THE FORMATIVE EVALUATION

To assess whether the draft materials could achieve their objectives with the designated audience and whether the draft evaluation instruments could effectively assess satisfaction, learning, and behaviors, a formative evaluation was conducted. This chapter describes that evaluation process. It first describes how the formative evaluation was conducted and the types of evaluation performed. Next, it describes the results of two evaluations—an expert review and a pilot test. The chapter closes by identifying recommendations for improvements to the learning module.

HOW THE FORMATIVE EVALUATION WAS CONDUCTED

According to Tesmer (1993), a learning program should be assessed from a variety of perspectives. One is that of the experts, who can assess whether a learning program is complete and the content is technically accurate.

But the experts only represent one view and, often, theirs is in conflict with those of the learners. So another type of formative evaluation to be performed is a pilot test, in which a draft of the learning product is taken for a “test drive” with people who represent the demographics of the intended learners to see how well they can follow the learning program and what their overall reactions are.

Feedback from both types of reviews is intended to be incorporated into the learning program before it is made available. This process is also known as validation.

Carliner (2003) also recommends conducting an editorial review, in which an editor acts as the first reader of a learning program and identifies any passages that might be difficult to follow because they are unclear, inconsistent with other passages, or grammatically incorrect. This type of evaluation integrated into the expert review process.

EXPERT REVIEWS

Expert reviews were conducted to ensure that the content was complete and technically accurate, as well as editorially correct. As noted in Chapter 3 (Methodology), the following processes were followed when conducting these reviews.

1. A draft of the learning module was distributed to the reviewers.
2. A cover letter accompanied the draft, which provided instructions for conducting the review and criteria for evaluating the draft materials, as well as information on how to return the reviewed drafts to me. See Appendix F for a copy of this cover letter.
3. Reviewers were given two weeks to review the materials.
4. I met with the reviewers to address any issue about their comments.
5. I revised the draft materials to reflect the comments received.

I conducted three types of expert reviews: An instructional design review, a technical review by a subject matter expert (SME), and an editorial review. The credentials of the experts were provided in Chapter 3 (Methodology).

The following sections report the key comments arising from these reviews. Each set of comments is prioritized as follows (Carliner 2003):

A—showstopper

B—must address before publishing the course

C—correct as time permits.

Feedback from the Expert on Instructional Design

Feedback was provided on storyboards for the learning module. It primarily addressed instructional strategies. Table 6.1 presents a prioritized list of issues arising from the instructional design review.

Priority	Problem
B	The course does not accommodate people with different learning styles. For example if the person is used to learn by listening rather than reading, this course would be hard to follow, since there is no audio.
C	The website is only offered in English. Of course, this is only an issue if the course is going to be used by other than Anglophones.

Table 6.1: Prioritized List of Issues Arising from the Instructional Design Review

Feedback from the Review by the Subject Matter Expert

Based on his experience as a health educator, the SME provided feedback on the accuracy of the content and the motivational strategies used in this sensitive health context. Table 6.2 presents a prioritized list of issues arising from the SME review.

Priority	Problem
A	The course introduction should not focus on who this course is not designed for—it should focus on who can benefit from it.
A	“Safer sex” definition needs to be broader.
A	In question A, any sentence that implies many people did not practice safer sex should be changed.
A	Order of screens has to be changed to provide a better flow of information.
A	“Worst Case Scenario” has positive meaning in the contest, but negative wording and should be changed to “What If You Practice Safer Sex”.

Table 6.2: Prioritized List of Issues Arising from the Review by the Subject Matter Expert

Feedback from the Editorial Review

The editor provided feedback consistency and ease of use, as well as style and grammar issues. The editor identified a few grammatical and typographical errors, which were assigned the priority A.

PILOT TEST

As described in Chapter 3 (Methodology), the pilot test was conducted with people who were representatives of the intended learners (Gordon, 1994). The pilot test was conducted following the guidelines provided in the Methodology section. To ensure that people who influenced the design were not the same people who provided feedback on the resulting course (to avoid any possibility of biased responses), an entirely new set of participants were recruited.

The selection process was the same as what was used to recruit participants in the needs assessment. The invitation e-mail was sent to 1,986 Concordia undergraduate students. After three follow-ups a total of 89 students filled out the qualifying questionnaire and returned the result. All 89 students received the Formative evaluation survey. 12 students were selected from respondents to meet the intended sample size and demographics. Participants consisted of:

- 6 women, 6 men (3 males and 3 females between the age of 18 and 21, and 3 males and 3 females between the age of 22 and 24)
- Sexually active heterosexual individuals
- 5 Canadians, 2 Chinese, 2 Persians, 1 American, and 1 Syrian, 1 Saudi Arabian
- 7 single, 3 common-law, 2 divorced or separated people
- 4 atheist, 3 Christians, 1 Jewish, and 4 Moslem

The selected participants received an e-mail that included instructions on how to take the course and provide feedback, and a URL that directed them to the course website. They all replied to the e-mail with their feedback within two weeks after they received the e-mail. Then, 3 participants were interviewed (2 in person, 1 by phone).

Here is what participants had to say about the course:

- The course took learners 25 to 45 minutes, depending on their language skills and background knowledge.
- All learners believed that including peers' stories, beliefs, and problems had a positive effect on learning. Learners realized that their peers were dealing with same issues and emotions, and having similar reactions. Lack of self confidence and fear

of being refused by a partner (who, in the end, might not mind practicing safer sex) are common issues that they face. Learners responded positively to peers' comments about real life experience, referring to these comments as "been there done that". The section describing peers' experiences also introduced new circumstances that learners might not have faced before, but to which they could relate and ask how they might react in the same situation.

- Participants all preferred online education in this context because:
 - It provided them with privacy, anonymity, confidentiality, and convenience that is not easily available in any other type of education. They would not feel comfortable sharing this information with anyone, even an instructor.
 - They felt the module being online made it easy to take.
 - They felt they were more comfortable with reading on the computer than a book, and typing English in the electronic scrap paper rather than writing on a paper.
 - They felt lack of face-to-face interaction in this instance did not cause problems, because this course was focused on changing attitudes and reflected on attitudes. Therefore, learners had to find out for themselves what their strategies and attitudes towards safer sex would become. They believed that this type of education does not need discussion, but needs internal analysis of one's behavior and application of the information.
 - One participant felt she did not want to be in a class because other learners' would distract her. However, she would not mind using online discussion groups to expand the learning experience.
 - Participants felt free to leave the session if they wished to.

- They disliked the online education in this context because they could not highlight information online like they could in a book.
- They liked the design of this course and the content, because:
 - The user interface design was different than other sex education websites. For example, neutral colors were used. In addition, use of images or sound effects that could make some learners feel uncomfortable was avoided.
 - Learners liked the idea of using an electronic scrap paper that they could reflect on their ideas and change them while learning from the course and other's opinions. Some thought the electronic scrap paper was something that was lacking in many other courses. It was a tool to engage them as quickly as possible and in a timely manner. They thought that the interaction was like a game, captured their opinions and then let them compare their opinions with those of others. Only one participant thought the electronic scrap paper was useless and time consuming, because he could remember as he read other's opinions.
 - Some information was repeated in the course to reinforce key points. However, some participants felt the content became repetitive at some points.
 - People appreciated that ideas were not presented as wrong or right. The course merely provided suggestions.
 - Learners appreciated that the learning module placed them in situations that made them think about what they know in theory but might not follow in practice. The learning program helped learners think once more about their own strategies and beliefs, and how to put beliefs into action.

- Participants believed this learning module could be used for other age groups besides 18- to 24-year-olds.
- Participants felt the learning module was comprehensive and provocative, and achieved its goals. However, some participants felt that the content was not very useful because they knew it already.
- Participants felt that the flow of information was good.
- Participants felt that the learning module was culturally sensitive.

Some other suggestions provided by learners are presented and prioritized in Table 6.3.

Priority	Problem
A	Instructions on how to fill out evaluation forms were vague.
A	Lack of contact information to ask about the subject matter.
B	Not enough information on STIs was provided; more details on treatment were required.
B	World wide statistics can be misleading; Canadian statistics could be more thought-provoking in this case.
B	Lack of statistics to prove items such as use of dental dams and their success rate.
C	Not enough colors and fonts to grab more attention.
C	Lack of information on how to start safer sex negotiation.
C	Lack of information on other types of safer sex practices.

Table 6.3: Suggestions for Improvement from the Participants in the Pilot Test

I immediately incorporated all suggestions categorized as A into the learning program.

RECOMMENDATIONS FOR IMPROVEMENT

In response to the comments from the expert reviews and the pilot test, the following are the recommendations for improvements to the learning module:

- Because the course was evaluated to be culturally sensitive, making it multilingual or at least bilingual (English and French) could help the module receive more wide use.
- To accommodate for people with different learning styles, short audios or videos could be used. For example, some of the content could be presented in an audio format; or the instruction on how to use the electronic scrap paper could be explained by an animation.
- More statistics on success stories with practicing safer sex should be provided.
- More relevant Canadian statistics on practicing unsafe sex should be provided.
- Adding other safer sex practices behaviors, such as not brushing teeth one hour before oral sex.
- One learner felt he would have liked to see more information on STIs. However, because this learning module focused on attitude change and assumed some knowledge of STIs by learners, much of this factual information was not included to keep the learning module within the 30-minute target. In a revision, however, the course could provide links to informational websites with factual information about STIs.
- Some learners commented about the sparse use of graphics and color. (Interestingly enough, these comments seemed to come from students with a background in art.) They felt that graphics and color would make the learning module more interesting and direct attention to more important content.

- Some learners suggested adding moderated discussion groups to accompany the module.
- Some learners suggested adding contact information for someone who can provide quick response to learners' questions or, at the least, direct them to an appropriate resource.

CHAPTER 7: CONCLUSIONS AND FUTURE RECOMMENDATIONS

Based on this experience, online education seems to show the potential to be effective in promoting positive attitudes towards safer sex. But what else does it suggest? This chapter explores the answer to this question. It first presents the conclusions and implications of this research, using evidence from the project. Then, it provides recommendations for future projects in the general area of sensitive health education and the specific area of promoting positive attitudes towards healthy behaviors.

CONCLUSION AND IMPLICATIONS

As per the results of the formative evaluation, online education was favored by participants in the university-age population when promoting positive attitudes towards the sensitive subject of safer sex. The primary reasons provided by participants were the quick and easy access to the information, convenience of the medium, easy navigation of the materials, as well as the anonymity and confidentiality in accessing various sources.

Online education also seemed to be effective in teaching for the affective domain, although it may involve a different teaching process. Attitudes have roots in culture, religion, beliefs, and social communities. Changing attitudes requires changing social norms and personal beliefs. Historically, this has been accomplished using means such as social campaigns in communities specifically targeted for the message. Although online means are being used for marketing, they are not necessarily used for teaching about attitudes. Rather, online learning tools are mostly used to teach content in the

psychomotor and cognitive domains. Perhaps this is because teaching in the attitudinal domain involves more than providing clear, accurate information and well-designed multimedia. It involves an internal process within learners, who decide for themselves whether or not the new attitude works. Participants in the formative evaluation confirmed that such an attitude change was facilitated by this learning module. The module provided an opportunity for learners to find out for themselves what their strategies and attitudes towards safer sex were, and how they would like to see it changed. They basically analyzed how the new attitude can affect their lives and decided for themselves whether or not they would like to adopt the new attitude. Because they believed that this process does not need discussion, but needs internal analysis of one's behavior and application of the information, they found this module to be successful in promoting positive attitudes towards safer sex.

RECOMMENDATIONS FOR FUTURE PROJECTS

Based on the experience of this project, health educators might consider using online learning for positive attitudes towards other sensitive and private health subjects. When doing so, they might consider these suggestions:

- One of the main challenges I faced when conducting this project was recruiting enough participants for the needs assessment and formative evaluation. Part of this was due to the timing of surveys. Summertime and long holidays like Christmas (when fewer students are around), ends of terms (when students are overloaded with their exams or final term projects) are probably not the best times to schedule research with students.

In addition, getting Concordia University's Health Services more directly involved as a mediator could have helped in this effort, because participants would probably feel more comfortable sharing private information with health professionals than with another student.

Last, I might have done as other researchers do, and offer a reward for participating, such as an iPod or MP3 player, or paying for their time spent.

- As for the use of technology, if this course is to be used in a broader range of ages and skills, consider providing alternatives for learners who are not comfortable typing. The participants in this project were university students between the ages of 18 and 24, who were expected to be comfortable using the Internet and computer more than paper and book. One possibility: instruct uncomfortable typists to print the electronic scrap paper and write on the hard copy as opposed to typing online.

Another example of providing learners with alternatives was the Practice Sheet on Negotiating Safer Sex. The content could include recorded dialogues (video or audio) of successful and unsuccessful negotiations for safer sex. Learners could listen to or watch what does and does not work. Learners could also learn about tone of voice and facial expressions from these materials. Learners could even be instructed to stop the audio or video recording, to reflect on their own response to the other side of the dialogue (as with the practice sheet).

- If the goal is to change learners' attitudes, the learning materials should reflect the learners' realities, not the writer's or instructor's personal, political, or religious opinions.
- For those doubting it, online learning *can* be used to promote positive attitudes in the context of sensitive health subjects, if the learning materials use appropriate instructional strategies. Let learners reflect on their own thoughts and beliefs, analyze the causes and the consequences of their behaviors, compare their responses with those of peers, and assess for themselves. In such a private and non-threatening context, learners might indeed form new attitudes.
- Once the course is released for general use, the next challenge is getting people to use it. Merely having the most effective educational online package is not enough; its availability must be advertised so that those who need the learning module will know about it, have access to it, and be motivated to use it. Here are some specific suggestions for promoting the availability of this learning module:
 - Make it available in waiting rooms of clinics, hospitals, health centers, and universities and for free, so that people can surf while waiting.
 - Physicians and health educators could suggest that people surf through the learning program before an appointment. People might be more inclined to use this learning module when it is recommended rather than if it is just something that comes up when searching the Internet.

Although the result of formative evaluation noted some specific suggestions for improvement, the formative evaluation indicated that online education is favored and

effective for promoting positive attitudes in sensitive healthcare subjects, as long as the education provides an opportunity for learners to reflect on their own thoughts and beliefs, analyze the causes and the consequences of their behaviors, compare their reactions in different situations with those of peers, and assess for themselves. One possible conclusion of this study is that online education could be effective in teaching affective domain, as long as appropriate learning strategies are used.

It is my intention and hope that this research can help healthcare professionals around the world, whose resources are already stretched thin, reach the largest number of people in the shortest period of time and in the most cost-effective manner.

**APPENDIX A – SAMPLE OF QUALIFYING QUESTIONNAIRE FOR THE
NEEDS ASSESSMENT**

A. Demographics

1. Where is your country of birth?
2. How long have you been living in Canada?
3. What is your relationship status?

<input type="checkbox"/> Single	<input type="checkbox"/> Married	<input type="checkbox"/> Common-law
<input type="checkbox"/> Divorced or separated	<input type="checkbox"/> Widowed	<input type="checkbox"/> Other

B. Background Knowledge

This section evaluates your general information about sexual health. Please answer the questions in this section regardless of your personal sexual practices and health.

1. To protect one from contracting an STI, which one of the following is a must? (Mark more than one if they apply.)
 - Use condom consistently in vaginal intercourse
 - Use condom consistently in anal intercourse
 - Use condom or dental dam consistently in oral sex
 - Get tested for STI every six months
 - Other, explain
.....
.....
.....
2. How soon after a person is infected with HIV/AIDS, will the HIV test show the infection?
 - Immediately after infection
 - After six months
 - After one year

- After six years
- After ten years
- It varies for men and women
- Don't know

C. Sexual Profile and Practices

This section is inquiring about your sexual practices. Remember there is no wrong or right answer. Answer them based on what applies to you.

1. Are you currently sexually active? Yes No
 If yes, how long have you been sexually active?
2. How knowledgeable do you consider yourself about the subject of "sexual health?"
 - Extremely knowledgeable
 - Knowledgeable
 - Somewhat knowledgeable
 - Not knowledgeable
3. Have you ever been in a situation that you felt you needed to use protection, but you didn't for any reason and you had unsafe sex?
 - Yes No



If yes, explain why you felt you needed to use protection.....

4. Do you use protection such as condoms and dental dams?
 - Always Sometimes Never

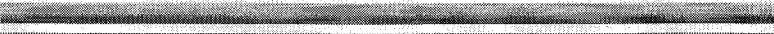
APPENDIX B – SUMMARY OF RESULTS FROM THE NEEDS ASSESSMENT INSTRUMENT

1. First Name (optional)		
	Total Respondents	16
	(filtered out)	6
	(skipped this question)	10

2. Last Name (optional)		
	Total Respondents	8
	(filtered out)	4
	(skipped this question)	20

3. Gender			
		Response Percent	Response Total
Male		50%	8
Female		50%	8
Other (please specify)		0%	0
	Total Respondents		16
	(filtered out)		16
	(skipped this question)		0

4. Age:		
	Total Respondents	16
	(filtered out)	16
	(skipped this question)	0

5. Does consistent condom use completely eliminate the risk of contracting a Sexually Transmitted Infection (STI) in a sexual intercourse?			
		Response Percent	Response Total
Yes		0%	0
No		100%	16
Don't know		0%	0
	Total Respondents		16
	(filtered out)		16
	(skipped this question)		0

6. If an individual has unsafe sex with someone who is infected with an STI, is it guaranteed that s/he has contracted the STI?			
		Response Percent	Response Total
Yes		6.2%	1
No		87.5%	14
Don't know		6.2%	1
Total Respondents			16
(filtered out)			16
(skipped this question)			0

7. Suppose you are in a relationship for four months and you trust your partner has only been in a sexual relationship with you for the past four months. Therefore, you and your partner would like to not use condoms anymore. You don't talk much about his or her sexual history. However, you both get tested for STIs and the results show you are both not infected with an STI. Is it safe to stop safer sex practices?			
		Response Percent	Response Total
Yes		25%	4
No		75%	12
Don't know		0%	0
Total Respondents			16
(filtered out)			16
(skipped this question)			0

8. Do you know how STIs are contracted?			
		Response Percent	Response Total
No		18.8%	3
Yes (please explain)		81.2%	13
Total Respondents			16
(filtered out)			16
(skipped this question)			0

9. How many of your close friends are sexually active?			
		Response Percent	Response Total
All of them		31.2%	5
Most of them		43.8%	7
Almost half of them		12.5%	2
Very few of them		12.5%	2
None of them		0%	0
Don't know		0%	0
Total Respondents			16
(filtered out)			16
(skipped this question)			0

10. In your opinion, how many of your peers favor the idea of condom use in a "high-risk sexual relationship"?			
		Response Percent	Response Total
All of them		37.5%	6
Most of them		43.8%	7
Almost half of them		6.2%	1
Very few of them		6.2%	1
None of them		0%	0
Don't know		6.2%	1
Total Respondents			16
(filtered out)			16
(skipped this question)			0

11. Are you currently in a relationship?			
		Response Percent	Response Total
No		56.2%	9
Yes (How long have you been in your current relationship?)		43.8%	7
Total Respondents			16
(filtered out)			15
(skipped this question)			1

12. Which one of the following statements best describes your relationship(s)? (Mark more than one if they apply.)			
		Response Percent	Response Total
My partner and I are in a monogamous relationship.		56.2%	9
I am in a polygamous relationship.		6.2%	1
Sometimes, I have casual sex, without any sort of commitment.		31.2%	5
Other (please explain)		12.5%	2
Total Respondents			16
(filtered out)			15
(skipped this question)			1

13. Do you use protection?			
		Response Percent	Response Total
Yes		68.8%	11
No		31.2%	5
Total Respondents			16
(filtered out)			15
(skipped this question)			1

14. If your answer to the above question is yes, why do you use protection? (Mark more than one if they apply.)			
		Response Percent	Response Total
To avoid pregnancy.		63.6%	7
To protect myself against contracting STIs from my partner.		81.8%	9
To protect my partner against contracting STIs from me.		36.4%	4
Other (please specify)		9.1%	1
Total Respondents			11
(filtered out)			11
(skipped this question)			10

15. How many of your peers, do you believe, consistently use condoms, when they are not sure about their sexual partners' or their own sexual health?			
		Response Percent	Response Total
All of them		18.8%	3
Most of them		56.2%	9
Almost half of them		18.8%	3
Very few of them		0%	0
None of them		0%	0
I have no idea.		6.2%	1
Total Respondents			16
(filtered out)			13
(skipped this question)			3

16. Which one of the following statements describes best your opinion about pre-marital sexual relationship?			
		Response Percent	Response Total
I am a sexual being and I don't mind casual sex.		62.5%	10
It is OK at any stage of a relationship.		18.8%	3
It is OK, only if I am in love with my partner.		12.5%	2
It is OK, if I have decided to marry my partner.		0%	0
It is not OK to have pre-marital sexual relationship.		0%	0
Other (please explain)		6.2%	1
Total Respondents			16
(filtered out)			13
(skipped this question)			3

17. At what age do you think majority of females are mature enough to start a sexual relationship? (Maturity in this question refers to mental, emotional, and physical maturity)

	Response Percent	Response Total
Less than 15 years old	0%	0
15 years old	12.5%	2
16 - 17 years old	50%	8
18 - 20 years old	31.2%	5
21 - 24 years old	6.2%	1
25 years old and higher	0%	0
Total Respondents		16
	(filtered out)	13
	(skipped this question)	3

18. At what age do you think majority of males are mature enough to start a sexual relationship? (Maturity in this question refers to mental, emotional, and physical maturity.)

	Response Percent	Response Total
Less than 15 years old	0%	0
15 years old	6.2%	1
16 - 17 years old	43.8%	7
18 - 20 years old	37.5%	6
21 - 24 years old	12.5%	2
25 years old and higher	0%	0
Total Respondents		16
	(filtered out)	13
	(skipped this question)	3

19. Do you think you have enough information to protect yourself from contracting STIs?

	Response Percent	Response Total
Yes	93.8%	15
No	6.2%	1
Don't know	0%	0
Total Respondents		16
	(filtered out)	13
	(skipped this question)	3

20. Do you think you have different attitudes toward sexual relationships compared to the majority of your peers?			
		Response Percent	Response Total
No		37.5%	6
Don't know		6.2%	1
Yes. Please explain your different attitudes toward sexual relationship.		56.2%	9
Total Respondents			16
(filtered out)			13
(skipped this question)			3

21. If your answer to the question 16 is "Yes", would you be embarrassed, if they knew about these differences?			
		Response Percent	Response Total
Yes		0%	0
No		100%	11
Total Respondents			11
(filtered out)			7
(skipped this question)			14

22. Have you ever felt pressured by your peers that you had to follow a sexual habit, which you don't believe in, such as not using condoms or not negotiating safer sex when you think you should?			
		Response Percent	Response Total
No, I never felt pressured.		87.5%	14
Yes, I felt pressured. (Please explain what you did)		12.5%	2
Total Respondents			16
(filtered out)			13
(skipped this question)			3

23. Are you confident that you can protect yourself from contracting an STI from your sexual partner?			
		Response Percent	Response Total
Yes		62.5%	10
No		18.8%	3
Don't know		18.8%	3
Total Respondents			16
(filtered out)			13
(skipped this question)			3

24. What would convince you to trust your sexual partner enough, so that you feel comfortable having unprotected sex?			
		Response Percent	Response Total
I don't need to ask about it. Knowing his/her personality, I trust s/he is sexually healthy.		0%	0
I ask him/her and I take my partner for his/her words.		37.5%	6
S/he needs to take a test and "tell" me the result.		18.8%	3
S/he needs to take a test and "show" me the result.		12.5%	2
Other (please explain)		31.2%	5
Total Respondents			16
(filtered out)			13
(skipped this question)			3

25. If you want to have unsafe sex with your partner, and s/he refuses. Would you be insulted?			
		Response Percent	Response Total
Yes		6.2%	1
No		93.8%	15
Total Respondents			16
(filtered out)			13
(skipped this question)			3

26. Explain why you would or wouldn't be insulted in the mentioned situation in question 25.			
Total Respondents			16
(filtered out)			13
(skipped this question)			3

27. Do you use protection such as condoms and dental dams?			
		Response Percent	Response Total
Always		18.8%	3
Sometimes		81.2%	13
Never		0%	0
Total Respondents			16
(filtered out)			13
(skipped this question)			3

28. Explain why you always, sometimes, or never use protection.			
Total Respondents			16
(filtered out)			13
(skipped this question)			3

29. Have you ever been tested for HIV/AIDS?			
		Response Percent	Response Total
Yes		56.2%	9
No		43.8%	7
Total Respondents			16
(filtered out)			13
(skipped this question)			3

30. How often do you take the HIV test?			
Total Respondents			9
(filtered out)			4
(skipped this question)			19

31. If this was your first time taking the test, how often are you planning to take the test from now on?			
Total Respondents			9
(filtered out)			4
(skipped this question)			19

32. Explain why you took the test.			
Total Respondents			9
(filtered out)			4
(skipped this question)			19

33. Are you planning to take the test in the next month?			
		Response Percent	Response Total
Yes		42.9%	3
No		57.1%	4
Don't know		0%	0
Total Respondents			7
(filtered out)			9
(skipped this question)			16

34. Have you ever been in a situation that you wanted to use a condom, but your partner refused?			
		Response Percent	Response Total
Yes, but I managed to negotiate safer sex and we had protected sex.		12.5%	2
Yes, I negotiated safer sex, but s/he refused. Therefore, we did not have sex.		0%	0
Yes, I negotiated safe sex, but s/he refused. Therefore, we had unprotected sex.		0%	0
Yes, but I felt uncomfortable negotiating safer sex, and we had unprotected sex.		0%	0
No, but if I were, I would have been able to negotiate safer sex.		62.5%	10
No, and if I were, I would not have been able to negotiate safer sex.		12.5%	2
Other (please explain)		12.5%	2
Total Respondents			16
(filtered out)			13
(skipped this question)			3

35. If you want to have sex and do not have access to a condom, would you continue anyway?			
		Response Percent	Response Total
Yes		50%	8
No. If no, what would you do?		50%	8
Total Respondents			16
(filtered out)			13
(skipped this question)			3

36. Imagine you really like someone, but you are not certain about his/her sexual health. S/He refuses to have safer sex and says if you insist on practicing safer sex, s/he would leave you. Would you agree to have unprotected sex?			
		Response Percent	Response Total
Yes		0%	0
No		81.2%	13
Don't know		18.8%	3
Total Respondents			16
(filtered out)			13
(skipped this question)			3

37. Would you discuss with your partner about his/her sexual health before your first sexual contact with him/her?			
		Response Percent	Response Total
Yes		43.8%	7
No		56.2%	9
Total Respondents			16
(filtered out)			13
(skipped this question)			3

38. Would you discuss safer sex before your first sexual contact with your partner?			
		Response Percent	Response Total
Yes		56.2%	9
No		43.8%	7
Total Respondents			16
(filtered out)			13
(skipped this question)			3

39. Have you ever considered use of condom a pleasurable behavior?			
		Response Percent	Response Total
Yes		25%	4
No		75%	12
Total Respondents			16
(filtered out)			13
(skipped this question)			3

40. If you are in love with someone, and s/he wants to have sex with you, but you are not sure if s/he has an STI, what would you do?		Response Percent	Response Total
First discuss his/her sexual health and negotiate safe sex and you would only have sex, if s/he agrees to have safer and protected sex.		18.8%	3
First discuss his/her sexual health and negotiate safe sex. Then continue, if s/he tells you s/he is sexually healthy.		25%	4
You would engage in sexual activity with him/her. However, if s/he refuses to use condom or dental dam, you would stop at that point.		31.2%	5
You wouldn't ruin the moment, but discuss the situation afterwards, so that you can practice safer sex the next time.		12.5%	2
You would just continue to have sex and say nothing.		0%	0
None of the above. Please specify		12.5%	2
Total Respondents			16
(filtered out)			13
(skipped this question)			3

41. Have you ever received any type of sex education? List all examples (including school, university, online, books, media, etc.)		Total Respondents	16
(filtered out)			12
(skipped this question)			4

42. When was the last time you had a question about your sexual health?		Total Respondents	16
(filtered out)			12
(skipped this question)			4

43. Were you satisfied with the information you received?			
		Response Percent	Response Total
Yes		62.5%	10
Almost		31.2%	5
No		6.2%	1
Total Respondents			16
(filtered out)			12
(skipped this question)			4

44. how often do you use the following resources to access your required sexual health information?						
	All the time	Very often	Often	Sometimes	Never	Response Average
Internet	38% (6)	31% (5)	6% (1)	19% (3)	6% (1)	2.25
Family	0% (0)	6% (1)	6% (1)	31% (5)	56% (9)	4.38
Friends	25% (4)	12% (2)	12% (2)	38% (6)	12% (2)	3.00
Health care professionals (doctors, nurses, health educators)	12% (2)	31% (5)	19% (3)	25% (4)	12% (2)	2.94
Peer health educator	0% (0)	0% (0)	0% (0)	12% (2)	88% (14)	4.88
Library	0% (0)	6% (1)	0% (0)	19% (3)	75% (12)	4.63
Radio	0% (0)	0% (0)	6% (1)	6% (1)	88% (14)	4.81
TV	0% (0)	0% (0)	0% (0)	31% (5)	69% (11)	4.69
Brochures/pamphlet, magazines or newspapers	0% (0)	12% (2)	25% (4)	31% (5)	31% (5)	3.81
Total Respondents						16
(filtered out)						12
(skipped this question)						4


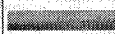


45. If you use any other resource to access your required sexual information, please specify it here			
		Total Respondents	1
		(filtered out)	2
		(skipped this question)	29

46. Do you rely on Internet as a source for your required sexual health information?			
		Response Percent	Response Total
Yes		81.2%	13
No		18.8%	3
Total Respondents			16
(filtered out)			13
(skipped this question)			3

47. What do you like about Internet as a resource in this subject? Please explain	
Total Respondents	11
(filtered out)	11
(skipped this question)	10

48. If there is any specific site(s) you normally visit for this purpose, please specify them.	
Total Respondents	11
(filtered out)	11
(skipped this question)	10

49. Are there things you dislike about Internet as a source of your required sexual health information? Please explain.	
Total Respondents	11
(filtered out)	11
(skipped this question)	10

50. If you were about to take an online course in promoting safer sex behavior, how would you prefer your sexual health information to be presented to you? (Mark more than one if they apply.)			
		Response Percent	Response Total
Reading a text over the Internet		50%	7
Listening to the information over the Internet		14.3%	2
A combination of reading some information and listening to some other information		35.7%	5
An interactive module that provides feedback on your sexual knowledge, attitude, or behavior.		78.6%	11
Other (please specify)		0%	0
Total Respondents			14
(filtered out)			13
(skipped this question)			5

51. Explain why you chose those items in question 50?	
Total Respondents	10
(filtered out)	11
(skipped this question)	11

APPENDIX C – EVALUATE THE COURSE

Your feedback can help me improve the course on “Rethink Your Attitude Towards Safer Sex”. Please take a few minutes to answer the following questions and email it to haleh@education.concordia.ca

Please put an X in the appropriate box

	A lot	Very Much	Indifferent	A little	Not at all
1. How did you like the course?					
2. How useful was the content?					
3. Do you think you can apply what you learned in this course to your future sexual life?					
4. Was the content clear and easily transferred?					
5. Did you like the presentation of the course?					

1. What part of the course did you like the most? Why?

.....

2. Do you have any comments on how to improve this course?

.....

Thank you,
 Haleh Raissadat

APPENDIX D - EVALUATE YOUR LEARNINGS

In order to evaluate the effectiveness of the course, make sure that you take the following test two weeks after you finish the course. Please forward your suggestions and comments to haleh@education.concordia.ca

1. Define safer sex behavior.
2. Identify your main reason(s) for not using condoms in risky sexual relationship.
3. Describe how use of condoms means respecting themselves and their partner?
4. Describe consequences of practicing unsafe sex?
5. Do you think use of condoms can be pleasurable? How?
6. Do you think your attitude towards safer sex has changed, since you took the course? If yes, how is it changed?

Please submit your suggestions to haleh@education.concordia.ca

Thanks,

Haleh Raissadat

APPENDIX E - EVALUATE YOUR BEHAVIOUR AND ATTITUDE TOWARDS**SAFER SEX**

In order to evaluate the effectiveness of the course, make sure that you take the following test two months after you finish the course. Please forward your suggestions and comments to haleh@education.concordia.ca

1. Would you carry condoms with you, if you were going to a place that there was a chance you ended up having unsafe sex?
2. Will you have unsafe sex if you are in a high-risk sexual relationship?
3. Has this course changed your level of confidence in your sexual relationships? If yes, how?
4. If you want to use condom and your partner refuses,
 - a. How do you feel?
 - b. What would you do?
5. If you are in love with someone, and s/he wants to have sex with you, but you are not sure if s/he has an STI, what would you do?

Thanks,

Haleh Raissadat

**APPENDIX F – EVALUATION CRITERIA REQUESTED IN THE COVER
LETTER FOR SUBJECT MATTER EXPERTS**

Hi

Hope you are doing well.

I have designed the learning module website and I would appreciate your feedback. Here is the link:

<http://education.concordia.ca/~haleh/safersex/default.htm>

It would be great if you could please focus your feedback on the following matter and of the course. If you have any other comment, I would truly appreciate it.

1. Was the content clear and easily transferred?
2. Was the instruction on “how to take this course” clear?
3. How did you like to user interface? Use of colors, fonts, size of the text ...
4. Did you like the learning strategies of the course? For example how it asked learners to write their opinions on a subject and then update it after they read other’s opinion and ...
5. Was the content easy to follow?
6. How useful and applicable was the content to this age group's daily life?
7. Do you have any comments on how to improve this course?
8. What part of the course did you like the most? Why?

I would appreciate it if you could send me your feedback within the next 2 weeks.

Regards,

Haleh Raissadat

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