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Exploring the Need for an Interactive Computer Program on Healthy Body Weights for

Adolescent Girls

by

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ABSTRACT

The purpose of this project was to explore the need for a computer program on healthy body weights for adolescent girls. It also examined the information that would be important to include in this computer program and how it could be used within the context of existing services or curricula.

Using purposive sampling, twelve professionals working with adolescent girls and their body weight issues were selected for key informant interviews. As well, two focus groups were conducted with teenage girls, aged 15 to 18 years. Computer generated data from an existing program called WHY WEIGHT, supplemented this data.

The evidence suggested that a computer program on healthy weights would be useful for teenage girls. The data also showed that there are many topics that could be covered for girls to examine their issues surrounding healthy weights. Finally, it appears that the program, preferably as a tool in existing services, could be used in many places such as at home, academic, extracurricular and health care settings.

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CHAPTER 1: BACKGROUND

I. INTRODUCTION

This chapter reviews published literature as background to exploring computer programs as a medium for adolescent girls to examine issues surrounding healthy body weights. To begin, there is a discussion of WHY WEIGHT because this study builds on previous work on a computer assisted program on healthy body weights for adult women called WHY WEIGHT. The concepts of healthy weights are explained here followed by the content found in WHY WEIGHT. In addition, this chapter investigates the importance of healthy body weights for teenage girls. More specifically, this section provides an understanding of issues related to body weight and image, and healthy weights as they affect young women. Furthermore, there is a review of the literature regarding the use of computers by teenage girls. This information provides background to chapter two, in which the research project's purpose and design are described.

II. WHY WEIGHT

Thurston (1991) developed an interactive, health promotion computer program called WHY WEIGHT. The program, focusing on healthy body weights for women, provided an opportunity for women to examine the important issues that affect weight loss, including body image and weight preoccupation. To gain a better understanding of the material found in WHY WEIGHT, an explanation of healthy weights is first provided.

A. Concept of Healthy Weights

The term healthy weight is new in the field of obesity and weight control. Healthy weights were first defined as usual or normative weights in a population. Those weights that were average, or those between the 15th and 85th percentiles for a given age and sex group in the population, were said to be healthy weights. The problem with such a definition is the lack of evidence that the existing distribution of weights in the population is, or ever has been, optimal for health, even among those within the so called average range. Another problem with using means or percentile cutoffs for defining healthy weights is that as the distribution of excess weight varies in a population, so too will the upper cutoffs, and these may not be the best for health (Dwyer, 1996).

Later definitions of healthy weight were based on ideal or desirable weights for minimal mortality. In essence, healthy weights were defined as the range of weight-for-height (BMI, or Body Mass Index) for which mortality was lowest. Ideal weights derived this way have both theoretical and practical limitations when used as the basis for advising people who need to lose weight. Ideal weights can be unrealistically low and unlikely to be achieved by people who are already overweight. Also, this definition focuses only on weights that minimize mortality, not morbidity, and ignore functional status or quality of life. Lastly, this definition fails to account for differences in risk associated with variations in fat distribution or other known risk factors, such as smoking, which worsen risks at any given weight (Dwyer, 1996).

A more satisfactory approach to defining healthy weight is weight associated with measurably lower or less morbidity. If obesity-related signs or symptoms improve with

weight loss, it is assumed that healthier body weights have been achieved. This approach, however, is subjective (Dwyer, 1996). Many persons outside the desirable weight range live long, healthy lives, whereas some persons with ideal weights develop diseases associated with obesity, such as, non-insulin dependent mellitus and coronary health disease (Abernathy & Black, 1996).

Currently, healthy weights are established when the individual's health improves and morbidity decreases with weight loss (Abernathy & Black, 1996), even if the weight loss falls short of desirable or ideal weights for heights (Dwyer, 1996). In 1993, an expert group sponsored by the American Institute of Nutrition (AIN) recommended guidelines for healthy weights which were based on the body mass index (BMI; weight in kilograms divided by the height in meters squared). The AIN provided preventively oriented guidelines that are compatible with a BMI (weight-for-height ratio) of 19-25, with a difference of less than or equal to one BMI unit or two to five kilograms with age (Dwyer, 1996). The BMI is selected as the most commonly used scientific tool to represent relative weight, and is considered to be highly correlated with body fatness in most populations. A BMI for healthy weights, defined as a generous maximum limit to protect against development of chronic diseases, is offered as the best standard for purposes of a public health recommendation for those not yet overweight (Blackburn, Dwyer, Flanders, Hill, Kuller, Pi-Sunyer, St. Jeor & Willet, 1994; Meisler & St. Jeor, 1996b). Furthermore, these guidelines are not recommended for individuals under the age of 21 or over the age of 65 years. The range is expressed to reflect a statistically

derived best weight associated with the least morbidity, mortality and disease onset (Meisler & St. Jeor, 1996b).

However, Health and Welfare Canada (1988) did not use a BMI range alone to define healthy weights. Instead Health and Welfare Canada established a national strategy to promote healthy weights and to prevent weight problems within the framework for health promotion described in *Achieving Health for All: A Framework for Health Promotion*. In *Promoting Healthy Weights: A Discussion Paper* (Health and Welfare Canada, 1988), the healthy weight concept is defined as accepting and reaching a body weight, size and shape which allows individuals to feel good about themselves and encourage positive activity and eating habits. In other words, it means making health more important than appearance. Body image defined as the way an person sees, thinks and feels about her body, is also significant when obtaining a healthy weight. When an individual has a positive body image, she accepts her body and is satisfied with the way she looks (British Columbia Eating Disorders Association, 1998). Finally, this approach to weight control de-emphasizes the concept of one healthy weight for each height and recognizes the impact of the social environment and of social and psychological well being on health status (Health and Welfare Canada, 1988).

B. Program Content

As stated before, WHY WEIGHT is a computer program for adult women to examine body weight issues. Specifically, the program encourages women to examine personal issues regarding body weight in a health promotion context and to set individualized, clear and specific goals around these issues. WHY WEIGHT consists of

five modules where individuals select information they want in an order they determine: Body Size and Shape; Feeling Good About Yourself; Positive Activity Levels; Positive Eating Habits; and Values. Within these modules, there are 15 exercises and 36 information units (Thurston, 1991). A main menu is provided to allow movement to any of the 5 modules from a common launching site. This freedom of movement allows the participant to begin with, or to stress different segments or to use only that part of the program which is relevant to that day. Merideth & Richards (1997) support this approach as important to computer program design.

WHY WEIGHT is designed to help women go through Egan's structured process of decision making. Egan's cognitive-behavioral three stage model of decision making was originally selected for this program because it incorporates the three necessary phases of behavioral change: exploration, understanding, and action. This model emphasizes active participation in the change process and commitment to goals, two processes that have been found to improve adoption of health behaviors. More specifically, the first stage of the decision-management model program (identifying and clarifying problem situations and unused opportunities) was delivered through the interactive computer program. Stages two (goal setting - developing a more desirable scenario) and stage three (action - moving towards the preferred scenario) were incorporated into a workbook format (Thurston, 1991).

In a formative evaluation of the program, experts reviewed the program content, the adaptation of Egan's model, and the computer assisted learning process. The program was pretested and then piloted on 15 women who were interviewed immediately after

completing the program and again three weeks later. The results of the pilot project and formative evaluation of WHY WEIGHT can be summarized as follows. The program succeeded in showing that Egan's model of decision-management can be applied to weight as a health concern. Also, the health promotion program that was delivered on computer was attractive to some of the subjects, and the content of the program was well received and interesting for them. Finally, the program resulted in learning and insight about healthy weights. The workbook portion of the program, however, had low compliance. If the workbook was introduced before using the computer program, the women would have benefited by having a basic understanding of Egan's decision making model. For this reason, the evaluation recommended incorporating the workbook into the computer program (Thurston, 1991).

In short, WHY WEIGHT encourages women to use the information provided to identify and clarify the beliefs and behaviors that might contribute to achieving and maintaining a healthy weight. Nevertheless, the program was developed for women without attention to the needs of a younger female population.

III. ADOLESCENT WOMEN AND HEALTHY BODY WEIGHTS

Young women's experiences with body weights are complex. To better understand body weight in teenage girls, the topic is divided into two parts: issues related to body weight and image; and healthy body weights. Following these two sections, there is a review of studies regarding the effectiveness of interactive technology in delivering health messages to adolescents.

A. Issues Related to Body Weight and Image

Childhood obesity is now among the most prevalent nutritional diseases of children and adolescents in the United States where one in five youths is obese (Dietz, 1995). In Canada, depending on the criteria used, studies on the prevalence of obesity in children indicate that anywhere from 5 to 25% of children from preschool through adolescence are overweight (Health and Welfare Canada, 1988). Defining obesity or overweight for children and adolescents is difficult, and there is no generally accepted definition of obesity or overweight for them. While a variety of criteria for overweight and obesity have been used to estimate prevalence and trends among children and adolescents, a common measure used is the BMI. For instance, the NHANES III (National Health And Nutrition Examination Survey, 1988-1991) attempted to examine the prevalence of overweight and trends in overweight for children and adolescents in the United States population. This national survey, which included an in-person interview and a medical examination, used BMI cutoffs based on modified age and sex-specific 85th percentile values of the NHANES II conducted in 1976-80. The 85th percentile of BMI has been proposed to indicate adolescents who are at risk of overweight and has been used to estimate overweight prevalence in adolescents.

However, using BMI to estimate the number of overweight or obese adolescents is problematic. It is more appropriate to use it for both men and women from the age of 20 to 65 years. The BMI changes drastically in youth as body proportions, bone mass, and the ratio of lean to fat tissue change at different times and at different rates. Therefore,

caution is necessary when BMI is used as a measure of body composition for adolescents (Troiano, Flegal, Kuczmarski, Campbell, & Johnson, 1995).

There is general recognition of the serious health risks associated with excess body weight. The American Institute of Nutrition (AIN) Steering Committee noted that the increasing prevalence of obesity among children and adolescents is associated with adverse metabolic and physiologic outcomes, and with adult obesity (Blackburn et al., 1994). In fact, approximately one third of all adult obesity in women began in adolescence (Dietz, 1995). The risk that adolescent weight problems will persist into adulthood is a great concern. Adult obesity that had its onset in adolescence is associated with more severe adult obesity than is adult onset obesity (Dietz, 1995; Must, 1996). Furthermore, obesity present in adolescence has a variety of morbidity consequences for adults (Blackburn et al., 1994; Meisler & St. Jeor, 1996a; Troiano et al., 1995); for instance, the risk of diabetes and subsequent atherosclerosis is increased among women and men who were obese in high school (Dietz, 1995).

Not only does being overweight represent a future potential health hazard, but it may also affect the adolescent's social relationships, school performance and emotional adjustment (Hendry & Gillies, 1978). Studies have found that negative characteristics are attributed to larger people and that peers describe larger youth as ugly, stupid, dishonest and lazy (Health and Welfare Canada, 1988; McConkey, 1998; Must, 1996). In fact, prejudice against being fat is a socially condoned prejudice in today's society. This stigma can affect health care, as people may delay seeking medical attention for fear of being chastised or embarrassed about their weight. One study of female health care

providers showed that in their physically largest group of adult women patients (BMI of 35 or more), 55% delayed or canceled medical appointments because they knew they would be weighed and 20% of the larger women delayed their appointments until they lost weight (McConkey, 1998).

Traditionally, health education has focused on the prevalence of obesity and its associated physiological and psychological problems (Paxton, 1996); however, the increase in the incidence of eating disorders has forced the scientific community to also examine weight reduction, that is, dieting with severe caloric restriction over an extended period of time and/or inappropriate over-exercising (Health and Welfare Canada, 1988). The National Eating Disorder Centre estimates that approximately five percent of young women between the ages of 14 and 24 suffer from an eating disorder. Furthermore, participants at the Workshop on Weight Control Prevention Strategies for Adolescents suggested that experimentation with bulimia is widespread, putting many more young women at risk for developing serious eating disorders (Health and Welfare Canada, 1988).

From an early age, girls are taught that striving to be beautiful is an important role for females. Girls are socialized to place a primary importance on physical appearance and to believe that a woman's value is largely determined by how attractive she is perceived to be. As a result, the young woman's identity becomes closely connected with how she looks. The media, for instance, bombards young women with unrealistically thin body images (McConkey, 1998) arising to feelings of inadequacy and assumptions that if they lost weight, they would look and feel better. The belief that slimness in women is

linked to success and status has produced a generation of Canadian girls and women who are preoccupied with weight and unrealistic standards of body size (Health and Welfare Canada, 1988; Paxton, 1996). An Australian study also found that two-thirds of high school girls from a range of ethnic backgrounds and socioeconomic statuses, thought that being thinner would affect their happiness in a positive way (Paxton et al., 1991). As a result, young women turn to extreme thinness and dieting as solutions for their unhappiness (Paxton, 1996).

This relentless pressure to be thin is taking its toll on teenage girls. Girls start to diet in grade 3, one in five high school girls takes diet pills and more than two-thirds of high school girls are dieting. Many young girls are also using laxatives, diuretics, fasting, vomiting and steroids in desperate attempts to conform to the ideal (McConkey, 1998). Smoking is also used as a weight loss measure and young women have taken up smoking at an alarming rate. These dieting, purging and smoking behaviors can have serious consequences, both emotionally and physically (McConkey, 1998), and health professionals should be concerned about the resulting distorted body images, nutrient deficiencies, and development of eating disorders (Health and Welfare Canada, 1988; Paxton, 1996).

Finally, the emphasis by health promoters on fitness and athleticism has exerted both positive and negative effects on the health of adolescent girls. On the negative side, beauty and weight control, rather than health, have become the prevalent motivational tools for exercise (Collins, 1988; Health and Welfare Canada, 1988). Some adolescents

are so intent on changing their appearance that they become obsessed with exercise, a common symptom of anorexia nervosa (Collins, 1988).

B. Healthy Weights for Adolescent Girls

The challenge now for health professionals is to promote healthy weights to teenage girls by helping adolescents incorporate body weight into the larger, more positive context of overall good health. Health educators have long advocated definitions of health that encompass aspects beyond the physical. Such a broad definition is crucial for helping adolescents learn to accept and respect their changing bodies as well as the differences in weight and shape occurring naturally among individuals (Collins, 1988).

Recognition of individual needs is particularly critical for adolescents who grow and develop physically, emotionally and socially at very different rates. Pressure from parents, health professionals, media, and peers to conform to an acceptable uniform size can adversely affect a child's growth, maturation, self-esteem and relationships with others. Consequently, weight guidelines for adolescents that take individuality into account maybe one step towards creating cultural expectations around body size (Health and Welfare Canada, 1988).

Nevertheless, as stated before, accelerated growth and the individuality of development in adolescence make it difficult to provide an authoritative standard or norm for teenagers (Health and Welfare Canada, 1988). The American Health Foundation's Expert Panel on Healthy Weights chose not to recommend healthy weight guidelines for adolescents because of the complexities created by their growth and development, the frequency of eating disorders in this population, the potential for psychosocial harm

because of labeling, and the insufficient data available for making recommendations (Blackburn et al., 1994; Meisler & St. Jeor, 1996b).

There needs to be change in how teenage girls view healthy body weights. Young women need to accept that there are a wide variety of shapes and sizes. They need to learn to be comfortable with their natural weights, body size and shape that results after people adopt healthy diets and get reasonable amounts of exercise. Feeling good about oneself begins with accepting who you are and how you look. This is in line with the definition of healthy body weights set by Health and Welfare Canada in which they define the healthy body weights concept as accepting and reaching a body weight, size and shape which allows individuals to feel good about themselves and encourage positive activity and eating habits (Health and Welfare Canada, 1988).

The challenge now is to develop or improve services that are directed towards the promotion of healthy body weights in teenage girls. Perhaps alternatives to traditional methods need to be considered to reach this target group (Health and Welfare Canada, 1988).

C. Computers and Teenage Girls

Increasingly, computer technology is being used with the cooperation of professionals in non-educational settings to deliver psychoeducational interventions that previously required intensive face to face interaction with specialists (Burnett, Magel, Harrington, & Taylor, 1989). Computer administered treatments used to promote individual behavior, for instance, include cognitive behavioral treatment of mild

depression (Burnett et al., 1989), behavioral treatment of agoraphobia (Ghosh, Marks, & Carr, 1984), and behavioral treatment of obesity (Burnett, Taylor, & Agras, 1985).

Health educators, however, face a real challenge in providing educational opportunities for adolescents to access reliable information in a subject specific, interactive manner. Preliminary data from the use of multimedia teaching aids indicate that interactive programs positively impact students' learning by giving the user control over the learning path, supporting higher order thinking skills and providing the opportunities for individualizing information and progress (Merideth & Richards, 1997). Data also suggests that computer based instruction can in some instances be more effective than traditional instruction (Cohen, 1992), and that students' health behaviors can be positively influenced by low cost, computer administrated interventions (Burnett et al., 1989). The mean weight loss reported by overweight students in a computer assisted feedback condition, for instance, was far in excess of the weight loss reported by students who were involved in non-computer applications (Burnett et al., 1989). In addition, Hawkins, Shapiro, Chewning, Gustafson, Bosworth, & Day (1985) found that students used BARN, an interactive computer health program, to meet their information needs about alcohol, drugs, human sexuality, smoking prevention and cessation, stress management and body weight management. Furthermore, users of BARN were more likely to remain free of risk taking behaviors than nonusers and showed improvements in risk relevant behaviors. Their results suggest that a computer-based system may be a powerful tool for the reduction of risk taking behaviors in adolescents (Bosworth, Gustafson, & Hawkins, 1994).

Interactive computer programs seem particularly well suited for communicating with adolescents about health. For reasons not well studied (perhaps merely a cohort effect of technology advancement), younger people are more interested in computers than older people. Among adolescents, this interest in computers is often coupled with a general distrust of authority figures (who, incidentally, are well represented in the health care field) (Patterson, Shaw, & Mays, 1997). A computer program preserves anonymity and provides an opportunity for students to review and reflect upon the material privately (Hawkins et al., 1985; Merideth & Richards, 1997). This may be very important to adolescents on topics where adult judgment or retaliation is possible (Hawkins et al., 1985). One's weight for instance, may be a source of pride for some individuals and a source of embarrassment for others, but private review eliminates this personal consideration (Merideth & Richards, 1997). Furthermore, teenager's relative disinterest in health may be at least partially overcome by games and graphics featured in computer programs, not to mention the lure of computers in and of themselves. These factors may combine to get adolescents interacting with information they would ordinarily miss or ignore (Hawkins et al., 1985). Consequently, computers may provide a feasible substitute for classroom health educators, especially because some subjects have been given poor coverage by educators in the past (e.g., sex education, drug abuse) (Patterson et al., 1997).

Nevertheless, limited research has been conducted on adolescent females and their use of computers. Collis and colleagues (1989) found that 27% of females, ages 15-17, indicated they had done some kind of voluntary learning more than twice with a computer. Unfortunately, this study did not gather more specific data about what the

students may be learning when using a home computer. Other research suggests that girls are interested in using computers when they can do something meaningful with the machine (Miller, Chaika, & Groppe, 1996; Posen, 1990). Examples of meaningful tasks would be word processing, using databases and creating graphics (Wu & Morgan, 1989). Finally, Miller and colleagues (1996) conducted a study utilizing focus groups with adolescent girls to investigate adolescent girls' preferences in currently available computer software and future interactive software. A number of insights came from that project. First, the girls tended not to be motivated to pursue written explanations in a manual. Second, participants did not seem to need to reach closure before moving onto another game or segment of a game. They seemed to prefer moving freely among environments without completion. Next, the girls placed a high value on the quality of the visual and audio design of an environment. Music, atmosphere and voice quality were factors that girls described as important. Also, the teen girls wanted programs to include features that offer supportive feedback. In addition, girls in grades 10 to 12 preferred the more informational options versus the entertainment environment. Finally, the girls envisioned an on-line talk show (e.g., Oprah), but covering topics related to teens, with girls taking turns serving as host. Overall, a variety of different insights emerged from this examination of girls' preferences with regard to current and future computer environments. These findings suggest directions for computer programs designed specifically for the adolescent women audience.

IV. CONCLUSION

Since interactive technology is a promising medium for achieving health promotion initiatives (Street Jr. & Rimal, 1997), and body weight is a health issue many girls face, a computer program examining healthy body weights may be appropriate for young women. The environment is ideal to demonstrate innovations in health promotion that may lower the costs of health care, increase access to health information and services and help teenage girls make choices that ultimately will contribute to their health and well being (Street Jr. & Rimal, 1997).

Society has entered an evolutionary phase of human-computer interactions in which computers have begun to affect the way in which the public gains access to professional guidance and support. While computers in the past were instrumental in guiding and facilitating medical research, computers now have a great potential for directly influencing health and health behavior (Patterson et al., 1997).

CHAPTER 2: STUDY PURPOSE AND DESIGN

I. INTRODUCTION

Chapter two first looks at the purpose of the study and lists the project's three objectives. Included in the purpose section is a description of the characteristics of a need and a needs assessment. Then chapter two reviews the research design and methods used for investigating the need for a computer program for adolescent girls on healthy body weights. A description of the methods and procedures is followed by a discussion of data analysis, trustworthiness and ethical implications.

II. PURPOSE OF THE STUDY

The purpose of the research project is to explore the need for a computer program for adolescent girls on healthy body weights. Qualitative methods are used for this needs assessment.

A need can be broadly defined as the difference between the present situation and a more desirable state of affairs. The present situation may have some undesirable characteristics that motivate one to consider a more desirable situation (Gilmore & Campbell, 1996). The need is neither the present nor the future state; it is the gap between them (Witkin & Altschuld, 1995).

There is an important issue surrounding the term "need". The term need has two distinct meanings: circumstances in which a thing or course of action is required, or lack of necessities, such as poverty. A different term has been suggested for each form of need. Health needs is used for the broader environment of individual health,

encompassing questions of deprivation and inequality. The term health care requirements is used for the second form to describe needs for particular services (Frankel, 1991).

Many health program planners have adopted the second definition of need in which health needs are those services that are necessary for the alleviation of particular forms of morbidity. Health care requirements reflect not the simple prevalence or incidence of the condition concerned; rather issues such as the number of individuals who want treatment, who are likely to benefit from treatment and in whom treatment is generally regarded to be a reasonable investment for a publicly funded health service are relevant (Frankel, 1991).

Needs assessments are basic to the planning process of any project or program being considered for development. They are used to survey, assess, evaluate and do research on what services or programs exist and which services are missing. Missing parts of a project or program, that is, gaps in services, desires and interests of those who need to receive the services are determined (Timmreck, 1995). It is a process where a human service agency collects information about its potential users and then, based on that information, devises new programs or revises existing programs (Bell, Sundel, Aponte, & Lin, 1983). In other words, the purpose of a valid needs assessment is to lay the groundwork for designing a new or improved program (Witkin & Altschuld, 1995).

Needs assessments should be focused on the people in the system. One group of people in the system are the service receivers who comprise of students, clients, patients, and potential customers. These people are those for whom the programs ultimately exist (Witkin & Altschuld, 1995). These individuals bring their expectations and life

experiences which help them identify a range of needs, wants and interests (Gilmore & Campbell, 1996). The second group important to a needs assessment is the service providers and policy makers. Examples of this group are teachers, parents, social workers, and health care professionals (Witkin & Altschuld, 1995). They draw from their education and experience to reflect and report on the health-related needs of the people with whom they work (Gilmore & Campbell, 1996). People in this group may also have unmet needs with respect to the functions they perform in relation either to their colleagues or to the service receivers (Witkin & Altschuld, 1995).

A needs assessment is an integral part of the health care planning and program development. It is one step towards effective new programs and activities and should be conducted before any new program is initiated. Needs assessments are often conducted informally. The focus of this project is a needs assessment based in formal research methods.

III. RESEARCH OBJECTIVES

This research project explores the need for a computer program on healthy body weights for adolescent girls.

The three objectives of this research project can be stated as follows:

- ◆ To explore interactive computer programs as a method for adolescent girls to address healthy body weights issues;
- ◆ To determine what information would be important in a healthy body weights computer program for adolescent girls, if there is a perceived need for the program; and

- ◆ To assess how a computer program on healthy body weights could be used within the context of existing services or curricula.

IV. METHODS

Qualitative research methods are the most appropriate strategies to address the research objectives which are exploratory in nature. As described in chapter one, the concept of healthy weights in teenage girls is immature due to a conspicuous lack of previous research (Creswell, 1994). There is a lack of information that explains what young women want in a computer program if indeed they would use a health promotion computer program on healthy weights. To this end, the qualitative methods were used to investigate meaningful and unexpected information about computer programs on healthy weights.

Three methods of data collection were chosen: in-depth interviews with key informants; focus groups with adolescent girls; and computer-generated data from WHY WEIGHT.

A. Key Informant Interviews

In-depth interviews with professionals working with adolescent girls and their weight concerns were used to investigate computer programs as a method for addressing healthy weights in young women. Key informants are individuals who provide insights and express their perceptions of the needs of others (Gilmore & Campbell, 1996). It is important to interview these individuals because they draw from their education and

experience to reflect and report on the health-related needs of the clients that they work with (Gilmore & Campbell, 1996).

1. Sampling Strategy

The purpose of sampling in qualitative studies is to collect rich and detailed information. Individuals in the sample are chosen purposively to generate meaningful and insightful data. Consequently, a purposive sample of key informants representing a wide range of diverse and important perspectives (Gilmore & Campbell, 1996) about body weight issues and teenage girls was asked to participate in the interviews. They were chosen to offer insight on computer programs as a way for teenage girls to examine issues surrounding body weights.

The process began with the investigator's supervisor identifying five individuals she had contact with who were involved with body weights and teenage girls. Of the five people identified, two individuals agreed to participate in the project: a program supervisor who contributed information on the original WHY WEIGHT program and an exercise physiologist. However, the recommended psychiatrist and physician did not believe they were qualified to participate in the study because they did not work with adolescents. Consequently the physician decided to send her letter of introduction to the endocrine clinic to see if there would be interest in the project. However, there was no response from the clinic.

Next the researcher received a list of funding opportunities from one of her committee members and discovered that one of the organizations was involved with developing a Health Science exhibition called "Mirror Image" for teens. The investigator

obtained the names of the program planners involved in that project and all three-program planners agreed to participate. The same committee member also provided a directory of professionals in the Calgary area that deal with anorexia and bulimia. These professionals belong to the Calgary Eating Disorders Action Network (CEDAN). The directory listed the name of the professional as well as her type of practice. The researcher was able to determine from that directory which individuals treated adolescent girls and sent letters to four individuals. Of the four professionals contacted, three agreed to participate. Unfortunately, the individual who did not respond to the letter was referred by four other individuals as a person who could provide rich data.

Meanwhile other methods were used to recruit key informants. A colleague and registered dietitian checked the dietitian association's database for dietitians in Calgary who work specifically with adolescent girls. That search produced a name and she was contacted to participate in the study. In addition, the researcher consulted female adolescent community services to see if they knew people to contact. As a result of those calls, the YWCA referred the researcher to the Calgary Women's Health Collective where important leads were obtained.

Finally, a valuable strategy in obtaining participants is snowballing. This technique involves professionals identifying other professionals who would be willing and able to provide in-depth data (Patton, 1990). It yields a sample based on referrals made by people who share or know others who present the characteristics that are of research interest (Creswell, 1998). The potential informants, who did not feel qualified to participate in the study, referred other possible informants who could provide rich data.

For instance, one likely informant who believed herself to be unqualified suggested the researcher contact the Young Adult Services, Department of Psychiatry at the Foothills Hospital for individuals who might be interested in contributing to the study. Also, the Calgary Women's Health Collective informed the investigator of the Anti-anorexia, Anti-bulimia League of Calgary. In addition, key informants who did participate in the study recommended people who they believed would provide insightful information. For example, the participants from Mirror Image told of a school counselor they had worked with in developing Mirror Image. As well, a key informant from CEDAN referred another informant who accepted the offer to participate.

B. Focus Group Interviews

A vital step in the planning and delivering of health programs is to include adolescents' own perceptions of their needs. This step is critical because concern about health is a motivational concept, which has been shown to play a vital role in choices made about health promoting behavior. Unless there is a consideration of the unique concerns of the adolescent population, teenagers are unlikely to even show interest in health promotion programs (McKay & Diem, 1995).

Two focus groups were conducted with teenage girls aged 15 to 18 years to determine if they believed that there is a need for a computer program on healthy body weights. The underlying premise of using focus groups is that the young women themselves are the best equipped to make suggestions about the computer program. An exploratory process generates discussion among participants thus uncovering a wide range of attitudes, perceptions and opinions about computers. A comment from one

person may stimulate ideas, feelings or opinions from other people in the group (Gilmore & Campbell, 1996; Palmer, Boardman, & Bauchner, 1996).

1. Sampling Strategy

In a study conducted by Rosenfeld, Fox, Keenan, Melchiono, Samples, & Woods (1996), the teenage participants were recruited through peer leadership groups that met regularly at local health centers or after school programs. This project attempted a similar recruitment strategy by posting notices at various youth centered locations. First, the Calgary Community Services Directory was consulted to obtain a number of female adolescent community services offered in Calgary. The headings looked at were Children Services, Education/Training, Nutrition/Diet, Women's Resources, Youth, Leisure and Fitness Centers, and swimming pools. The various organizations under those headings were contacted and asked if a notice could be posted in attempt to recruit teenage girls (see Appendix A). Examples of such organizations were the Boys and Girls Club of Calgary, YWCA, Girl Guides of Canada and the Calgary Chinese Community Service Association. With a couple of organizations, such as the Girl Guides of Canada, the researcher met with group leaders to discuss the project in order that the youth leaders could talk to their youths about the project. Furthermore, the investigator met up with a number of youth church leaders to discuss the project and to see if they could talk to their youth groups about participating in the study. One youth church leader was particularly interested in the project but unfortunately did not have a chance to talk to her group until after the data collection was complete. Finally, notices were posted throughout the University of Calgary, SAIT, and Mount Royal College residences around Calgary.

These methods proved to be unsuccessful, therefore the recruitment was modified.

First, a committee member from the Women's Health Resources at the Grace Women's Health Center placed an ad in their May/June 1998 newsletter called Update (See Appendix B). Teenage girls between the ages of 15-18 years were invited to participate in the study on the need for a computerized program on healthy body weights. Three girls responded to that ad. In all three of those situations, their mothers called the investigator first to get further information and then the investigator talked to their daughters. Second, one of the key informants recommended a teenage girl she was working with. She then talked to her client and the girl contacted the researcher expressing interest in the study. Third, the faculty and students of the Department of Community Health Sciences were asked if they were aware of any young women who might be interested in participating in the study. This strategy proved to be the most positive and effective. Five phone calls were received from girls interested in the study.

Finally, three girls asked if they were allowed to bring a friend along to participate in the study. The girls explained that they would be more comfortable in the presence of a friend. The investigator accepted their request and four participants resulted.

C. Computer Generated Data

The computer was used to keep a record of which sections of WHY WEIGHT each subject had used, the order in which sections were viewed, and the time spent on each section. This data was written to a file that was then read into a Word file and hard copies were made.

V. DATA COLLECTION

A. Key Informant Interview Strategy

1. Pre-interview

Thirty potential informants were sent letters of introduction (See Appendix C). The informants were asked to contact the investigator by phone if they were interested in participating in the study. When a potential informant replied to the letter, the researcher first reviewed what the professional's involvement would entail and how her experiences would contribute to the study. During that conversation, the researcher inquired if the informant had access to either an IBM or Macintosh computer that could run CD ROM programs. This was necessary because WHY WEIGHT is a CD ROM program and each participant needed to review and reflect on it before their interview. The investigator anticipated that some informants might not have computers with the right features so she made arrangements for the informants to use a computer at the Department of Community Health Sciences. Fortunately, all the informants had personal access to a computer. Five individuals requested the Macintosh version of WHY WEIGHT while seven individuals requested the IBM version. Approximately one week prior to the informant's interview, the researcher personally delivered a package containing the WHY WEIGHT program, a page of general questions for the informant to reflect on (see Appendix D) and a confirmation of the time and place of the interview (see Appendix E). This meeting before the interview helped establish rapport between the researcher and the informant.

2. Interview Location

All but two interviews were conducted at the informants' place of business. Most of these individuals had their own offices and this provided a quiet, private place in which to conduct the interview. However, one informant's office was at a school counseling office where there were frequent interruptions by students needing her guidance. The other two interviews were conducted at an office in the Department of Community Health Sciences. The office was an open, private space in which the investigator and informant could discuss the project.

Three informants requested to be interviewed together and since an office would have been too small for all four individuals, the interview was moved to a boardroom. This boardroom was large and open allowing for room for the interview.

3. The Interview Guide

A standardized, open ended interview guide was used for this study in that the questions and the order were standardized for all the interviews (see Appendix F). It began with introductory questions about the informant's background and her qualifications for speaking about teenage girls and body weights. The interviewer inquired about her profession, how long she worked in her field, the organization she was associated with and what specifically was her involvement with teenage girls and their body weight issues.

Then questions were asked to obtain information that fulfilled the purpose of the study. First, the informant was asked for her professional opinion about computer programs being used by young women when they are looking for information about

healthy body weights. What would the benefits and problems associated with using a computer program be? Then the interview touched on the informant's thoughts on WHY WEIGHT, or more specifically, the sections in WHY WEIGHT that were relevant or irrelevant for teenage girls. Next the informant was asked to identify the kind of features on computer programs she felt would appeal to girls. Then the interview proceeded onwards to discussing models or theories that might be applied to tailor the healthy body weight messages to the young women. Finally, the interview guide had a question about how a computer program on healthy body weights could be used in existing services or curricula.

4. Interview Data

At the beginning of each interview, a consent form was handed to the participant to read and sign (see Appendix G). Then permission was sought from the informant to audio tape the session. The interviewee was assured that the tape was only for the purpose of analyzing and aggregating data. As well, no unauthorized persons would have access to it. Each participant agreed to be audio-recorded.

Then the investigator conducted the interview, using the open-ended, standardized interview guide for each participating individual. Probe questions were also used to deepen the responses to some of the questions and to increase the richness of the data. These were simply follow up questions which were used to go deeper into the interviewee's responses (Patton, 1990). Near the end of the interview, the investigator and informant discussed the participant's written responses to the handout given to them in their WHY WEIGHT package. This handout provided an excellent review of the main

concepts discussed during the interview. It also allowed the participant to add other relevant information that was not previously discussed.

The interview process was approximately one hour in length. This depended on the willingness of the participant to converse with the interviewer and the participant's appointment schedule.

Data collection continued until theoretical saturation was achieved. There was an absence of new information coming forth in the interviews and that signified to the researcher that the variations in the perception of needs had been uncovered. Common themes emerged and the information generated from the key informants became redundant. At approximately the eighth interview, the researcher felt she had reached information saturation for no new information was being revealed in the previous two interviews. To be cautious, two more interviews were conducted and still the information continued to be redundant.

B. Focus Groups

1. Pre-Focus Group

Once the potential participant contacted the researcher, a two hour appointment was set up for the teenage girl to complete WHY WEIGHT either at her home or at the Department of Community Health Sciences. Four girls chose to do WHY WEIGHT at the Department of Community Health Sciences while nine girls chose to complete the program in their homes. For the four young women who did not have computers at home, arrangements were made for them to use a computer situated in an office in the

Department of Community Health Sciences. In all of these cases, the girl's mother accompanied her daughter to the appointment. All girls were under the age of 18 and a parent was asked to read and sign the consent form. For the other nine girls, the investigator went to the girl's home to set up WHY WEIGHT on the young woman's computer for her to use and review. If a friend was in attendance, the researcher set up her laptop with WHY WEIGHT on it in another room for the friend to use. However, the girls requested that they work in the same room because they felt more comfortable knowing that their friends are there with them. So the researcher moved her laptop to the same room as the desktop and the girls worked in close proximity.

Before reviewing WHY WEIGHT, the investigator gave each girl a package containing the general questions handout (see Appendix D), a list of community resources (see Appendix H) and a consent form (see Appendix I). First, the consent form was reviewed together, describing her involvement with the focus group soon to be conducted, and then the girl's signature was obtained. If the girl was under the age of 18, the parent's signature was requested. However, in the situations where a friend was in attendance, the consent form was sent home with her for her parent to review and sign before participating in the focus group. Then, the community resource list was explained to the young woman. It was there for her to keep in case she needed to contact a community organization to help with an issue that may have been a concern for her. Finally before sending off the participant to complete WHY WEIGHT, the general questions handout was given. The researcher asked if the participant could answer the questions in the handout in order for it to be helpful during the focus group discussion.

After this discussion, the investigator left the room to give the girl the privacy needed while completing the program. Occasionally, the researcher would check in on the girl to see if help was required.

In most cases, the young women completed the WHY WEIGHT program in less than one hour. When the participants finished the program, the investigator asked for the general questions handout to keep until the focus group discussion. At that time, the handouts were to be given back to them for review. Finally, the focus group time and place was verified with the young participant.

This initial contact with the young woman was an excellent opportunity for the researcher to establish rapport. It has been the experience of the investigator that teenage girls are reserved at first and then warm up after they get to know her. This pre-focus group meeting gave the time needed for the researcher to talk to the girls to develop a comfort level. In one particular case, when the investigator came to the participant's home, the young woman and her family were surprised to find that the investigator was of the same ethnic background. This seemingly quiet and shy girl then relaxed and started conversing easily with the researcher.

2. Focus Group Location

Both focus groups took place in a classroom at the Health Sciences building at the University of Calgary. It was an open space with a large table and seven chairs set up. This provided an opportunity for the participants to see each other. There was a chair placed in a corner of the room for a research assistant who would record and take notes.

3. The Focus Group Interview Guide

The original interview guide used for the focus groups consisted of ten open-ended questions (see Appendix J). The nature of the open-ended questions ensured that the respondents had unrestricted opportunities to answer and allowed responses to be complete and qualified in the words of the respondent. The questions ranged from their reactions to WHY WEIGHT, recommendations for a good program and places or services a program would be useful. The interview guide did remain flexible allowing follow-up questions from the comments during the discussion.

After the first focus group, the moderator reflected on the interview guide and decided that the discussion did not flow as smoothly as desired. The questions did not seem to naturally follow each other. As a result, the interview guide was revised by organizing the questions differently so as to facilitate a smoother discussion (see Appendix K). First, the questions consisted of the teens' thoughts on computer programs on healthy weights, then their reactions to WHY WEIGHT. The guide appeared more effective in providing the information needed.

4. Focus Group Data

Two separate focus group discussions were conducted consisting of six participants each. Based on the literature, there is little information on the variables or factors that affect healthy weights in adolescent girls. Consequently the makeup of the groups was as similar as possible in that all participants were female, were of similar age, completed WHY WEIGHT and had an interest in healthy weights. As a result, it was decided that one group would consist of teenage girls aged 15 to 16 years, while the other

group would consist of teenage girls aged 17 to 18 years. It was believed that these age groups were likely to relate better to one another and that this composition would enhance the focus group discussion (Gilmore & Campbell, 1996).

In the evening of the scheduled focus group, the participants gathered in the classroom at Health Sciences and started to talk amongst themselves. This time period before the focus group discussion gave the girls an opportunity to get to know each other and become more comfortable with their surroundings. As well, food and beverages were provided at this time.

The researcher, who served as the moderator for both focus groups, started the discussion. The researcher re-introduced herself and asked the participants to introduce themselves by sharing with the group their name and their favorite style of music. A research assistant was also in attendance recording the setting, documenting the reactions of the participants and observing the dynamics of the group.

After the introductions, the moderator reviewed the consent process again and discussed the Group Agreement for Maintaining Confidentiality (see Appendix L). The Group Agreement of Maintaining Confidentiality is a form that was used to stress the importance of not discussing the names of the participants involved with the focus group as well as their involvement with the project. Proceeding this, the moderator requested that the session be tape recorded in order that the discussion could be fully captured. All participants agreed.

Lastly, boundaries for the discussion were established. These guidelines were placed to respect the participants' voices. For instance, only one participant was to

respond at a time. The participants had a choice to reply to a question. Also, they were free to give their opinions without worry that the answer was right or wrong.

Finally, the group discussion began in which the group members freely interacted with each other in pursuing the topic. The moderator only got involved to ask questions to keep the discussion moving. As expected, there were one or two girls that were very vocal about their opinions while a couple of others sat quietly back and responded occasionally. Overall, the participation was good. After the focus group discussion ended and the girls left, the moderator and research assistant sat down to review and reflect on the discussion and the notes taken.

C. Computer Data

After each participant completed WHY WEIGHT, the researcher copied onto a disk the text file that contained information needed for analysis. A hard copy of the file was stored in the participant's file.

VI. ANALYSIS

A. Data Management

The key informant interviews and focus group discussions were transcribed verbatim into Microsoft Word by a hired transcriber. The interviews were transcribed in their entirety to maintain accuracy and to preserve the respondent's own words. These transcripts were then carefully reviewed by the researcher to confirm that the transcripts were complete. Once that was done, the investigator transferred the files into The Ethnograph (version 5.0) to store and analyze the interview data.

B. Coding Procedures

1. Key Informant Interviews

The constant comparative method was used when coding the transcriptions from the key informant interviews. During this process, the researcher identified meaningful units of data, that is segments of information consisting of either a single word, a partial or complete sentence, a paragraph or more, that were considered to be meaningful by themselves. When the meaningful units possessed similar qualities or characteristics, they were tentatively placed within the same category and classified by a code created for that category. The meaningful units that were different in important ways were put into a different category and assigned another code. Codes are simply a form of the category name that becomes a short hand method of identifying the categories. The numbers of categories expanded every time meaningful units emerged that were dissimilar in important ways from those already categorized. The constant comparison continued until all the meaningful units were classified. The meaningful units that could not be clearly placed into any of the categories fell into the category of other (Tutty, Rothery, & Grinnell, 1996).

At this first level coding stage, the analyst initially coded on the hard copies of the interview transcripts. Once that was completed, the investigator used the computer program, The Ethnograph (version 5.0) to store the information. The investigator stored the identified passages and their respective codes and then retrieved coded passages that were related to the research.

Second level coding was more abstract and involved interpreting what the first level categories meant. Here, the meaningful units that fit within each category were pulled together. This process allowed for the examination of the units in the categories away from the association with the informant who originally stated the idea. The focus of analysis thus shifted from the context of the interviewee to the context of the categories (Tutty et al., 1996). The major task in second level coding was to identify similarities and differences between the categories in an attempt to detect relationships.

A systematic approach called domain analysis was used at this stage. In this approach, a number of universal semantic relationships were used to group codes into a common broader domain. These relationships were as follows:

- strict inclusion (x is a kind of y);
- spatial (x is a part of y, or a place in y);
- cause-effect (x is a result of y; x is a cause of y);
- rationale (x is a reason for doing y);
- location for action (x is a place for doing y);
- function (x is used for y);
- means-ends (x is a way to do y);
- sequence (x is a step/stage in y); and
- attribution (x is an attribute/characteristic of y).

To facilitate the process, the researcher began with a domain analysis worksheet (see Appendix M). First, the researcher entered certain information before beginning the search of new domains: (1) the semantic relationship selected; (2) a statement of the form

in which it is expressed; and (3) an example from the researcher's culture of a sentence that has an included term, the semantic relationship and a cover term. The worksheet was then divided into empty domains with blank spaces. The semantic relationship selected was entered and then both the cover term and the included terms were written in as they were identified from the interviews. For example:

<u>Included terms</u>	<u>Semantic relationship</u>	<u>Cover Term</u> (theme)
media, family, culture	--- is a kind of ----	influence

The goal here is to integrate the categories into themes or sub-themes.

2. Focus Group Interviews

When coding the focus group interviews, the analyst again utilized the constant comparative method. Similar to the key informant interviews, the relevant data was identified and labeled a code and then grouped within categories. As well, domain analysis was conducted which ultimately lead to the development of themes and sub-themes.

C. Computer Data

The investigator was interested in two data outputs from the computer generated data: (1) the topics that the focus group participants read; and (2) the questionnaires the girls completed or started doing. Then from that data, the researcher determined how many girls read each topic and how many girls did each questionnaire.

D. Integrating Data

Themes from the key informant interviews were then combined with those from the focus group to form a picture of the diverse perspectives concerning the need for a computer based program on healthy body weights for teenage girls. The information obtained in the data files were tabulated and included in the theme of the content needed for the program. It served to reinforce or introduce subject areas that could be found in the program.

VII. TRUSTWORTHINESS

There are a set of standards that are utilized to evaluate the trustworthiness of a study: credibility (truth value), transferability (applicability), dependability (consistency), and confirmability (neutrality). These are rough equivalents of the quantitative research concepts of internal validity, external validity or generalizability, reliability, and objectivity, respectively (Tutty et al., 1996). The demonstration of these concepts was addressed using the following three strategies: member checks, triangulation, and peer examination.

A. Member Checks

Obtaining feedback from the research participants is an essential technique for establishing credibility. It is an opportunity for the researcher to take back her interpretations to the participants to assess if they were adequate representations of their realities (Lincoln & Guba, 1985). The investigator was able to receive feedback on her emerging themes from some of the informants who participated in the focus groups and

key informant interviews. The researcher constructed a web illustrating the emerging themes (see figure 1.) and then sent it to two key informants and four members of the focus groups, two from each age group. These six individuals were asked to review the web illustration for their opinions and thoughts.

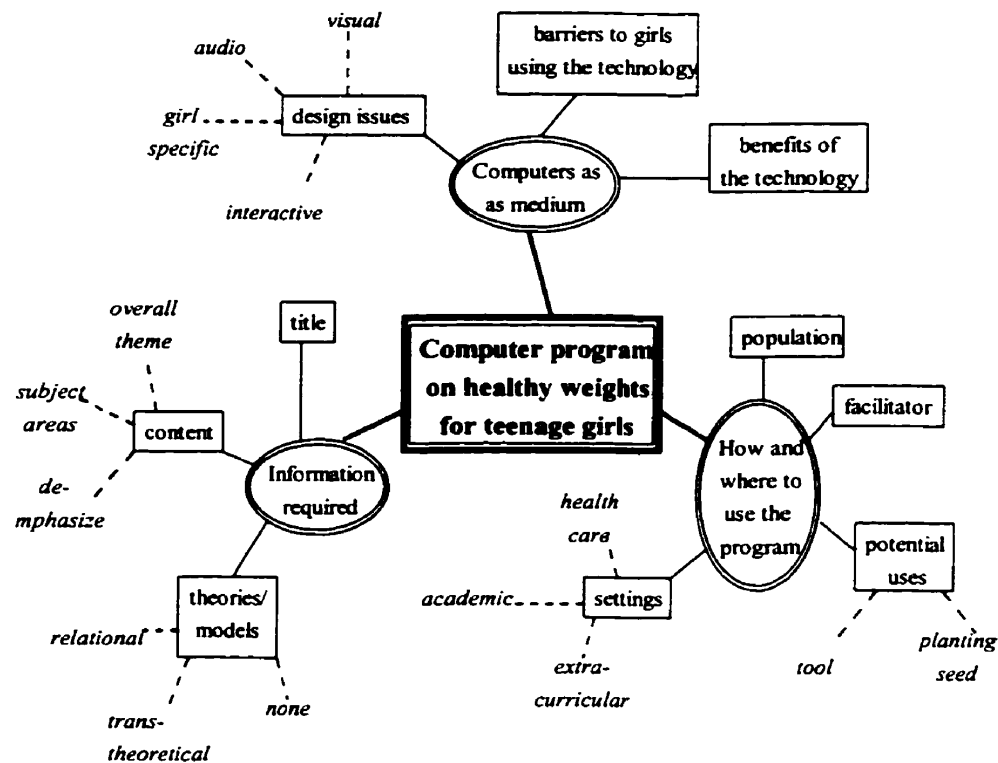


Figure 1. The Emerging Themes Web Illustration Used for Member Checking.

B. Triangulation

Triangulation is a powerful strategy for enhancing the quality of the research. It is based on the idea of convergence of multiple perspectives for mutual confirmation of data to ensure that all aspects of a phenomenon have been investigated. The triangulated data sources are assessed against one another to cross check data and interpretation (Krefting, 1991).

Data were collected from a variety of sources in an attempt to find convergence. Primary data was collected from in-depth interviews with individuals involved with teenage girls and their weight issues and focus groups with teenage girls. Furthermore, computer data obtained from WHY WEIGHT after the young women completed the program was used.

In addition to the triangulation of data methods, the project used triangulation of investigators. Here, the researcher and her supervisor worked together to code some of the key informant interviews. Two transcripts were coded separately and then the researcher and her supervisor met to compare their codes for consistency. In addition, results were discussed throughout the analysis and interpretation process.

C. Peer Examination

Peer examination involves the researcher discussing the research process and findings with impartial colleagues who have experience with qualitative methods (Krefting, 1991). The researcher and a number of colleagues organized a qualitative interest group with this strategy in mind. First, in this group, the analysis techniques used for this project were discussed. Then the group checked the categories developed out of the data. They looked for alternative explanations and also coded some of the transcripts to check for accuracy. Two colleagues with qualitative research experience were asked to separately code approximately ten pages of transcribed notes. The investigator's coding was then checked for its accuracy by examining if consistent patterns of information emerged.

VIII. ETHICAL IMPLICATIONS

The major ethical concerns for this study were autonomy and confidentiality. Autonomy was ensured by asking all study participants to read and sign an informed consent before data was collected (see Appendices G & I). In other words, the investigator obtained the knowing consent from both the key informants and focus group participants to participate as an exercise of their choice, free from any element of fraud, duress, deceit or similar unfair inducement or manipulation (Berg, 1995). As well, parental consent was obtained for focus group participants if the individuals were under the age of 18 and were dependent on their parents or guardians. In order to ensure that the consent was understood, the researcher asked the participants to paraphrase back to the investigator their understanding of the consent. None of the participants had difficulties understanding the concepts.

Secondly, confidentiality was addressed. All the participants were informed that any elements that might indicate their identities would be removed from the research records. As well, the focus group participants all signed a Group Agreement for Maintaining Confidentiality (see Appendix L), which asked the participants not to discuss individuals present at the meetings outside the sessions.

Thirdly, the interview tapes were stored securely in the researcher's office. The participants were assigned a code number when the appointments were made for the interviews and focus groups. This number was then used on the transcripts to protect the identity of the subjects. A registry linking code numbers with individuals was kept

separate from the data in a secure location. In addition, data obtained from the interviews and focus groups were stored securely in the researcher's office.

One final note, sensitive issues, such as child abuse, are addressed in WHY WEIGHT. The participants were assured that the information they put into the computer would be kept confidential. Furthermore, a list of community resources (see Appendix H) was made available to participants who needed help with personal issues raised while using WHY WEIGHT.

Ethical approval of this study was obtained from the Conjoint Health Research Board of the University of Calgary prior to proceeding with this study (see Appendix N & O).

IX. SUMMARY

Twelve key informants and twelve young women participated in this study. The twelve informants were interviewed regarding their perceptions of the needs of the population they work with. Similarly twelve young women participated in two focus groups, expressing their opinions regarding a computer program on healthy body weights. The interviews and focus groups centered on exploring if girls would use a computer program on healthy weights, what kind of information would be required to make the program suitable for the young women and where and how the girls were likely to use this program if it ever was developed. The transcribed interviews were stored, coded and analyzed using The Ethnograph (version 5.0) software. The data were analyzed for themes and descriptions relevant to the research questions.

CHAPTER 3: RESULTS

I. INTRODUCTION

The purpose of this chapter is to provide an overview of the data gathered from the key informants and focus groups regarding developing a computer program on healthy body weights for teenage girls. Throughout this chapter, statements are presented as evidence supporting the results. All of the statements made in this chapter came from the key informants or focus groups rather than from published literature or researcher recommendations. Furthermore, the quotations presented in this chapter are provided from all the key informants and both focus groups. In addition, the statements were edited to remove verbalizations (e.g. um) when this did not change the substance or meaning of the quotation. Occasionally, words were added in square brackets to make the statements more readable. Also, quotations separated by paragraph breaks are different people. Finally, when focus group transcripts are reported, participants are coded by number so as to indicate different speakers.

There were three factors the researcher used when deciding what issues should be included in the results chapter. These were if several (three or more) people mentioned an issue, or if one or two people mentioned an issue and elaborated on its importance. A judgment was also made on whether to include the issue based on the researcher's current knowledge of program development, the literature, principles of education and/or healthy weights.

The results are presented in three categories. These three categories are: computer programs as a medium to address healthy weights for teenage girls; the information

required for a computer program on healthy body weights; and how and where to use a computer program on healthy body weights.

II. OBJECTIVE ONE: COMPUTERS AS A MEDIUM

Computer programs as a medium examines computer programs as a method for adolescent girls to address healthy body weights. The themes that emerged from this objective were: the benefits of the technology; the barriers young women find when using the technology; and the design issues that should be considered to make the computer program appealing to teenage girls.

A. Benefits of the Technology

When reviewing the responses from the key informants and focus group participants, many of them expressed enthusiasm about and support for teenage girls using computer programs to address their healthy body weights issues.

Well, I think it's a really worthy project. I think it's a great project. Yeah, I think it's a real good medium.

Well, just that I think it's terrific, you know.

This was further reinforced when the young women in the focus groups unanimously voiced that they wanted a computer program created for them so they could examine issues surrounding their weight.

The reasons listed were numerous for developing this program. The kinds of advantages that were listed were what the computer or hardware itself could offer and what the software could offer. It should be kept in mind that some of the advantages are found in both categories and consequently it was difficult to separate them.

1. Hardware

There are many advantages computers provide for teenage women. To begin, the informants expressed that teenagers nowadays seem comfortable with technology. They feel that youth are working more with computers than in the past, especially in educational settings. As a result, they assume that teens are more at ease with the technology.

Well I just think that with kids and technology, they are very comfortable with the computer and it just seems to be a natural educational tool for them.

And they are familiar with it. It has become such a familiar means or medium that it's not a detractor at all any more.

This was supported when the investigator watched the young focus group participants work on WHY WEIGHT. Little to no instruction was needed regarding how to use the computer or to maneuver through the program. The girls all knew exactly what to do.

Girls could be getting more comfortable with technology because computers are more readily available for them to use both in the school setting and at home. In other words, computers have become more accessible for girls.

It's hard to believe that a student could go through school without becoming computer literate. So, therefore, that would be a medium that they would have access to. And about 30% of Canadian homes have computers.

Finally girls may be more inclined to use computers to access healthy body information because the computer can be a focus or a medium for expressing feelings and formulating thoughts.

It's a computer, and of course it's a face, and so they can get mad at the computer, and talk out loud and do whatever and vent some of their frustrations. Probably

that's a decision making thing that they go through and then they say, OK, well, I have thought about it, and I think I do need some help.

According to the Relational Psychological Development model for women developed by the Stone Center, it is important for girls to be able to relate to a computer in this fashion as they tend to seek to make connections with other people. This theory is further discussed when theories and models to use for the computer program are described.

As a result of the hardware benefits, young women may feel more comfortable using a computer to find information, and more specifically to search for information to address their health needs.

2. Software

A number of advantages of a computer program developed for young women to address their body weight issues were identified. One of the most popular benefits, identified by eight informants and both focus groups, was privacy. A computer program provides a secure environment for young women wanting to find information about healthy weights. It is a medium for girls to get information without revealing their identities or exposing their personal histories and ideas. This is advantageous for the teen who is not comfortable talking in a group but wants to obtain some information for personal use.

I think especially for a kid who may not feel comfortable talking in a group or talking in a classroom, but wants to get information, I think the computer program can be wonderful.

A computer program also allows young women more privacy when it comes to deciding whether or not to consult a person or professional when they have questions or concerns about their body weight. There are times when some girls do not want to talk or are not ready to talk to someone about their body issues. Often times, girls are ashamed of their bodies and believe they are the only ones feeling this way. A computer program on healthy body weights offers the girls a way of getting good information without having to be ashamed of saying it out loud to someone.

Yes, because it's a computer, it's a private thing. So, if somebody can just go in and consult the computer, and it doesn't have to be a person. It might be easier for somebody to consult a computer, as opposed to a person.

I think I would like more privacy. I'm not one to go up to a person. I'm more of a shy person, so I wouldn't exactly want to go somewhere. So, for us kind of people, (giggle) it may be better.

A professor at the University of Calgary agreed with the young women and further explained that girls may not feel forced or pressured to address their body issues if, instead of going to see someone to talk about their concerns, they can consult a computer program.

I think as a kind of starting point, it's a very good idea because it's private and so many of the issues around body image and weight for teenage girls is that they are so ashamed of their bodies and what they look like. It's very hard for them to even recognize that they have a problem. Most of the people I see have often been dragged there by their families, which makes the therapeutic process quite difficult. They don't often see it as a problem, or the over-riding desire to be slender is stronger than any possible harmful effects. So this is private, and I think that helps to reduce some of the coerciveness that is involved.

The reason privacy is important when considering developing a program is that it allows for the young women to be more relaxed in their surroundings. There is no fear of

disclosing information they do not want revealed. This can result in better personal reflection.

I think it's kind of a private thing, without the kind of anxiety about sharing it with someone else allows you to reflect on the things that are true for you

Another benefit identified was that a computer program designed for adolescent girls provides opportunities for the young women to be exposed to computers in general. There was a belief expressed that girls are not exposed to computers as much as boys. Presently many computer programs are not designed to attract girls so there is no motivation to use them. However, if a computer program could be developed with girls' needs in mind, and contains information relevant to them, that may encourage adolescent girls to use the technology and thus lessen the gender gap.

I think simply the benefit that we know that teenage girls are still apprehensive about computers. I think the more we can develop computer programs that really speak to issues that are about adolescent girls' lives, that's going to help them get interested in computers. And so I think it also has that benefit in that it attracts them. It gives them some reason to sit down and look at a computer, because, you know, we still know that girls are very much shy of computers than boys.

In addition, a well-designed program could provide an opportunity for girls to access information. This is important in today's society where computers are becoming more a part of everyday life, offering a good source of information. Teenage girls may fall behind if they are not using computer programs effectively to find information they need.

Well, I think it certainly teaches girls how to access information. I think that is another whole piece of using the computer and of the world. So that teaching them that they don't have to be afraid of it, they can access information.

Despite the key informants' thoughts that computer programs are not designed to attract females, many teens enjoy interacting with computer programs and find them appealing to learn from. The young women in the focus groups expressed their fondness of working with computers.

Investigator: Would you use computer programs? Do you like using computer programs to address any health issues? Or do you use computers?

Focus Group Participant 4: I thoroughly enjoy it.

Investigator: (laugh) do you really?

Focus Group Participant 4: Yep.

Investigator: You enjoy using computers?

Focus Group Participant 4: Um, hum.

Then later in the discussion, the girls further discussed that they enjoyed working with computers because they find it easy and fast. This is important because if they found computer programs to be challenging, non-user friendly and slow, then they may not be inclined to use a program to address their body issues. However, when girls like computers, the attention of the young women is kept.

Focus Group Participant 2: I like computers because I know when I'm lazy I'm reading a magazine and I do a quiz and you want to like count all the points up yourself, but the computer sort of does that for you and makes it easier (laugh). I like that better.

Focus Group Participant 1: It's quick and easy.

Investigator: Computer programs are quick and easy?

Focus Group Participant 1: Yeah, and if you need help like, it's there for you to get at.

I see that kids love computers so the interest in using computers and that with the new technology, you are crazy not to put them in somewhere, because kids are really into computers nowadays.

Indeed, getting students' attention can be complex. In education, teachers understand that students learn in different ways. For example, some teens grasp the information better if it is presented in lecture style while other teens prefer reading the

information. Computer programs may be another format in which educators can grab students' attention so learning can be facilitated.

With respect to learning styles, I'm sure there's an application with respect to that. That some students learn better on the computer than they do verbally or through a classroom intervention. So I'm sure that's another positive.

Meanwhile, a girl can choose the pace, which is comfortable for her when going through a computer program. If she needs time to read and reflect on the material, she can do so. Conversely, if she prefers a faster pace, that option is also available.

What benefits do I see in using computer interventions for healthy weight like this for adolescent girls? They can work at their own pace and look in more detail at what they are interested in. So yes, they can delve into things at their own speed and do some of those questionnaires if they choose, and not if they don't choose. It is kinda nice that way.

Also, when a girl is ready to address an issue that is important to her, she can go back to the program and look at it. She does not necessarily have to go through the entire program if she has concerns about a few issues. When the young woman feels she needs information about a particular topic, she can go to the computer program, find the section and reflect on the material. If the information does not pertain to her, the teen can simply skip a section and move on to one that is relevant to her. In essence, the adolescent can look at information that she is specifically interested in, using the computer program as a resource to be used when needed.

It wouldn't just be something that they would do just once because sometimes you would learn and you're not ready to look at something at some point and maybe you've gone through this particular aspect of the program now, but it wasn't so useful for you but you know, you might have gone through nutrition and then want to come back to some of the others, so I would see that as being, you know, as a positive. It wouldn't be something you just do, but I see it as something you can go back to.

Also, an interactive computer program can offer good feedback to the user. If there is an opportunity for the user to enter information into a program, then it can provide feedback to her.

I think if they thought that this program is confidential and they get good feedback, yeah I think it could be very useful.

Next, a positive result of doing a computer program on healthy weights could be that it gets girls talking about what they learned. Educators or facilitators could find out from the girls what they felt was important for them to learn more about. It could be a method for getting girls engaged in a discussion involving issues relevant to them.

I think if it has some of the health in it, then that would be useful. More people could be exposed to an interesting and in an informative way. I could use it as sort of a way to start talking about what they learned, what was useful for them. So it's a way to start discussions.

Finally, the focus group girls discussed their positive experiences with WHY WEIGHT. This is important to note because it reinforces that the girls like working on computer programs and that developing a computer program specifically for them would be a worthwhile venture.

Investigator: So, what were your experiences with the computer program?

Focus Group Participant 3: I thought it was positive.

Focus Group Participant 5: Yeah.

Focus Group Participant 2: Yeah.

Investigator: It was a positive experience?

Focus Group Participant 3: Yeah. Oh, yeah.

Focus Group Participant 2: One thing I liked was you have the choice of going on into certain areas, like you know, you don't have to go through the whole thing.

Focus Group Participant 5: Yeah, yeah.

Focus Group Participant 2: You start it, you can go out of it, or go home.

Focus Group Participant 5: Yeah. And, if you don't like it when you get in there, like the first question, it just goes back.

B. Barriers to Teenage Girls Using the Technology

Most of the informants and all of the focus group participants supported developing a computer program for adolescent girls to address healthy body weights. Nevertheless, there were a couple of informants that were a skeptical about developing a computer program. Again the reasons can be divided into hardware and software problems.

1. Hardware

A junior high counselor expressed concerns that a machine, namely a computer, does not involve girls and as a result the computer can be very isolating. She made it clear before and throughout her interview that she was not comfortable with computers herself. Her biases extend to teenage girls in that she believes they are not comfortable with them either.

Key Informant: I think girls lose interest if there isn't something that keeps them engaged, and I don't think a machine is the primary way to engage females.

Investigator: OK, can you talk a little more about that?

Key Informant: Well, they are not engaged. I think computers are isolating, I think they are limiting because they cannot engage, like when I was working through this, there would be something where a computer makes a response. That seems to be this piece of information, but it doesn't engage me as a person, because I don't know where it's coming from or, you know, I'm programming it and trying to program something to have a personality when you really can only program something that will have a response, and to a specific set of, if you've got A, B and C, then you get D. If you've got A, B and D, you get E, and that's what comes printed up on the screen, and eventually if you kept punching in the same thing, you would get the same answer. So, I mean I would be more engaged trying to see if I could get the same answers with different information. So, I would be playing with the computer, not playing with the information. That's me, it's not strong enough to engage me as a person, and I don't think it is, I don't think that's necessarily the way to go.

There is support for her statements regarding computers being isolating for females. The three program coordinators of Mirror Image talked about how teenage girls are social beings, therefore they enjoy working in group situations. Unfortunately computers do not foster that type of interaction and can be viewed as individually orientated.

[One thing] I've learned about health and teens is they are very social, especially young girls. They like to discuss things with their friends and they like to do things in a group opportunity, and I find computers are very individual. They don't take as much group interaction.

In contrast, the same informants discussed how computers offer privacy for the girls, allowing them not to expose their personal information to other people. The program can be very private. Nonetheless, the need for social interaction between young women may be important to recognize when constructing a computer program.

The last disadvantage of computers is that some girls may not have access to the equipment to run the program. For instance, WHY WEIGHT required a computer to have a CD-ROM to load the program onto the hard drive. There are situations where girls may not have access to computers with CD-ROMs or they may not have access to computers in general.

Investigator: Can you think of any other disadvantages of using computers, aside from the whole social aspect?

Key Informant 1: Well, there are still some places that don't have them.

Investigator: Computers, you mean?

Key Informant 1: Computers, yeah, or they may not have one with a CD-drive.

Key Informant 2: Yeah, that's a problem.

Key Informant 1: So, especially within smaller communities, a family with a computer, it would be a good thing. But some smaller communities, they may not have the other resources available, they may not have the technology available, either.

One clinical social worker described how she had clients who have never sat down at a computer. Unfortunately, poverty is an issue for these girls and their families thus, they can not afford to own a computer. Also, some teenage girls may have left home and are living on the streets. So, for those clients, computers are not in the realm of their experience.

2. Software

The participants mentioned two disadvantages computer programs have as a way for girls to look at their weight issues. The first one is that computer programs deal with weight issues as if they are black and white while weight issues are not. Computer programs do not distinguish the spectrum of the weight issues involved.

The problem with computer interventions is that it is very black and white, and what I find in dealing with the adolescents and teenagers that I deal with is that everything is black and white and unfortunately food isn't. And so they take a lot of messages that are out there that have a lot of gray areas, like, we advise the general population to eat less fat and they take that and twist it into no fat. So my experience has been once they have that information, if it comes across something like a computer program or like a textbook without any other intervention, they take that statement as being literal rather than there's any leeway there.

The other problem expressed was that computer programs can not be specific for the individual. A computer program could not know the individual factors that exist in a person's life, and therefore could only provide general information or advice.

Focus Group Participant 2: You can't really generalize if you have a healthy weight or not by typing stuff into a computer, because there are so many different things. It's very general. It's not specified to you and who you are. It says your ideal body weight is this, but if your waist hip ratio is this, but the computer can't sit there and tell you. It can't see you.

Focus Group Participant 6: Yes

Investigator: OK, a problem with computers is that they don't know you personally?

Focus Group Participant 2: Some people are big boned naturally. My parent, she's perfect like, her body fat is fine, but she just looks big because she is big boned, and the computer won't know that. It will be like you are overweight. You need to lose weight, and then she'll be like ahhhhh and she'll starve while trying to lose weight.

a. WHY WEIGHT

As mentioned before, the investigator used WHY WEIGHT as an example of a computer program addressing healthy body weights. Every participant, both key informants and focus group participants, used WHY WEIGHT before her interview or focus group and made comments about the program. While many participants mentioned that they had a positive experience with WHY WEIGHT, they also discussed problems they had with the program. It should be kept in mind that many of the negative traits mentioned about WHY WEIGHT are a result of when the program was developed. Many of its features are outdated and the comments centered on that. They found that the program was dull because it lacked the visual and audio attributes found in today's computer programs. With that in mind, the informants and focus group participants then described what they would like to see to make the program more appealing for them to use. This will be discussed in the next section under design issues.

C. Design Issues

If a program is to be developed for young women, there are some design issues that need to be considered. In other words, how can a program be made appealing for girls to use? Four aspects of computer design were discussed: visual effects; audio features; interaction between the user and the computer; and girl specific characteristics.

1. Visual

Suggestions were made about the visual effects of the program. First, having a girl on screen talking to the user throughout the program was brought up. This effect may be a solution to the problem stated earlier about the computer being isolating and not fostering interaction with other girls. By seeing a girl on screen, it may give a girl the sense of connecting with another individual.

I think you want to have as much relational connection, so if there can be other girls that are on the screen that are talking to them, or you can have a girl that's walking them through this whole program who is, Hi, I'm Joanie. So it's another girl, it's a relational, it's like a girl their age they can identify with.

More specifically, female role models are recommended as a potential option to use as the people that would take the users through the program.

Key Informant: Yeah, I think doing some focus groups about what do girls think about who are their models.

Investigator: Role models?

Key Informant: Who do you passion for, what makes you really get off. It is things like, who was it told me that some girls' school in the States, for the last 5 years running, when they have been asked who they wanted for their grade 9 grad speaker, what's her name, Madonna, has been the top request for the last 5 years. OK, Madonna is not somebody we all necessarily want our daughters to be role modeling after, but how can we then take some of those icons and use them to teach them some good values, some beliefs that are going to be healthy beliefs for their bodies and all the rest of that. So those are some ideas that I had, and as I said, you've gotta go where girls move. That's what makes a successful CD, interactive media.

Also there were suggestions for bright vivid colors, real and different looking girls, graphics, animation and video clips. Both the focus group participants and key informants expressed how vital it is to have these suggestions implemented into a computer program for girls. Having these features reduces the boredom girls would experience and as a result they may feel inspired to complete the program. On the other

hand, dull colors and a lack of visual effects makes girls feel tired and unmotivated to continue the program.

Investigator: What recommendations do you have to make the program more interesting and appealing?

Focus Group Participant 1: Colors.

Investigator: OK, so colors.

Focus Group Participant 5: Background pictures.

Focus Group Participant 2: Yeah.

Investigator: Background pictures?

Focus Group Participant 5: Yeah, more pictures.

Focus Group Participant 4: Yeah.

Investigator: OK, so, when you talk about pictures, what do you prefer?

Focus Group Participant 5: Anything, as long as it is a bit better than that [WHY WEIGHT].

Focus Group Participant 1: They are really dull colors in the background, like, gray.

Focus Group Participant 2: I got bored after a while.

Focus Group Participant 5: You just said, let's just get through it, and we were sort of getting really bored.

Investigator: OK, what colors, what kinda colors would you look for?

Focus Group Participant 1: Bright colors.

The focus group participants wanted to see pictures of girls that they could relate to. Likewise, the key informants believed that the young women would want this. Girls appreciate when they see a mix of different looking people, that is, women of different shapes, sizes, colors and ages. Pictures of these real women should be integrated throughout the computer program.

Furthermore, video clips might be put into the computer program. For instance, girls could watch clips of advertisements, television shows or movies to examine their role in distorting body images. Also the teens could watch clips of people engaging in sports when the program was addressing physical activity. These are a few examples

provided by the interviewees of the kind of video clips that could be included in the computer program.

When reviewing WHY WEIGHT, many people remarked on the large amount of text that was present. Many felt that there was too much reading involved and that this contributed to boredom. Consequently, for the new program, less text is recommended.

Focus Group Participant 2: I agree with C. It was really boring, but I also found it really long, sort of tedious and all the reading. I found it sort of too much for me to handle. I guess it's because I got really bored. It was like I clicked through it and whatever, just keep going, and going to little quizzes and questions. So for me, just reading all that text was really hard on my eyes.

Investigator: Any other comments about it?

Focus Group Participant 3: I agree with them.

Investigator: You agree with them?

Focus Group Participant 3: There was way too much text.

Finally a suggestion was made by a clinical dietitian about adding a flowchart into the program to guide the user through. She stressed the need for a flowchart throughout her interview and believed that it would be helpful to show the user the different areas of the program by giving them an overview of it.

Somewhere I said here in my suggestions, how about a bit of a mini-user guide showing the different areas and outlining the different things that they might find in here. That could be part of an introduction too. But when I looked at this, all I saw was the directions of how to get it on. I'm just thinking sometimes I like it when I buy CDs for my own kids. There is not a lot of information on here but if it came with a flowchart, you know, this is the sections that are here and if you answer yes you are going to go, you know. So that they can sort of take a general idea and see what they are going to be getting themselves into. Even I think for an adult that might be helpful too because you go into it, you get a bit of an intro, and you know kind of what's coming up but there's, you know, multi-levels and it would be kinda nice to see on the inside here that they could pull out, sorta like a record album, what all the songs are and what the sections would be so that they could see, if I go to this section, these are the things that will be possible that I can look at in that section. Just so it's a little bit of an overview so they can have a bit of a better idea of what they might expect in it.

2. Audio

Audio features was another necessary design issue to consider when making the computer program more appealing for teenage girls. The first recommendation was to add a voice to the program to talk girls through it. Some believed that this voice could either be male or female, as long as it was a younger person's voice. Some thought that having a teenage girl's voice would be the best alternative because the program is geared for younger women. It then seems natural to have a younger female voice.

Focus Group Participant 1: If you had a voice, you would have to have a good voice. Not a dull one.

Investigator: You mean a monotone voice?

Focus Group Participant 1: Yeah ...

Investigator: OK, so not a computer voice. What kind of voice would you like to hear?

Focus Group Participant 1: Something more like a person.

Focus Group Participant 3: Or something familiar. A younger voice.

Investigator: I just want to ask if you wanted a male voice, a female voice. Like you said, a younger voice?

Focus Group Participant 6: I think a male voice.

Investigator: You would want to hear a male voice?

Focus Group Participant 6: Um hum.

Investigator: OK, why?

Focus Group Participant 3: I'd like a female voice. (laugh)

Investigator: Can you explain yourself, like why?

Focus Group Participant 6: I was looking more to a ... (laugh)

Investigator: That's interesting, actually. And why would you prefer a female voice?

Focus Group Participant 3: Well, maybe more people would like it if it was a female voice.

Focus Group Participant 1: The issues are for women.

Focus Group Participant 3: Well, yeah.

Focus Group Participant 1: If it's going to be directed at teenage women, then why not have a teenage woman.

Investigator: OK, you would like a teenage woman's voice in the background?

Focus Group Participant 1: Um hum.

Music was another feature many participants suggested could be included in a computer program to draw young women into the program. Girls enjoy listening to music especially when they are working, reading or talking with friends. It was suggested that instead of being a distraction, it helps girls focus better on the material before them. It expresses an intensity of emotions in a way words can not do.

Color and music for the teenager. I'm not sure that music is so important for the adult, but certainly for the teenager, because they tend to think better when they have a distraction focus. So, for example, if, whatever their music is, right now ... I think it's ... or whatever. That's a distraction maybe for you and I, but it's a distraction focus for them actually. It brings them into the material. I guess it's a sense of belonging.

When deciding on the style of music to incorporate into the program, there were mixed responses, ranging from classical, alternative to upbeat styles of music. To accommodate the unique tastes in music that young women have, the program could allow the user to choose a style of music at the beginning of the program and let it play throughout. Having this kind of feature gives the girl the sense that the program is tailored to her preferences.

Focus Group Participant 6: The problem is if someone gets it 5 years later they are going to hate the music.

Focus Group Participant 4: Like, what is this?

Investigator: That's a good comment. I mean, when it comes to music, I mean, the other focus group mentioned that they would like to hear music. What kind of music could you hear 5 years from now?

Focus Group Participant 6: It would have to be classical, because that would last a while.

(much laughter)

Focus Group Participant 1: Exactly, because not everybody is going to like that, so.

Focus Group Participant 6: Most people enjoy the quiet and soothing music.

Focus Group Participant 1: Yeah.

Focus Group Participant 2: I like alternative, and I like stuff like that, but I really, really enjoy something really soft when I am doing something, or am being quiet or reading.

3. Interaction

Some informants discussed the importance of interaction in a program or the interplay between the user and the computer. Many felt that the users needed to actively participate in their learning by being involved with the program. There were a couple of suggestions as to how to get the girls interacting with the computer program. The first one was to give the young woman the opportunity to choose to enter a section or not.

Focus Group Participant 2: A lot more interaction.

Focus Group Participant 5: Yeah, quiz after quiz after quiz, and then I can play on games.

Focus Group Participant 2: Yeah, and then you can say, if you want suggestions on, click here, or stuff like that, because perhaps we already know it, but we don't want to click, click, click, click, click through. So you can jump to whatever section you want to be in.

In essence, the young woman would have the option to look at a section depending on if she knows the material or has interest in learning about it. A case in point is when one informant talked about how her daughter went through WHY WEIGHT and she came across the section on adult abuse and sexual abuse. Even though that section may be important to some teenagers, that section had no bearing for her. The program allowed her the choice to enter that section and move on to something else that interested her. Having the opportunity to choose what she wants to know about gives the user a sense of control of her learning.

The second idea to increase interaction between the girls and the computer is to provide feedback to the user. By entering information into the program or answering

some questions, the young women could get a response back from the computer program immediately. In addition, the program could have a place to enter her goals and then give feedback or recommendations regarding her goals. Furthermore, the feedback she receives needs to be practical so that the teenage girl can go out and use the information. It is also necessary to have measurable recommendations so it can be evaluated later.

Key Informant: There has to be some goal sheets at the end where you provide them with feedback on, you know, you are currently at a healthy weight for your height and age, but your current eating practices are not healthy. Here are some recommendations to improve your eating practices.

Investigator: So, feedback like that would be appropriate?

Key Informant: If you are not going to provide me with feedback, why bother doing the program. And the feedback should be something concrete that could be measurable in the future. Like your calcium intake is inadequate, or you are still growing, this is the time you are putting down most bones. I know you follow a vegetarian diet, here are some good vegetarian sources of calcium. You know, what is one change that you would or one thing that you think you could do, and then have them enter it in. That would provide them with feedback that they could actually measure change, your know, or you don't communicate well with family members, how could you improve that communication? To make you feel better about yourself, you know.

The suggestion to have immediate feedback was supported by the focus groups.

When they were reviewing WHY WEIGHT, they commented on how they liked receiving immediate feedback from WHY WEIGHT.

I like the suggestions after having answered the question. And I like the fact that when you answered the question, you got from your answer, you got a response and you got an idea, like well, you think this, or you do this sometimes, and that's great, or you eat this. I thought that was kinda a neat idea.

The information provided should be applicable to the girls' lives; for instance, a simulation may be set up to explore applications of information to her daily life.

I had visions of it being, you know, let's think about if you are a woman playing basketball and you are 5 foot or if you are a soccer player and you are 5 foot 7 and you weigh 150 pounds, what your body is capable of doing, and go through sort of

a list here of what is your body capable of doing at 90 pounds, you know. If you are starving yourself, if you are that tall, or you look at some of those model images of what are being presented as norm weights, which we know are very thin, anorexic models. To present sort of what does your body do for you, and sort of give the information, but not in a way that simply says, this is an issue, this is what you should do.

One kind of application would be games and puzzles. They are yet another device to get girls interacting with the computer program and with their learning. They are fun to do and get girls applying the information they learned.

Well I think that games are engaging in a different way, so I was thinking that anything that makes something more attractive and just sort of draws you in.

The last suggestion aimed at increasing the interaction between the girls and the program was to include the Internet. Perhaps the user could get engaged in the program if she could get on the Internet and actively look for the information. Now there are features that would allow the user to connect to a specific web site using Internet links found in a computer program. She could go to that web site and explore the information found there.

4. Girl Specific

There is value in making the program girl specific. Teenage women have different preferences than teenage men and for this reason, a program should be developed with that in mind.

Because if you want girls to use the computer, then they need an experience. Like, it would be wonderful if I had a library of girls games, the ones that have been developed on the basis of how girls play games and what would be interactive and, you know, it's like going to a chick movie. I mean there are certain movies that boys like to see and that girls like to see. I'd rather see *Sleepless in Seattle* or *Big* or something that has you know, even *Titanic* was overwhelming, but I'd rather see that. But there's some wonderful girls' games out

there. There's girls' magazines. I've brought stuff in for my class and you know, somebody picked up, oh, can I read this? Politically correct bedtime stories. Oh, OK. Now, that person hasn't indicated any interest in a lot of the things that I have introduced so far, but there, she's got something she likes to read.

Also when developing the program, material should be enduring, that is, music, color, role models and pictures should not get outdated in the near future. This is particularly hard to determine for teenagers whose tastes seem to change regularly. The project coordinators of Mirror Image found this a challenge as well when developing their program and wanted the investigator to keep this in mind when developing the computer program.

Key Informant 3: I think what we have run into developing Mirror Image is that you can't make it trendy. It has to be timeless, and so

Key Informant 1: You want it to bridge a ten year span or whatever. You are going to have to keep that in mind.

Key Informant 2: And it's hard with teens, because they do go through such trends, like right now, even clothing styles and all that, and next year.

Key Informant 3: Music styles, yeah

Key Informant 2: Yeah music, it's all going to be another style next year, and then, keeping it timeless is a challenge with teens.

Key Informant 3: They know when something is out of date.

Girls are more comfortable when images, music or people are familiar to them.

The computer program would need to include real people or images that the girls know in order for the teens to respond better to the program.

Key Informant: So, my overall objective would be, I used the word introspective, but you said gray right in their face and it doesn't attach them to the outside world. So anything that could attach them to something that they have already related to.

Investigator: You mentioned the mass media before?

Key Informant: Yeah

Investigator: Anything else that they would be connected to?.

Key Informant: Like rock stars, that's still a huge thing. You know, if you could guarantee that you could change and update this all the way along ... If you had Courtney Love in there, every teenage girl would pick up on that. Do you know who Courtney Love is?

Investigator: Yeah, believe it or not. (laugh)

Key Informant: Yeah, I know who she is, that's really a woman. But, something that just really pinpoints something to where they are going ... Courtney Love is real. I mean they know that Courtney Love's husband committed suicide, they know that Courtney Love has a little boy, they know that Courtney Love is not perfect. Because she talks about those things. And they probably also know that she is bad. But to them she's a bad example, but it's good for their image. She's a real person.

The final recommendation to involve girls is to incorporate humor into the program to get girls to enjoy and get engaged with the program.

I wondered about using humor a little bit more, because there's not much humor in that [WHY WEIGHT]. You have to be careful with that because they are very serious topics, but I think that might appeal to them. I mean, that's often a way to engage adolescents in anything.

D. Summary

There was support for developing a computer program on healthy body weights for young women. The reasons for doing so included teens feeling comfortable and enjoying working with the technology; the privacy a computer program can offer; girls learn better how to access information using a computer; young women have another format to learn from and each user can get personalized feedback.

However some concerns were expressed as well. Computers can be isolating and individual while many girls prefer working in groups. Also some girls do not have access to computer equipment especially hardware that runs a CD-ROM program. Finally, computers might offer only general information without knowing the unique needs of the individual.

Meanwhile, if the program is to be developed, the design of the program must be considered. Various audio and visual features should be incorporated to make the

program more appealing to the female user. Also the users should be interacting with the program to facilitate their learning. Finally, the program should be girl centered, accounting for the gender differences in computer use and preferences.

III. OBJECTIVE TWO: INFORMATION REQUIRED

The information needed for girls to address their weight issues and set goals regarding these issues was the second category examined. The emergent themes included: the theories or models that should be used in the program; the content to be found in the program; and the title of the program.

A. Theories/Models

Once deciding that a computer program on healthy body weights should be developed for young women, the next concern was the information required for the program. First, to effectively use interactive technology in promoting healthy behavior and attitudes, program developers need to know and apply a range of theories to enhance the effectiveness of health promotion programs in reaching their objectives (Skinner & Kreuter, 1997). Unfortunately, due to the lack of expertise in this area, most informants could not think of a model or theory to use for the program. Many times in their work, they use different methods or techniques when working with the girls, but they do not necessarily follow a model or theory.

Well, I think the problem is that there's a lot of different methods that I may recommend, but I don't necessarily subscribe it to a particular model because I'm never very good with that kind of thing. (laugh)

However, one clinical social worker described a relational psychological development model for women that could be adapted for a computer program.

Approximately ten years ago, the Stone Center at Wellesley College in Wellesley, Massachusetts developed a model on adolescent female development. In essence, adolescence is not viewed as the time when young women search for independence, but it is a time when teenage girls seek to build connections with other women.

So, how that equates to working with adolescent girls, is instead of thinking of adolescence as a time when you have to cut the apron strings from mother, let them become independent, instead, it's an inter-dependency. It's a relational time. Girls are seeking connections with other girls, they are seeking connections with another adult woman who will be honest, real, authentic, and let them develop their ideas and their thinking in relations, but not in isolation.

Even though other informants and focus group participants did not know the name of that model, indirectly they supported this theory when they discussed how girls prefer to work in groups or in pairs.

One of the things that I think is pretty universal across adolescence is that they don't like to do anything alone. So, if you are going to grab their interest, you should grab a pair of the interests, not an individual.

In fact, the researcher noticed that when some of the focus group participants were working on WHY WEIGHT, they wanted to talk with each other while doing the program and discuss what they saw. Furthermore, during one of the focus group sessions, the girls talked about their preference to interact with each other while doing WHY WEIGHT.

Focus Group Participant 3: I really liked talking through the whole time.

Focus Group Participant 6: Yeah, like to go through sort of together.

Focus Group Participant 2: Yeah, C. and I did, like to keep from getting bored, she would read one screen, and then I would read the next.

Consequently, when developing the healthy weights computer program, the developers need to consider the relational theory and how it can be incorporated into making the computer program an attractive medium for girls. It needs to be set up in such a way that emphasizes that females are relational. As discussed in objective one, there was an idea presented to include a young woman or women on the screen to lead the user through the program. A girl can then make a connection with the young woman or women on screen.

You want to have as much relational connection, so it's that, if there can be other girls that are on the screen that are talking to them, or you can have a girl that's walking them through this whole program who is, Hi, I'm Joanie, you know, and so it's another girl, it's a relational. It's like a girl their age is someone they can identify with and communicate with, and that girl has got this information from some other trusted adult female in her life who can be introduced on the CD. This is what I found out from this person who is my aunt, or my next door neighbor, or my mother, or someone who I trusted and valued and have a connection with. So I think it then incorporates all those things as well and that will excite the girls, because girls are looking for relationships. That's why girls don't watch TV. Girls find that TV doesn't give anything back. That's why girls sit in their rooms and listen to music because they can talk to each other the whole time. Two girls will sit together and listen to music for hours on end because they can talk to each other. They don't lose relationship while they are also having this entertaining thing going on. Or they dance together. They watch the Spice Girls, and why the Spice Girls, and why they love them is they can re-create their dances. They do the dance together. They have more fun out of dancing the dances themselves than watching the Spice Girls do it. So it's the relational piece.

The only other model or theory identified by respondents was the transtheoretical model or stages of change model. This model was originally developed as a conceptual tool for considering the process of smoking cessation, but now it has been found useful for a variety of health behaviors. It conceptualizes behavior change as an ongoing process, where people move through a series of stages: pre-contemplation; contemplation; preparation; action; maintenance.

Briefly, the model states that people who are not thinking about changing are in the Pre-contemplation stage, those thinking about changing are in the Contemplation stage, those in the process of changing in the near future are in the Preparation stage, those in the process of changing are in the Action stage, and those trying to maintain a change are in the Maintenance stage. When considering the interactive applications for the transtheoretical model, an interactive computer programs could be equipped to address an individual's stage of behavior change. It could assess the readiness to act on a continuum of stage and then target the messages toward an individual's stage of readiness.

B. Content

The content of the program is another major consideration in development. This theme is divided into four sub-themes: overall theme of the program; subject areas; indicators of interest; and topics to de-emphasize.

1. Overall Theme of the Program

The overall message of the computer program was given attention. A number of informants found a body weights theme acceptable and supported the concept of healthy weights as defined in WHY WEIGHT. In essence, a program could stress that there is a range of healthy weights, not just one ideal weight. There are girls who have different shapes and frames, and they need not compare themselves to other people. Girls need to be at a weight that they find they feel good about themselves, healthy, happy and strong.

A healthy weight for an adolescent girl, from my perspective as her dietitian, might be different from hers. But a healthy weight for me in real concrete terms,

is the weight range, the broad weight range, where on the growth charts, for example, where she's one percentile below or one percentile above the ideal body weight. But I never ever talk about a magical number for these girls. We talk about a healthy range for them to be in, and I explain that to them in terms of statistics and research that has shown that the healthiest outcomes and the healthiest people that are fit and healthy and happy and all those things are within these weight ranges. But I think for a lot of girls when we are trying to teach them that there is a healthy range, we talk about it in terms of the healthy weight that they are at where they feel fit, they feel strong, they feel good about themselves, and also free of any symptoms. For example if they are underweight they might start growing extra body hair, or they stop menstruating, all those kinds of things. But a healthy weight, I try to explain to them, is more than just getting your period back. It might mean that you need to be even heavier than that.

I think that it needs to be specific to you, that your healthy weight is your weight and that, just because I may be the same height as my friend, doesn't mean I am going to be the same weight. And so it has got to be specific and individual.

In addition, the program should emphasize to girls that health is not determined by one's weight. There are other factors that contribute to health other than the physical aspects. Instead of focusing on just the physical health, girls should direct their energy into their spiritual, emotional, and mental well being too. Then a holistic approach to health is taken.

Investigator: So, what kind of message do you want the program to say about healthy weights?

Key Informant: Um, (pause), what determines health is not your weight, is what I would like it to hear it say. So, I think that's the message is that health is not weight. Health is, well you know the WHO definition as well as I do in terms of emotional, physical. Specifically, to do with your bodily function is eating a balanced diet, not being pre-occupied with that, getting an adequate amount of exercise, looking after yourself, and getting enough rest.

More importantly girls need to believe in themselves and be happy with who they are. Accepting oneself is an underlying messages that should be emphasized in the program.

Investigator: So what kind of message should it be about healthy body weights? Like, can you come up with a message? Like an overall theme of this program about healthy body weights. Can you think of anything?

Focus Group Participant 1: The main thing I think is we have been going back to is self esteem. Body weight, self esteem and what it means to them.

Focus Group Participant 2: As an image. What they should be and what the image is. So being happy with who they are.

Focus Group Participant 1: Yep, I think that's it.

Focus Group Participant 5: That if you are happy with yourself, then that should be enough. Just being able to be happy with yourself, sort of thing, being able to accept yourself.

For me, I always want the overall or the underlying theme to be acceptance first for the individual. And then that whatever I do change in my life is going to be an enjoyable process, and that it's something I can attain over a period of time, but I don't have to do it tomorrow. There's no stopgap occurring ... So, a lifelong learning situation is really what would drive the person. And that's what you want as a kind of underlying theme? Yeah, acceptance, and then this is a lifelong, but it's fun, it's great to do this, this process and you know, it just takes time to do it.

It is important for teenage girls to feel comfortable with themselves and not worry about what others think of them. Young women should have the opportunity to become aware of their own bodies and their own selves and understand that they are at a stage in their lives where they are changing and developing.

Then the other thing is that they are still growing and changing and nobody is spending time saying let's evaluate this body, let's look at what a body is and, oh, some people have long backs and this is what the body does. Some people perspire more. I mean a lot of normalizing and taking the mystery out of things. You know, this is how long some people's hair grows, some people have curly hair, pick anything. This is what your bodily function is like, this is what's normal. Demystifying being a human being. But you are uniquely you, and then you have choices and then sometimes you don't have choices. I think the weight issue is so complex, because you talk about the issues of metabolism and you mention that in here that exercise, generally affects things, but that's true for women more than it's true for men. The newest studies say that women as they hit into perimenopausal, and menopausal years, and it happens to men too where their body changes and they can't eat as much as they used to, etc. etc., but that women have to exercise aerobically five days a week just to maintain, but men don't. So then, there's a whole different sense of the body. We're dealing with something different, so then, yeah, let's talk about a healthy body, but it's not always in your

control. Like by being female, something's out of your control, so then where do you go? So it really has more to do with talking about your comfort with your own body. Look at 10 year old little girls dancing and they don't care that everyone's a different size, but they do care because as soon as they go through puberty, they start getting weeded out as appropriate dancers or gymnasts or whatever before they are even fully developed, and they begin to make decisions about their body, but they need to be part of that. This is how your body's probably going to grow and you can still be a dancer but this will be harder, this will be easier. You have to work with that if you want to do that. It is a lot better than, you know, you're just not the dancer material. What does that actually mean, you know?

In essence, girls need to come away feeling like they can enjoy their lives and not concern themselves with losing weight before they can go on living.

I mean, that's the focus, is that all of these people are focusing on their weight rather than living. People always put off living until they lose another 5 pounds. I loved that little picture of the hamster in the cartoon the other day. There's a picture of a hamster and she's standing on the scale going, all this exercise program and I still can't lose that last 5 grams. (laugh)

Other informants and some focus group participants felt that the program should not be perceived as focusing on body weights. Weight may not be the best theme to use for a computer program, especially one developed for teenage girls who generally tend to be pre-occupied with their weights. Some therapists find that teen girls focus too much on their weights and a program focusing on weights could aggravate the situation.

I photocopied some articles. The ones a psychologist had talked to us about the whole issue of talking about over weight and under weight. She had sent me these, and these are all very recent articles on, there seems to be a switch in thinking in education programs for eating disorders in that you don't want to dwell on what an eating disorder is, and you focus more on the positive, and talk about puberty and different things, and you don't talk about the weight as much.

Instead other themes for the computer program should be considered as possible alternatives to a healthy body weights theme. Some felt that the issue of weight can be too complex to adequately present and the most important issues for girls are total

lifestyle. Stressing lifestyle instead of weight maybe an option for a theme in the program.

I thought I would like to see more of an emphasis on the lifestyle than the weight loss. I think that's what we need to get away from that and getting people focusing more on the importance of each person being responsible for their well being and really focusing more on lifestyle choices.

2. Subject Areas

Many subject areas are important to include in a program designed for teenage girls to examine issues surrounding body weights. These topics were divided into four main categories: personal health practices; building capacity; social environment; and physical selves.

a. Personal Health Practices

Personal practices such as smoking, sleeping, physical activity and healthy eating affect the health and well being of female youth. Many health problems can be linked to these practices. Accordingly, a section or module in the computer program should be dedicated to informing the young women of how their personal practices impact their health.

i. Substance Use

Substance use is a personal practice that is an area of concern for young women. The kinds of substances that are important to mention in the program would be cigarette and drug use. This topic was identified because adolescent girls are the only age group where their prevalence of smoking exceeds that of adolescent boys. Approximately half to two thirds of female teens are believed to be smoking daily. As these rates among

young girls increase, young girls have become identified as a new at risk group in need of intervention.

But then why are young girls beginning to smoke? The reasons are various but perhaps the most troubling determinant of teenage girls' smoking behavior is the desire to be thin or to remain thin. Concern about body image and weight control plays a large role in the decision to smoke among this population. Although puberty is a natural time for bodies to gain weight, there is a lot of pressure on young women to maintain an ideal of thinness. Many girls resolve this conflict by using cigarettes to suppress their appetite. It then seems appropriate to include information about the benefits of not smoking to lose weight.

Key Informant: Well I think the whole area of smoking. That should be there especially for teenage girls because most of the teenage girls that I see in my program, a lot of them are smokers.

Investigator: Are they?

Key Informant: And why are they smoking?

Investigator: To lose weight (Laughter)?

Key Informant: To lose weight. So that message definitely needs to be addressed.

Investigator: OK, so smoking?

Key Informant: Yeah and other drugs too.

ii. Physical Activity

Physical activity and active living is another subject that needs to be included in the program. The physical and emotional health benefits of regular physical activity have long been proven at every stage of life. The program should discuss how regular physical activity helps young women to: buffer the effects of stress, anxiety and depression; make friends and develop meaningful relationships with peers; maintain a healthy weight; and build physical, social and general self esteem.

Key Informant: And the whole thing of active living, I think that could be put in there as well. I mean not just exercising but ...

Investigator: Could you explain that a little bit further?

Key Informant: Well you don't necessarily have to be out there in a gym exercising like crazy for an hour, you just have to be active. Getting off the bus a couple of blocks early or if you're driving not parking as close to your destination or taking stairs instead of elevators. All those kinds of things I think could be emphasized.

iii. Sleep

Sleep is important to include in that a good night's sleep is tied in with good nutrition. Also rest affects a teen's overall well being especially since it is a time she is growing and her body is changing. Therefore, the benefits of rest and sleep should be mentioned in the program.

Sleeping and eating are things that I have to deal with the most. That will be another thing that you might want to include, is that sometimes kids won't over-eat or eat in response to being tired. And especially teenage girls. So I would think that including a section on sleep, or health in general that will include physical activities, eating normally, but getting sufficient sleep. And when you are talking about adolescent girls, that's something that they need to hear ... I had a client where she would binge eat all the time, well she would restrict and then binge eat at night time, and then what she found, one of the things we had her work on was how to lunch. Sitting down and eating lunch every day. And what she did is, she sat down and had lunch every day, and then she said I can't do it, because as soon as I sit down and have lunch, I want to go to sleep, and I just don't have the time to take a nap. So, I'm better off just not eating, you know. Well after questioning it was like, well how much sleep do you get that you would need a nap in the afternoon? And with a very straight face and thinking there was nothing wrong, she said that she goes to sleep at 1.00 o'clock in the morning and wakes up at 5.00 o'clock in the morning or 5.30 because she has to make lunches and clean up. And so there the focus was not so much her binge eating or her normal eating, the focus was she was not getting enough sleep, and then her discovering this was that she would often eat in response to being tired... And when you think about commercials with chocolate bars that say, you know, eat a chocolate bar for that lull, they are absolutely crazy. They would be better off having a nap.

Key Informant 1: We have been looking into sleep. How important it is for them to get good sleep, and good nutrition.

Investigator: Actually, that comment has been brought up too.

Key Informant 1: And especially for teens because they are doing so much growing, and body changing and that kind of stuff.

Key informant 2: So, sleep should be another section that you should include in this, about benefits of rest and sleep.

iv. Eating Habits

Eating habits of teenage girls was mentioned as necessary to include in the program. The content should emphasize that eating should be normalized and done in moderation. Often times when teenage girls are restricting their diets, they get the urge to binge eat. This results from the body starving for food all day. Instead the program could help girls to focus on balance and normal eating.

My experience has been that often times, people binge eat for two reasons. First of all, we know that people don't binge eat until they start dieting. It is not a case of I binge and therefore I diet. It is more that I diet and because I restrict then it forces me to physically binge eat. And what I think really needs to be included in this is that idea. I don't think that you emphasize breakfast enough in there [WHY WEIGHT] ... Now that doesn't mean that they are still not binge eating to emotional cues or to emotional responses, but if they are binge eating for both physical and emotional, if I eliminate the physical need to binge, it's easier for me to work on the emotional binge eating behavior as opposed to just I binge eat all the time.

Furthermore when the three program coordinators were critiquing WHY WEIGHT, they discussed their concerns with the nutrition section of the program. They felt that it was necessary for a new program to stress how there is no such thing as good and bad foods but instead moderation and variety are important.

Key Informant 1: You need to make them aware that's it's OK to eat anything as long you eat in moderation and you get a variety of foods, you get a variety of nutrients and there's nothing about eating variety, or

Key Informant 2: So, there's no such thing as bad and good foods.

Key Informant 3: Yeah, the whole emphasis in our mirror images, yeah, everything in moderation and don't cut out things because that's a real trend with teenagers, is to cut things out of their diet

In addition, there should be a discussion of the different kind of nutrients found in various types of foods such as what is found in meats, dairy and vegetables for instance. This way the girls know what they are cutting out of their diets when they decide to restrict certain types of foods. Maybe understanding what kinds of nutrients are sacrificed may get girls thinking about not restricting.

And I would think it's important to add where you get different nutrients. Like the importance of what you get from meats and what are protein alternatives, because a lot of teens don't do a lot of research when they decide to restrict their diets. They will just cut something out and they won't think about how to replace the nutrients that they need.

Similarly, for those girls who want information about healthy options of what to eat, that should be included as well. The focus group girls talked about this in some detail about including alternatives for healthy eating.

There are some vegetarians too, so, I think something like alternatives to meats and stuff like that, you know, that would keep them healthy. Because I know a lot of people have problems with iron and problems with different things like that. So, something for vegetarians.

v. Consequences

Some times teenage girls do not comprehend the consequences of their personal health practices. As a result, the program could discuss the ramifications of their personal decisions and help girls understand the consequences of their habits or practices.

The other thing that I found was that there was nothing that really highlighted the dangers of why you would not want to have stomach stapling, why you would not want to have these.

Key Informant 2: So it occurs to them now, because you are changing from having a certain amount of cartilage in your body, and it's becoming real bone now, as we speak, you need to be drinking your milk.

Investigator: So, you need to be looking at immediate consequences?

Key Informant 2: Um, hum.

Key Informant 3: Of the actual affects.

Key Informant 2: Because they also think they are invincible. You know, they are not going to die.

And I think more emphasis should probably be placed on the dangers of the yo-yo syndromes. It was just touched on very briefly. Yeah, and the fact that it's better for you to stay and maintain a weight than to go down and then up, and then down, and then up. It's gets to your metabolism.

b. Building Capacity

Since adolescence is a time of change, adaptation and stress, a section dedicated to building capacity was believed to be important for inclusion. This category would explain and help girls develop abilities for adaptive and positive behavior that enable young women to deal effectively with the demands and challenges of day to day life. It could discuss and teach skills and encourage positive traits girls need to effectively interact with their environment and to control and direct their lives. This section could include perceived body image, self-confidence, self-esteem, goal setting and acceptance of oneself. While many of these topics were mentioned before as an overall theme of the program, it could also be used as a subject area to show girls how to build capacity in their lives. However one other topic, positive body image, was not discussed before by anyone as an overall theme but it is a subject area felt necessary for the program.

i. Positive Body Image

Participants expressed that today's female youth are not happy with their bodies, that is they have poor body images. There is a concern that some young women with body image concerns are at a higher risk of engaging in disordered eating than young women without concerns. The girls then use the eating disorders and weight preoccupation as coping strategies to deal with underlying emotions, stresses and experiences. Often a woman's body becomes a vehicle she uses to play out issues of control. By controlling her body she may feel like she has control over other parts of her life. For this reason, girls need to learn how to love their bodies rather than constantly battling with a negative body image. The program could incorporate some exercises and information that can help young women learn to accept the way their bodies are.

I'd say more focus on a positive body image, and more accepting yourself for what you are. It's important to be healthy, right, and no matter what size you are and what you are doing, but more saying, it's OK to be the size you are, and if you are interested in being healthy, or whatever, it's more about exercise. Do this, not to be losing weight or something like that, it's just accepting yourself, sort of thing. Instead of saying, OK, one should be this weight category and then you should be doing this, it should be accept yourself for who you are, like accept that you are larger, you are smaller, you are average, whatever.

Furthermore, dress sizes should be addressed in this section. Many girls feel that the smaller their dress sizes, the better they will look and feel about themselves. Instead it should be stressed to the girls that they should not judge themselves or others by the number they find on the outfits.

I'm 135 pounds, I'm doing OK. I'm 150 pounds, oh, my goodness, I'm a failure, and, even with dress size. Oh, yeah, that's the other thing. People say to me, I wear a size one, you know ... And I think, what is a size one? Like because a size five is not very big, you know, are they just making them bigger but calling

them size ones or size zeros in order to make that more appealing for women, because they know that women judge themselves by their dress sizes

c. Social Environment

A third subject area to include in a computer program addressing healthy body weights for teenage girls is social environment. Included would be sections on the influences relationships, culture and the media play in young women's lives and their body weight issues.

i. Relationships

Girls' relationships with others play an important role in shaping her life. Adolescence is a time of searching for the self in relationships, a time where peer opinion and validation takes on unprecedented importance. While peers take on a greater importance in the lives of young women, family relationships take on a different importance. Both forms of relationships either can positively or negatively influence girls' lives. Girls should examine these influences in their lives and the computer program should try to facilitate that.

Yeah, because I think what you'll find is that a lot of young girls are starting to feel the pressure, and they get a lot of messages from the magazines, from their parents. I mean the worst thing is parents. Like, I'm getting these kids coming in that have been put on diets at age 3 or 4.

ii. Culture

Cultural demands on young women to be thin are overwhelming. Today's culture and society pressures teenage girls to follow very strict norms about acceptable body sizes

and weights. A program can help girls explore how culture impacts their lives and their body image.

Perhaps address the kind of cultural, socio-cultural demands to be slim. And there's not much talk about that. It's very individual. You need to talk about more of what cultural expectations are, cause those are things that do influence what we internalize and then act out, I think.

iii. Media

Despite what some informants said, others said that teenage girls are consumers of the media. They watch television, read magazines and newspapers, accepting the text and images as true representations of the culture in which they live. The computer program could use the media to illustrate the problems that media produce regarding body weights. It could examine the impossible standards of beauty depicted within advertising and fashion industries and the effects on self-esteem, buying habits and dieting for young people. It could help them analyze their own beliefs about the media and advertising and could walk them through some basic media literacy techniques.

You know what I think would be a really interesting thing to add is that it talked about fatism which I know what fatism is, but most adolescent girls really don't know what it is. I mean one of the neat things that you could do on a computer program is give quotes of examples of what is fatism. So, show a TV show where they make a fat joke and where people laugh. Or show examples of magazines where you see anorexic girls and like you could have film clips showing fatism. You could show a crowd scene and you know it would be an interesting contrast to show a crowd scene in a movie, and a crowd scene in real life and point out how in movies, they are all skinny, skinny, skinny. Not only do fat people not exist but normal sized people don't exist, so show that contrast between reality and TV presentations, or show them clips of TV shows of something that they actually watch that show inappropriate attitudes towards fat people.

Also it would be interesting if the program could go through the history of magazines and show how it ties into the fashion industry. They would be able to show

that the media has played a large role in shaping women's perceptions of acceptable body sizes and weights.

Right now if you were to go through the last 10 years, if you went through all the fitness magazines you would pick up enough advertising that would satisfy all those there, because the fitness industry is highly tied into this subliminal psychological component, and the media...so that, for example, Nike is probably the most successful company in using psychological advertising.

d. The Physical Selves

The physical self is a section that would be designed to describe the functioning of various body systems and the processes of development. Here the complex relationships between individual experience, development and functioning of the body systems could be explained to the young women so they have a better understanding of what is happening to their bodies.

i. Body Functioning

A section on what the body needs to function daily would be valuable. This part could help girls understand the importance of good nutrition, snacking and even sleep. Also the young women could comprehend how the body uses energy throughout the day and how the body needs to replenish itself to function optimally.

What I was looking for in the program which I didn't see, was metabolism. But what I think it needs more emphasis for adolescents is the fact that everyday without doing extra exercise, this is how many calories your body needs. Because what my client took away from health education was that she needs to exercise to burn off every calorie she consumes or she's gonna get fat. And so she does.

Furthermore, this module could explain how people mistrust their body cues when in fact they should listen more closely to what their body tells them.

There's a wonderful paper that talks about that people who constantly diet can sustain hunger for far longer. So that because we have a growing mistrust of our cues as to when we are full and when we are hungry, the more you diet. Dieters will go for a lot longer not eating and being hungry. They tolerate hunger far greater than normal sized people or normal eaters but it takes a lot more food to make them full.

Finally, the program could include information about what happens when something goes wrong with your body. For instance, osteoporosis was of particular concern of the informants and they felt that the young women need to know about the benefits of eating calcium so they would not get osteoporosis.

Examples of serious health problems. That's one thing that really stood out in my mind, you might want to, because you know that mass media is plugged into certain things, like for example, osteoporosis. Everyone is learning about osteoporosis right now. And breast cancer, and hopefully everyone will learn about heart disease and women soon, even though it is very slow. Those three things probably, they would be able to go, oh checklist. I have heard that before. Click, that's a serious health problem, I need to be aware of it. This is going to help me prevent that.

ii. Development

A section on girl's growth and development through puberty should be included in the program. Young women should understand that as they are growing up, they are going to gain weight and gain fat. It is necessary in order to become a woman.

Key Informant 1: They will go from a child to a

Key Informant 2: Young woman, and what that means.

Key Informant 1: Talk about how normal development, how your body changes over the course of time.

Key Informant 2: Yep

Key Informant 3: And address that coming from more of a science background, address the science behind that. You know, why? Why are you experiencing these changes? Well, you are going to give birth one day, maybe, and basically, that's where you evolve from.

Key Informant 1: That's right.

e. Resources

Most of the informants and focus group participants mentioned that the program should include a section with places or people to contact if the users need further help, referrals or information. The informants thought that the computer program could not possibly answer all of a young woman's questions or address all of her concerns for the program is only one source of information. It would be helpful if the girls had other places to go for more information. One interesting idea that was presented was having an Internet link from the CD. The user would press the button and it would activate the dial-up connection so she could get the information she needed from the Internet.

Key Informant: It's really important that you have to give them a number to call.

Investigator: In the program?

Key Informant: That would be my suggestion. And also my suggestion would be, that is, if the profile looks problematic, or the responses look problematic, it would be really good to have a referral to the National Eating Disorder Information Center.

Investigator: Okay.

Key Informant: The phone number, I don't know if there's a toll free number.

Investigator: But put that in?

Key Informant: Put that in because they have a referral service within your community and if they get a call from someone in Calgary, they would refer them to the Women's Health Resource Center and they would give good information, or they would refer to therapists that would be, you know, where they are not going to get the run-around or someone for \$95 an hour. So I think that would be really helpful.

3. Indicators of Interest

After the focus group participants had completed WHY WEIGHT, the investigator took a data file off the computer they were using. Contained in that data file was information regarding the sections and questionnaires the girls decided to look at.

This data was obtained to get some general ideas of what the girls found interesting to examine when they were going through the program.

Table 1 shows the sections that are found in WHY WEIGHT. The researcher tabulated the number of users that visited each section. When examining the table, it appears that most of the participants entered the five primary modules, that is feeling good about yourself; physical activity; eating habits; body shape; and values. There seems to be strong interest in reviewing the sections on relationships and body image. However there was a lack of interest in many of the subsections, especially in the physical activity module. Many of the girls did not seem to want to know more about the finer details of physical activity. The other subsections in which there was low interest included areas of woman abuse, child sexual abuse, assertiveness, and nutrition.

Sections			Number of Users n=12
1. Feeling Good	a. assertiveness b. body image c. relationships	i. child sexual abuse ii. woman abuse	12
			3
			9
			10
			2
			3
2. Physical Activity	a. dietary thermogenesis b. metabolism c. physical activity	i. activity levels ii. daily activities iii. fitness	11
			0
			5
			4
			1
			1
3. Eating Habits	a. me and food b. nutrition		10
			5
			3
4. Body Shape			12
5. Values			10

Table 1. The number of users that entered each section in WHY WEIGHT.

Table two shows similar findings to that of table one where there seems to be high interest in finding out about body image, values, and eating habits. However, there was little to no interest in the questions about Me and Food, child sexual abuse, woman abuse, eating disorders, alcohol, the Canadian Cancer Society, assertiveness and stress.

Exercises / Questionnaires	Number of Users n=12
Body Image exercise	8
Child Sexual Abuse exercise	0
Woman Abuse exercise	2
Assertiveness questionnaire	3
Stress exercise	3
Set Point Range Estimation exercise	4
Values exercise	9
Values Rating exercise	8
Spontaneous Eater exercise	9
Bingeing and Purging exercise	8
Eating Disorder questions	2
Me and Food questions	0
Canadian Cancer Society Questions	3
Alcohol exercise	2

Table 2. The number of users that entered each questionnaire in WHY WEIGHT.

4. De-emphasis

During the interviews and focus group discussions, participants discussed information that the program should not focus on. Many of these concepts were mentioned because these topics were present in the WHY WEIGHT program. To begin, the program should not mention the word dieting, weight, and other similar words. That could not be stressed enough.

Key Informant: When I hear the word diet I just cringe. I just don't like that word and I don't think it should even be brought up.

Investigator: Don't even mention diet?

Key Informant: Well that was one of the things that they told us to remove from our activities, the word diet, and overweight and underweight and words like that.

Furthermore, most of the informants and focus group participants felt that WHY WEIGHT promoted weight reducing which is believed to be an unhealthy message for teenage girls.

Key Informant 3: Well, I think overall, the whole focus of that [WHY WEIGHT] is weight loss, and I don't think that's the message that we really necessarily want to be giving to teens.

Key Informant 2: I agree

Key Informant 3: Because it's just that the ones who do have the problem already in their mind, it's just exaggerating that problem.

The program should also discourage individuals from weighing themselves. One informant could not emphasize enough that people should not waste time looking at the weigh scale to see how much they weigh.

But, it's used as a rough estimate and I think anytime you start like weighing yourself, that's another problem I had. Like, I think why would you weigh yourself? ... Well, I mean, I've worked with disturbed eating, so, I mean I have pretty strong feelings about this. But when you start to think about this in the normal population, why do we weigh ourselves anyway?

The program also should not talk about restricting food. The fear is that girls are restricting their diet right now and will further do so if they feel like they should not be eating a bad food that will get them to gain weight.

OK. And it [WHY WEIGHT] said, do you eat cheese every day, and then it said that if you do, you shouldn't because it is not a good thing to eat, but it didn't tell me why. My experience is that if I thought a kid was restricting in any way, OK, and if the only thing that this kid is eating is cheese, I don't need a program to tell me that she shouldn't eat that either, because then it just gives her license to say the computer said I can't eat it, and then she has an excuse to restrict even more. Same thing with the part about vegetarianism. In the program, it encourages vegetarianism. My experience is that oftentimes vegetarianism is not so much a moral choice, it is more of a method of restriction. It's not because they don't want to eat meat, or because they don't want to kill animals, or that they don't like the taste of it. It's a good way to restrict. They kind of glamorize vegetarianism.

When reviewing WHY WEIGHT, some informants had reservations about the introduction of the program where it lists diets and other weight loss practices. This was a concern for the participants because through their experiences they have found that when girls are presented with information on weight loss techniques, the young women

will go out and try it. For instance, maybe they have never heard of the grapefruit diet but after reading about it in the program, the girls may go out and try the grapefruit diet.

Instead of asking the users if they use laxatives or Ipecac for instance, the informants advise asking, “What other methods do you use to restrict or what other methods do you use to purge?” They don’t want the program to give the girls weight loss practices that they may start to use now that they have been introduced to them by reading about it in the program.

But I really think most kids will not have done any of the diets that are listed there [in WHY WEIGHT]. And so maybe a lesser focus on that and more focus on letting them come up with the methods. Yeah, I think laxative abuse is important but you don't want to tell them about it. So it needs to be written in ... But one of the things one of the psychiatrists here talked about is an awareness of lots of adolescent girls learn to throw up from other girls or reading about it in books. So I think it can be important not to suggest unhealthy strategy methods for weight control to kids who are particularly vulnerable but to let them write it in.

Girls should not be told about fitting into some kind of weight category. It is not a good idea for young women to be comparing themselves to an ideal, which is not the message the program wants to convey. For instance, if girls find out that they fall outside their BMI, they may starve themselves to fit in their range. Also teens are still growing and their weight fluctuates and consequently MET tables and BMI charts do not really apply to them. In addition, placing teen girls into categories can lower or raise their self-esteem. If they fit the category, then they feel normal, but if they do not fit, then they feel different from their peers and it may decrease their self-esteem.

Focus Group Participant 1: Anything that categorizes you as, like that normal thing I didn't like that. Like it sucks. Like, under, over. You shouldn't have to choose that. You shouldn't have to fit into one of those categories. I think anything where they actually say, oh, you're, like I hate that term normal, you

know, it's like what's normal? Because for one person normal is, you know, whatever, and it's totally different for another person.

Focus Group Participant 2: It boosts her self esteem but it could lower somebody else's.

Focus Group Participant 1: Yeah, exactly.

Focus Group Participant 2: Like if you find out, oh, you're not normal and then you would go. OK!!!

Focus Group Participant 5: I think in the weight thing, you could say, well I think I'm average, and then, no sorry, you're overweight.

Focus Group Participant 1: Yeah, yeah. (much laughter)

Focus Group Participant 2: Yeah

Furthermore, what particularly disturbed the focus group girls was the section in WHY WEIGHT that asked the girls to choose a fruit that they believed their body looked like. Once again they had to categorize their body shape which they were not comfortable with.

Focus Group Participant 2: I don't think you should have fruit in it.

Focus Group Participant 3: Yeah.

Focus Group Participant 5: Otherwise, ... (laugh)

Investigator: You know what, the last focus group said the exact same thing. So, you did not like the fruits?

Focus Group Participant 2: No.

Focus Group Participant 4: It makes you really analyze yourself too. Because you know that shape you are, and you are thinking, well, I'm not this perfect.

Focus Group Participant 2: There's the apple and pear.

Focus Group Participant 1: You look like an apple, great.

Focus Group Participant 4: There was apple and pear and I don't really fit into either category but I had to pick one, right?

Investigator: Right.

Focus Group Participant 4: So, I had to pick pear, and I would normally picture people when people picture a pear-shaped body, like they show you in the magazines, they actually see a pear-shaped person. You know, like they see it literally like that.

Some of the informants talked about how unnecessary it was for girls to put in their waist and hip measurements. They found that WHY WEIGHT really encouraged girls to start measuring themselves, which is not something that should be encouraged.

Instead, the informants felt that the computer program should encourage that healthy weights come in variety of sizes.

Key Informant: Under exercise it mentioned measuring your waist once a week. Don't do that.

Investigator: It's not a good idea?

Key Informant: No. Well, if they are not measuring their waists, why get them obsessive about it. Because, you know, it's another measurement, and do we really need to start measuring ourselves by numbers? I mean that's not the whole issue with self-esteem. Right?

Finally, the program needs to be very cautious about the assumption that girls are trying to lose weight. Many felt that WHY WEIGHT assumed that people are dissatisfied with their bodies. While many informants understand that for most teenagers this is true, they also know that not all teens feel that way. Also WHY WEIGHT assumes that all girls weigh themselves regularly. The informants felt this way when they were reviewing the section from the program where it asks how much do you weigh, what is your height, how much does your weight fluctuate month to month, and what is the highest and lowest weight you have been. The assumption is that the users are weighing themselves frequently.

Key Informant: So it [WHY WEIGHT] makes some assumptions that these girls are weighing themselves frequently, and often. It also makes the assumption throughout it that all girls are trying to lose weight.

Investigator: So we need to change that?

Key Informant: Very much, you have to be very, very cautious about the assumption of losing weight and also, as we have talked about before, the assumption that people are unhappy with their bodies, and granted for most teenage girls that is true, but not for all teenage girls.

C. Title

The title of the future program was also discussed in the interviews and focus groups. Two of the informants thought the title WHY WEIGHT was clever and would let the users know what the program was all about. However, there was one informant that expressed concern over the present title WHY WEIGHT. She was concerned that the young women may interpret the program as one that has methods of losing weight instead of talking about healthy weights.

WHY WEIGHT doesn't really address what's in here, does it? I think for teenagers, if you are going to say that this is something I think that would really benefit you, they might look at it, not only at the looks of it, but the title, and say, why would I be interested in this? They are all going to be interested in weight, but they might look at that and say, oh good, there's a special diet in here and I can get on here and it will tell me what I need to do to lose weight, but I think a title would need to be brainstormed a bit more to really tell a bit more about what's in it.

When talking to the teens in the focus groups about the title of the program, they believed that the words weight and teens should be included. This way when people come across the program, they will know what the program is all about and who it is for.

Focus Group Participant 5: It needs something about weight in the title, though.

Focus Group Participant 2: I'd think, yeah, I'll check this one out.

Focus Group Participant 1: Definitely

Focus Group Participant 3: The thing about teens in the title because if you have a title like that, people will go into it just to see what it is. Like that might draw attention.

D. Summary

There are some issues that were discussed that should be considered when deciding what to include for information in a computer program designed to address teenage girls' issues on healthy body weights. When first developing a program, it is

important to think about a theory or model that can be used. Unfortunately most informants could not think of a suitable model or theory, but many alluded to the relational psychological development model for women. Next the overall message of the program was given attention. Some feel that the program should move away from healthy body weights to something more broad. However, many others were content with the healthy body weights theme stressing that the program should focus on how there is a range for healthy weights, how girls' weights are specific and individual and how girls need to be comfortable with their bodies.

Third, a great deal of discussion centered on the topics to put in the program. Many subject areas were felt to be important for teenage girls to look at when they are examining issues surrounding body weights. Thematically, these included personal health practices; building capacity; social environment; and the physical self. Values could be included as the data files indicate that it may be an area of interest. Resources should be listed throughout these sections. With this information in place, decisions can be made regarding how and where to use the computer program.

IV. OBJECTIVE THREE: HOW AND WHERE TO USE THE PROGRAM

When deciding on developing a computer program on healthy body weights for teenage girls, the researcher and participants discussed where they could see the program being used and how it could be used. Four themes arose: potential uses for the computer program; settings in which the computer program could be used; the population that would use the computer program; and the importance of a facilitator.

A. Potential Uses

To begin, professionals who work with girls with eating disorders see the program being used later in their recovery. The girls could use the program to look within themselves and reflect with their families as to what route they need to go. As well, the informants did not think that this program could replace a health education class, but could see this supplementing somebody who wants to ask more, or get more information. They believed that one could not rely solely on a computer program to single-handedly accomplish health promotion objectives. Interactive technology is a valuable resource but it must be integrated within existing programs. The girls could have the opportunity to do the program, and then be able to come back and discuss what they discovered on the program, what they liked, and didn't like, and whether they had any questions. A computer program could not answer all their questions.

I think it needs to be included on a spectrum of different opportunities to learn, so, I guess for teenagers too, it just can't be a computer program to make an impact. It needs to be something that is supported. Like I see the computer program of part of a larger community movement

Also, some informants thought that a computer program could be a useful screening tool to find out if the girls have issues around their body weights. As well, an interactive computer program on healthy body weights could be an excellent tool in prevention.

Key Informant: Yeah, I think it would be one tool. I think it would be a good tool. I think it would be especially a good tool to use in a prevention point of view.

Investigator: Prevention?

Key Informant: I think in helping address body image issues with adolescent young girls before they become full grown sort of eating disorder issues, then I think there's a real place for it as an educative, as a really interactive, fun way to

have the information to address the information, to even help them be aware that some of these influences are out there that are pushing on them. So yeah, I definitely think as a prevention tool, I think it's a really good one.

Another informant felt that the computer program could be used as a beginning to get girls to talk about their body weight issues. She believed that because the computer program offered privacy, the young women might feel more at ease to start looking at their problems and questions.

I think as a kind of starting point it's a very good idea because it's private and so many of the issues around body image and weight for teenage girls is that they are so ashamed of their bodies and what they look like, it's very hard for them to even recognize that if they have a problem that they have a problem. Most of the people I see have often been dragged there by their families, which makes the therapeutic process quite difficult. They don't often see it as a problem, or the over-riding desire to be slender is stronger than any possible harmful effects. So this is private, and I think that helps to reduce some of the coerciveness that is involved.

Finally one informant saw the program as a means to plant a seed to encourage girls to discuss their issues about their weights. She felt that girls do not readily and openly answer questions they are uncomfortable discussing. But if the program could offer food for thought, the girls might start thinking about their weight issues and then be open to discuss them.

Key Informant: So we can sit and have a conversation around a table about how society views women and have a great conversation and make a collage and do all those kinds of things, but you don't necessarily get the personal response, you know. You just plant a seed and maybe one of the kids says something like "do you think I'll get taller," you know, and that's the opening. Like the opening is tiny, the opening is indirect, and that's what you pick up on. And so, like in a video thing, or like in this computer thing, they are asking you kind of blatant questions. If you don't want to answer it.

Investigator: Then you would probably say no?

Key Informant: Right. Which means then it makes it inaccurate. You would have to go at it by just kind of planting seeds of thought and you know, we would do things like if someone said do you think I'll get taller next session. Hmm, well,

do you want to get taller? Like, first of all, let's find out if you want to, because if it's a very tall child asking you they are saying, please tell me I won't get taller, whereas if I have got another one saying yeah I want to get taller, but maybe they are not really saying taller, maybe what they are hoping is that they will get taller and still weigh the same which means they will be thinner.

B. Settings

There are four major areas in which the participants thought they could see this program being used: academic settings; extracurricular activities; health care settings; and the home. First, informants could see the program being available to students in school settings. For instance, since school libraries nowadays have computers, the informants think that young women could sign out the CD and do the program in the library. Introducing the program in the CALM program or in health class was another alternative. In the present health curricula, educators discuss nutrition, body image, self-esteem and other relevant topics. A computer program on healthy body weights can effectively review topics covered in the health classes. One informant even saw using the computer program in the health classes as a way of preventing future eating disorders. By having the program as part of the health curricula, the informants believed that the girls would increase their awareness not only about nutrition but also about body acceptance and the overall self. If health class is not an option, then the informants thought that the physical education classes might be another curricula in which to place the computer program. Although these classes discuss physical activity primarily, they may be a setting in which to use a computer program on healthy body weights.

The second kind of setting in which a computer program on healthy body weights could be used is extracurricular activities. Clubs or programs involving groups of girls,

like Big Sisters or Girl Guides, are places that could use a program on healthy body weights. The advantage of using a computer program in such girl-centered clubs or groups is that girls communicate better when they connect with other females.

I think it could be used in some programs like Big Sisters. I think that for them, they do group activities and they can also make accessible for lending to their Big Sisters to sit down and do it with their little sisters... Any mentoring programs that include girls. I think it's a strong tool that could be used with the mentors because it's a whole relational connection.

Another extracurricular setting in which the computer program could be used is workout facilities. Girls that are working out at gyms or workout studios may want to get some information about healthy body weights. Finally, one focus group thought that the computer program could be given to sport teams, especially those known to have problems with body image and nutrition.

The third type of setting was the health care system. Places such as the mental health clinics, community public health agencies, and outpatient departments of hospitals were mentioned as potential locations to use the program. As well, doctors' offices could use the computer program as an educational resource. Since eating disorders, body image problems and nutritional problems are concerns in the health care system, it is believed that a computer program would be useful for them.

The last kind of setting mentioned was the home. The focus groups believed that the home was a good location for girls to have access to the program because it offers the privacy they are looking for. However one problem did come up with buying the computer program for the home as its long term value might be questioned.

Focus Group Participant 1: I think the only thing bad about that is like how many times would you actually use it. Your body doesn't change every week that much.

Focus Group Participant 4: Yeah.

Focus Group Participant 3: You probably should make it a one shot deal.

Focus Group Participant 4: Oh, yeah, once or twice.

Focus Group Participant 3: Probably once when you are younger, like say the 14 year olds bought the disk and did it and then would probably try it again when they were 17 or 18. It would be like once or twice.

C. Facilitator

Many of the informants felt that the computer program should be done with supervision. They wanted a facilitator familiar with the program and knowledgeable about weight issues to discuss and help interpret the information for the girls. Individuals such as health educators, dietitians or professionals skilled in that area should be available to take the girls through the process of the program.

I would want to have someone who is familiar and not just a home economics teacher, but some home economics teachers are quite knowledgeable, but someone who'd be familiar with weight issues and deal with it.

However the focus group girls did not feel it was necessary to have someone there to help them out when they were doing the computer program.

Investigator: When you were doing the computer program, did you find that you needed somebody to help you use the program, to go through this computer program?

Focus Group Participant 4: No.

Focus Group Participant 2: No.

Focus Group Participant 3: No.

D. Population

The focus group girls felt that girls in high school would benefit most from a computer program. However some informants feel there was potential for this program to be used in earlier grades such as with elementary school children.

Oh, I think in the curriculum, there's a huge opportunity for it in terms of the health curriculum, and I think it needs to start young. I think that girls are having body issues at grade 6, if not younger. So I think it's got to be in the grades 4, 5 and 6 curriculum, and I think using it in the schools are the best place for it.

In addition to girls using the computer program, some informants felt that boys should be included as well. One informant expressed that girls should be educated about boy issues and boys should be educated about girl issues. They are not mutually exclusive. As well, the percentages of boys with body image problems are rising and as a result they may need to be thought of when developing this program.

And so I think you don't want to alienate boys, because I think boys should go through this too ... And more and more boys are in wrestling, weight training, jockeys, judo and karate ... Because there is a weight class. They want to be naturally or unnaturally at the very top end of their weight class but in the lowest weight class.

Finally when developing the computer program, one informant thought it was necessary to consult the fathers of the daughters. Usually they are left out of their girls' health when in fact their daughters are one of the most important people in their lives. Their input could be valuable when developing the program.

E. Summary

The last objective first looked at the potential uses to which a program on healthy body weights could be put. According to the key informants, the computer program could not be used in isolation; instead it is seen as being integrated in an existing program, which could also be useful as a screening or prevention tool for the girls. Furthermore, to plant the seed about some issues would be a purpose for developing the program. In most cases, the key informants believed that a computer program needs a

facilitator who is familiar with weight issues to assist the user. The young women disagreed and felt that there was no need for a moderator.

There are four main settings in which participants thought they could see a computer program being used or obtained. The first one was the academic setting where most visualize a program being used in a health class or physical education class. The second type of setting was extracurricular. Places such as girls' clubs, mentoring programs, workout facilities and sport teams are avenues through which girls could use the program. Health care was another setting to be considered that would offer a computer program on healthy body weights for teenage girls. The doctor's office, mental health clinics, community health agencies, treatment places and hospitals are examples of places to use such a program. The home was the final setting that a computer program could be used at.

V. CONCLUSION

Overall, the needs assessment reviewed three areas according to the objectives of the study. Briefly the three objectives were computers as a medium; the information required in a computer program on healthy body weights; and how and where girls could use a program on healthy body weights.

In essence the evidence suggested that a computer program addressing healthy weights would be useful for teenage girls. In fact there were great benefits seen for developing the computer program. The data also showed that the program could cover numerous topics in order for teenage girls to address their body weight issues. Finally, it appeared that the program, preferably as a tool in an existing service or intervention,

could be used in many places such as at home, academic, extracurricular and health care settings.

The next chapter will present recommendations and conclusions based on the data found in the needs assessment. It will also discuss the strengths and weaknesses of the project.

CHAPTER 4: DISCUSSION

I. INTRODUCTION

The aim of this study was to explore the need for an interactive computer program on healthy body weights for teenage girls. Three major themes emerged from the data. The first theme investigated young women using interactive computer programs to examine their issues with body weights. The second one looked at the information required for an effective program, and finally the project discussed where and how to use a computer program on healthy body weights. This final chapter reviews the strengths and weaknesses of the study and then the recommendations and conclusions based on the results are presented.

II. STRENGTHS AND WEAKNESSES

This research project had a number of strengths and weaknesses that should be recognized. They are divided into four sections: sample, bias, data collection and analysis, and role of the researcher.

A. Sample

To begin, there were opportunities to hear from different viewpoints provided by different occupations and years of experience working with teenage girls. For instance, the investigator got various professionals such as dietitians, a psychologist, a psychiatrist, program developers, social workers, an exercise physiologist, professors, and a school counselor, who all worked with teenage girls for a number of years. However, there were a number of therapists involved in eating disorders. It is unclear if their experiences with

disturbed eating patients, a small proportion of teenagers overall, biased their suggestions for information to include in the program, what not to include, and how the program should be used in the presence of a facilitator. Despite this problem, the project should consider their recommendations. Approximately ten percent of teenage girls have an eating disorder and they may use the computer program. The program probably would not harm them because their issues were addressed.

Another strength in sampling was that it did not bias against individuals who did not have computers at their workplace or home. The researcher provided access to computers by either allowing individuals to use the computers at the Department of Community Health Sciences, or bringing her laptop to the individuals' homes so they could work on the WHY WEIGHT program.

One limitation in sampling was that although all the key informants were authorities on teenage girls and their weight issues, they may have not been authorities on what girls like in computer design features. Their limited knowledge of girls' preferences in technology may have affected their recommendations regarding the design issues of the program. Fortunately, the comments made by the key informants about the computer design features were supported by the focus group girls, thus strengthening the decision to include their design suggestions.

B. Bias

When participants are reluctant to discuss their experiences or are unable to accurately remember their perceptions, the validity of the data is threatened. The project was subject to recall bias in that there was a reliance on recall of the participants'

experiences with WHY WEIGHT. Potentially, only the notable, either positive or negative, aspects of WHY WEIGHT would be remembered. In addition, there was a lot of material to remember when recalling the information present in WHY WEIGHT. It was unrealistic to expect that the participants could remember all that they found relevant or irrelevant. However, the data files assisted in finding out what modules interested the users. Also, the handout provided while doing the program was beneficial. Reviewing the handout at the end of the interviews reminded participants of their experiences with WHY WEIGHT.

Participants may have felt uncomfortable sharing their perceptions about using a computer program for young women to address their body weight issues. In order to minimize the selective sharing of information by participants, known as reporting bias, the researcher used a variety of methods to create a relaxed environment for the participants so that they felt more secure disclosing information to her. These included first meeting all the teenage girls previous to the focus group discussion when they had to complete WHY WEIGHT. During this time, the researcher developed a rapport with the girls. Also, the moderator had all the girls sign a group agreement of confidentiality which helped create a trusting and confidential environment. This enabled the girls to feel secure about the comments they made. In addition, the focus groups were close in age and this was a strength. The girls were more likely to be comfortable talking to each other rather than with girls at a much different age. Younger girls may have been more intimidated by the older girls and it may have resulted in them not sharing their opinions and thoughts during the discussions. Only having a year difference in the focus group

participants may have allowed more girls to participate in the conversation. Finally, the investigator met with the key informants before their interview to drop off their WHY WEIGHT packages. This helped in establishing rapport and thus created ease in the interview.

C. Data Collection and Analysis

A major strength of this study was the different methods of data collection that were used, that is, triangulation of data methods. Data was collected from a variety of professionals, teenage girls and data files from WHY WEIGHT. Had only one method been employed, the conclusions would not have been as strong. The focus group participants validated most of the comments made by the key informants and identified important differences in perspective. Furthermore, the data files supported the areas of interest.

Another strength of the study was the opened ended nature of the qualitative interviewing and focus group discussions. It provided a rich source of data that a questionnaire could not have elicited. Furthermore, the use of probing provided information that may have been missed if a more structured method had been used. An example of the use of probing can be found when the investigator and a key informant were discussing the disadvantages of computers. One key informant explained that computers do not engage females. The investigator prompted the key informant to discuss that further and found out that the key informant believed that computers are isolating and as a result, do not engage females. The probing was able to deepen the

initial response of the participant and help the investigator to understand more fully this barrier.

Quality was also enhanced when using focus groups. First, the moderator had a note taker at the focus group discussions to write down field notes, that is impressions, dominant speakers, main ideas, verbal and non verbal communication. A note taker needed to be present because the moderator was so involved in guiding the discussion and concentrating on the flow of the discussion. These field notes were then used months later to assist in the analysis.

However a weakness in the study was the length of the WHY WEIGHT program. Some focus group girls may have become tired before doing the entire program. As a result, they may have skipped through some parts of the program and the information on the data files may have been misleading. Also they may have not looked at all the information that was potentially relevant to them. This would have affected their responses in the focus group discussions when talking about the sections in the program they found useful.

Finally, a perceived weakness of the study was that most participants focused on the problems of WHY WEIGHT and evaluating that program. That was not the intention of the investigator. Instead, she wanted the WHY WEIGHT program to be seen as an example of what a computer program on healthy body weights could be like; the kind of information that could be contained in a new program for teenage girls. Even though this was not the intention of the investigator, the information was valuable in the analysis. When the participants discussed the problems they had with WHY WEIGHT, they also

talked about what they would like to see in a new program as a result. The interviewer was able to extrapolate this information with the use of probes. For instance, some informants felt that the drawings used in WHY WEIGHT were not stimulating enough because they were black and white and not realistic. Instead, the informants wanted to see real pictures of people and objects in color. The informants also did not like the amount of reading in WHY WEIGHT and as result, they talked about putting less text into a new program and adding voice and video clips to engage the learner.

D. Role of the Researcher

In qualitative research, the researcher serves as an instrument throughout the data collection and analysis stages of the study. Several steps were taken to reduce researcher bias. First, as described in the methods chapter, the investigator conducted member checks to receive feedback from the research participants on themes that emerged from the data. The researcher sent to selected key informants and focus group participants a web illustration of the emerging themes. The two key informants and four focus group participants reviewed the web and verified that the web contained the information that was discussed. The project also used triangulation of investigators. The researcher and her supervisor separately coded two transcripts and met afterwards to discuss them. The codes were similar between the researcher and supervisor's copies of the transcripts. In addition, peer examination was another strategy used to reduce researcher bias. The researcher brought her domain analysis worksheets to the qualitative interest group to get her colleagues to critique her analysis techniques. They suggested other categories and relationships that could be used versus the categories the researcher came up with. For

instance, they recommended that the benefits of technology and the barriers to girls using the technology could be subdivided into software and hardware. Finally, two colleagues separately coded ten pages each from two different transcripts. The investigator met with each colleague separately to review the transcripts and the codes developed by the colleagues were consistent with the codes the researcher had.

However, one issue raised is that the moderator of the focus group discussions was also the researcher of the project, and thus was too close to the topic. The moderator may have been already narrowed the relevant arguments into categories, which may have been different from those of the focus group participants. However, a review of the transcripts suggest that this did not happen. Another area of concern is that the participants may have perceived the moderator to be holding a particular position or stand on an issue, which in turn, provoked similar or different views from the focus group. For instance, the researcher was enthusiastic about the potential of developing a program. Again, there was no clear evidence in the transcripts of a bias in either a positive or negative direction.

III. CONCLUSIONS AND RECOMMENDATIONS

Overall, there was sufficient data to draw conclusions and make some recommendations for future action.

A. Computers as a Medium

There was considerable enthusiasm for the use of computer programs by teenage girls to learn more about and address their issues about body weights. As a result, the

next phase of development of a computer program on healthy body weights for teenage girls can be considered. However, the program developers need to start from scratch because WHY WEIGHT is not an appropriate computer program for teenage girls. Much of the information and features are outdated in that program. Moreover, much of the information is not suitable for young women or of interest to them.

The features are important to consider, as they are what draw the young audience to the program. There can be good and helpful information present in the program, but it would be of little use if the girls become bored and tired of using the computer program. Their interests need to be constantly stimulated as they maneuver through the program. Taking this into consideration, the program developers can incorporate various appealing and exciting features. To begin, bright and rich colors can liven up the screen as well as adding pictures of real people, places and objects. Meanwhile, some animation and video clips can heighten the experience the young women have with the technology. For instance, the developers can add video clips of commercials, movies, and television shows to encourage girls to examine how the media contributes to body image distortion.

Music is another feature that engages the teenage girls with the information. The program developers need to talk to marketing agencies to determine what music attracts young women. It is hard to determine what teens find trendy in regards to music or what they think is timeless. The developers need to ultimately find music that is classic so that the program does not become dated in the near future.

Next, there cannot be a large amount of reading in the program. Too much text on each screen tires the user and she may not continue doing the program as a result. Some

of the information can be presented as such, but there should also be an assortment of other features so the user has opportunities to hear some information and work with the information. Literature discusses how interactive technology offers the advantage of including multiple modalities of delivering information (e.g., text, narration, motion picture, graphics, and music). When a program uses an array of media components, it creates a more vivid presentation because the user experiences more sensory stimulation (e.g., sight, sound, color, and movement) during message processing. The use of multiple channels also enables the program to accentuate and reinforce informational content. For instance, using both narration and motion picture to describe how the media depicts the ideal standards of beauty reinforces the information presented. Sensory vividness and information enhancement appear to be two reasons why health promotion materials, like computer programs, that present information through multiple modalities, are more effective than are materials that rely solely on a single modality (Street & Rimal, 1997).

Another essential feature the program needs is interaction. Young women should be interacting with the information presented to them using games, puzzles, scenarios and simulations to engage them with their learning. Fortunately, interactive technology now allows users to interact with the content as the content is made available. Two important dimensions of interactivity that are important to mention are user control and responsiveness. User control refers to the extent to which the user can participate in modifying the form and content of the mediated environment. It allows the user to determine what topics or services are selected, the order in which these selections are made, and the ways in which she can respond to the information presented in the

program. Literature suggests that providing individuals with choices enhance their sense of control. Perceived control in turn is associated with positive outcomes, including higher levels of enjoyment, greater learning and healthier behaviors (Street & Rimal, 1997).

Responsiveness, on the other hand, refers to the extent to which a response takes into account the form, content, and nature of a previous action. Some informants expressed concern about computer programs being too general to meet the unique needs of teenage girls. However, with the current resources available for programming, interactive technology allows messages to be individualized to the particular needs or interests of the user. In other words, the feedback the girls receive from the program can be personalized and applicable in their lives. Also there are highly responsive programs that can be developed where they generate responses that are continually changing in form and content and are directly contingent on the specific actions or information provided by the user (Street & Rimal, 1997).

Finally, an insert describing the content of the program should be included. The girls can briefly read what the objectives of the program are and what the program contains. Consequently, the girls will go into the program more informed of the content they encounter.

These findings support what other studies have found when they investigated adolescent girls' preferences in computer software. One study sampled 30 girls, ranging from grade six to twelve, from different ethnic groups and computer exposure (Miller et al., 1996). There were a number of similar results to this project. First, they found that

the girls placed a high value on the quality of the visual and audio design of the environment. Music, atmosphere and voice quality were all factors that girls describe as important. All participants advocated multi-sensory presentations and preferred to move freely among environments. Also, they like elements of problem solving, but not the point of causing frustration. Furthermore, they wanted the program to include features that offer supportive feedback. Finally, many of the girls endorsed the idea of vicarious experiencing adventures or activities, that is, virtual reality. Another study conducted by Merideth and Richards (1997) found that video clips accessed from the CD-ROM and navigation buttons which allowed multiple directions were clear favorites of the college students they surveyed. These two studies indicate that the preferences mentioned by the participants of this project are similar to other projects.

B. The Information Required

The practical implications of the relational model are many when considering developing a computer program on healthy body weights for teenage girls. First, the program can have a teenage girl or a role model on screen talking to the girls throughout the program. Alternatively, the program could also use a variety of teenage girls of different colors, cultures and shapes to speak to the users while they are interacting with the program. These individuals can talk to the young women throughout the process, thus helping eliminate the isolating feeling experienced by the girls when they work on a computer. Young women may be able to connect and become comfortable with the person on screen, thereby responding better to the program. Support for these findings comes from a study conducted by Cooper and Stone (1996) on the effects of group gender

composition with middle school students and their thoughts when using a computer-assisted biology program. They found that first, girls overwhelmingly chose a female face for their tutor in the computer program. They also found that when boys and girls work together in a computer classroom, girls appear to see themselves as less technocapable. However, when the girls participated with other girls, they did not act as shy and were less apprehensive. These findings were important because when anxiety in girls is decreased while doing a computer program, their data suggested that performance was enhanced.

Program developers could decide to go with a role model or a famous person, but they need to be careful again of the icon trends. The person on screen should be an individual that young women respect and value, even five years from now. Marketing firms again can be consulted when the time comes to decide on the person to use in the computer program.

For those girls who enjoy social interactions, an option can be offered for the girls to go through the program in small groups or in pairs. They can sit and do the program together thus facilitating discussion and interaction between the girls. Nevertheless, there are some girls who value their privacy and would not feel comfortable discussing body weight issues with their peers. Instead, a facilitator can establish an electronic bulletin board on which girls can post comments or questions and other girls can respond. This arrangement is possible in a classroom setting where the teacher can become the moderator. However, if this option is not available to the young women, they can be

referred to a number of listservs currently available. These practical methods encourage connecting with other young women, thus promoting participation in their learning.

The program should remain with the healthy body weights theme. Whereas there was some support for changing the theme to something more broad, such as self-esteem, healthy body weights is an important issue to focus on for the female youth. There is agreement amongst the informants and focus group participants that teenage girls are preoccupied with their weights. Since this is a huge concern for female youth, it seems appropriate to keep the healthy weights theme as defined by Health and Welfare Canada (1988). Hence, the program should emphasize accepting and reaching a body weight, size and shape which allows teenage girls to feel good about themselves and encourage positive activity and eating habits.

The material in the program should be divided into five main modules with sub-modules within them. The outline of the program can be as follows:

1. **Personal Health Practices**
 - a. substance abuse
 - b. physical activity
 - c. sleep
 - d. eating habits
 - e. consequences
2. **Building Capacity**
 - a. self-esteem
 - b. self-acceptance

- c. positive body image and shape
- d. self-confidence
- e. goal setting
- 3. Social Environment
 - a. relationships
 - b. culture
 - c. media
- 4. The Physical Self
 - a. body functioning
 - b. development
- 5. Values

Throughout these modules, resources should be listed for girls to find out more information about a topic or to seek help when necessary.

Meanwhile, the program developers need to be careful of the language used in the program. Words such as weight, weighing, and dieting could promote weight reducing which the developers want to discourage in teenage girls. Also, the program should not discuss restricting food, measurements, meeting standards or good/bad foods. Many feel that these words or topics can lead to decreased self-esteem. Furthermore, the program needs to be cautious about categorizing girls because doing so results in the youth feeling different or unhappy with themselves because they are not in the perceived ideal category.

Finally, the title of the computer program needs to be reconsidered. Again, consulting marketing people for ideas to better represent what is contained in the program

should be considered. They have experience trying to grab the attention of the young audience thus they could be helpful drawing young women to this program. The researcher suspects that mentioning the word weight in the title may be a technique to get young women using the program. Since evidence supports that many girls are preoccupied with their weights, it seems appropriate to believe that they would pick up a program that mentions weight but may overlook programs with other dominant themes.

C. How and Where to Use the Program

There are various locations young women can use a computer program on healthy body weights. Computers are readily available to students at schools and more nowadays presently at home. Therefore, introducing young women to the program at school or at home seems appropriate. When the program is used at home, it provides the privacy girls look for. This is especially true for individuals who are not comfortable having adult moderators. With privacy, these girls are more relaxed, leading to better self-reflection. Another advantage of using the program at home is that the teenage girls can do the program when they feel ready to address their body weight issues versus when other people think they are ready. The girls would not feel coerced or pressured by anyone to learn about something, as they might in a classroom setting. Meanwhile, for those people who are ready to look at the program, they can take their time going through it, choosing their pace, and allowing more time for self-reflection.

Also, youth are working with computers more in educational settings. Teachers in health classes, such as CALM, or teachers in physical education classes can get the girls in their classes to use the computer program. This is another method of getting girls

involved with their health and learning. As discussed before, this interactive tool services the needs of the visual, auditory and kinesthetic learners which benefits a teacher who is always looking for different techniques to address her students' various learning styles. Similarly, a study conducted by Merideth and Richards (1997) discussed a CD-ROM health program and noted that the program enhanced the teaching of health education classes by allowing students to observe, analyze and use the computer as a model of classroom instruction. The teacher can also use the computer program on healthy weights to determine the lessons that need to be taught. The program can create a data file for teachers to access similar to the one the investigator used to determine the sections the focus group participants read. This file could be used to assess the interests of the girls in her class. Then using that information, the educator can start a class discussion by getting girls talking to each other and connecting about common issues.

Nevertheless, there are still some girls who value their privacy and do not have access to computers at home. The schools can still help by making the program available at the school library or counselors' office. Often, computers are available at the school library, so a girl could check out the program for a couple of hours and work on it in there. Additional places that the program could be located are exercise facilities, sport teams, and girl clubs. If these places had computers available, then girls could access the program there. Finally, some professionals involved in treating eating disorders expressed that they would like to use a computer program on healthy body weights later in the girls' therapy or as a screening tool to find out what their clients' issues are.

A question arose regarding having a facilitator with the girls while they do the program. The key informants felt that it was important to have supervision because sensitive issues could be raised and a facilitator could assist girls with these. However, the focus group girls expressed that they did not need a moderator with them. In fact, while the focus group participants were doing WHY WEIGHT, the researcher observed that the girls required no help from her and proceeded through the program independent of a supervisor. Again there is concern that because some of the informants are eating disorder therapists, they voiced the needs of their patients, instead of girls with no eating disorders.

Finally, the developers need to know the objectives of a computer program on healthy body weights. Ultimately, this is a health promotion program which should provide messages and/or services that are sufficiently powerful to make a lasting contribution to the individual's ability to maintain and improve health and to make appropriate and satisfying health related decisions. (Street & Rimal, 1997). This means facilitating young women to explore their feelings and attitudes about health issues, influencing behavior, raising awareness of the function of health services, and assisting with the development of skills required to achieve and maintain good health. The program does not necessarily have to only encourage individual change. It can also help teenage girls critique their social environment and invite the girls to change their surroundings. Taylor (1994) describes a project called The Health Education 13-18 project which suggests principles for ensuring that health promotion is effective in meeting the educational needs of adolescents. These principles are to: encourage

individuals to identify with real situations and experiences; give individuals opportunities to clarify their own attitudes and values; give individuals the chance to explore and discuss their personal perspective; and ensure that information is given in a non-didactic way. By adopting an adolescent centered approach to health promotion, each individual is encouraged to look at her own practices and situations in a way that is appropriate to her age, cognitive development, family situations and cultural groups.

It would be appropriate for a health promotion computer program on healthy body weights to have an individual set clear, measurable, and obtainable goals to accept and reach a body weight, size, and shape which allows her to feel good about herself and encourages her to maintain positive activity and eating habits. Potential outcomes could include immediate outcomes, such as motivation, knowledge, self-efficacy, attitude change and problem solving skills, and health outcomes such as health improvement, health behavior change and preventive action. (Street & Rimal, 1997).

In summary, these recommendations presented according to the three emergent themes are important to consider if the developers want the girls to enjoy using the program, continue using it and learn from it.

IV. CONCLUSION

This project represents the first step toward the development of an interactive computer program on healthy body weights for teenage girls. There is evidence supporting that teenage girls would benefit from a computer program on healthy body weights. The medium appears to be effective and the topic is important to teenage girls. It would be a service that meets the definition of a health care requirement in that there

are indications a number teenage girls would benefit from this program. Service providers drew on their experiences and education to talk about the needs of teenage girls and service receivers, that is, young women, brought in their experiences to identify their needs, wants and interests. Subsequently they felt that a computer program on healthy body weights for teenage girls would be useful. Also there is evidence showing that there is a gap in girls' health programs. A paper written by the Women's Health Research Group (1998) at the University of Calgary, to the Alberta Education, Health Curriculum Development Branch concluded that there are few evaluated programs worldwide which teach health practices and health attitudes to young women. More programs need to be developed and evaluated to meet the needs of the teenage girl population.

In essence, the project fulfilled the purpose of a meaningful needs assessment. The framework has been laid to design a new program in which the information, theory, design, locations and potential users have been decided. Next, the investigator plans to present the findings of this needs assessment to a development team in hopes to begin building a new computer program on healthy body weights. The investigator will recommend that the development process include a formative evaluation to establish if the computer program is meeting the needs of the young women and to identify program defects to improve the success of the program. An outcome evaluation would also be recommended for when the program is fully developed and ready for implementation.

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APPENDIX A: Notice Posted to Solicit Focus Group Volunteers**Teenage Girls, Ages 15 to 18 years****Wanted for Focus Groups****To Explore the Need for a Computer Program on
Healthy Weights**

The University of Calgary, Department of Community Health Sciences would like to locate teenager girls who are willing to participate in a focus group and use a self help computer program called "WHY WEIGHT," which emphasizes health promotion and personalized goal setting.

Participation will involve two sessions. The first session will require approximately two hours of computer work which can be arranged according to your schedule during the months of May and June. Then the focus group discussions will be conducted shortly after.

If you are interested, or want more information, please call:

Jeny Mathews
220-8285

or

Dr. Billie Thurston
220-6940

Department of Community Health Sciences
University of Calgary

APPENDIX B: Advertisement to Solicit Focus Group Volunteers in Update

A HEALTH
PROMOTION
PROGRAM

May/June 1998

Update

Food Safety — It's In Your Hands

Pat Inglis, BSc, PHEc

Teenagers and Healthy Body Weights

Teenage girls between the ages of 15 and 18 are invited to participate in a study on the need for a computerized program on healthy body weights.

The program emphasizes health promotion and goal-setting.

For more information call: Jerry Mathews (220-8285)

or Dr. Billie Thurston (220-6940)

at the Department of Community Health Sciences, University of Calgary.

Women's Health Resources

APPENDIX C: Letter of Introduction

Date:

Name and Address of Potential Key Informant:

**Re: A Needs Assessment to Determine if There is a Need for an Interactive
Computer Program on Healthy Weights for Adolescent Females**

Investigator(s): Jeny Mathews and W.E. Thurston

Dear

I have contacted you to seek your participation in a research project Dr. W.E. Thurston and I are conducting. The purpose of this study is to determine if there is a need for an interactive computer program on healthy weights for adolescent females and if there is a need, what elements should be included in the program.

Your involvement would involve reviewing a computer program called WHY WEIGHT, designed specifically to address healthy weight issues for adult women, and an interview to discuss questions regarding the need for a similar program for adolescent females. If you do not own a computer, arrangements can be made to use one here at Health Sciences, the University of Calgary.

I plan to phone you in approximately one week to see if you are interested in learning more about this project and how you may be involved. Thank you for your consideration in becoming involved with this study.

Yours sincerely,

Jeny M. Mathews

Dr. W.E. Thurston

APPENDIX D: General Questions to Consider While Doing WHY WEIGHT

1. What influenced your choice of sections to look at?
2. What sections or exercises did you find enjoyable, informative or useful?
3. What sections were unclear or not understandable?
4. What parts of the program were boring?
5. How did this program stimulate your thinking?
6. How difficult was the program to use and understand?
7. What modifications could be made to this program to make it more appealing to teenage girls?
8. What benefits do you see in using a computer intervention for healthy weights like WHY WEIGHT for adolescent girls?
9. What problems do you foresee in using a computer intervention on healthy weights for adolescent girls?
10. Other comments or suggestions.

APPENDIX E: Letter of Confirmation for Key Informants

Date:

Name and Address of Potential Informant:

Dear,

Thank you for your interest in participating in this study. I would like to confirm that

- a. we are meeting on (date) at (time) at (place).
- b. I will call you on (date) at (time) at this phone number (_____).

If this arrangement is no longer convenient, please contact me and we can make other arrangements.

As discussed, I have included a copy of WHY WEIGHT for your review and some preliminary questions to contemplate. I look forward to meeting with you.

Yours sincerely,

Jeny M. Mathews

APPENDIX F: Interview Guide for the Key Informants

Request for Tape Recording and Note Taking:

“I’d like to tape record what you have to say so that I don’t miss any of it. I don’t want to take the chance of relying on my notes and thereby miss something that you say or inadvertently change your words somehow. If at any time during the interview you would like to turn the tape recorder off, just say so and the recorder will stop.”

Informed Consent:

- review the consent form, request for a description of consent from the interviewee and have consent form signed

Interview Guide Questions:

1. As a professional working with adolescent girls, do you see computer interventions as an effective method for dealing with teenage girls’ issues on healthy weights?
 - If so, what are the benefits of using computers?
 - If not, can you explain your reasons for not recommending a computer program?
2. When reviewing WHY WEIGHT, what sections of the program need to be removed because they do not address specifically adolescent girls’ weight issues? What sections in the WHY WEIGHT were useful?
3. What issues were not included that you think is important to include?
4. What recommendations do you have to make the program more interesting and appealing for female adolescents?
5. Is Egan’s decision making model appropriate for adolescent girls? Why or why not?
6. Are there theories/models that need to be addressed in the program? If so, can you explain what they are and how they could be used in the program?
7. Would you recommend this program to your clients? Why or why not?
8. How can a computer program on healthy weights be used in existing services or curricula?
9. Are there any other comments or suggestions you would like to make before we end this interview?
 - A request will be made for the notes taken while reviewing the program.

APPENDIX G: Consent Form for Key Informants

Research Project Title: Assessing the Need for an Interactive Computer Program on Healthy Body Weights for Adolescent Girls

Investigators: Jeny Mathews and W.E. Thurston

This consent form, a copy of which has been given to you, is only part of the process of informed consent. It should give you an idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully.

The purpose of this study is to determine if there is a need for a computer assisted intervention on healthy weights for adolescent females. You will be asked permission to have our discussion tape recorded and for me to take notes while we talk. The intent is to insure that I do not miss anything you say or change your words somehow. You can at any time during our discussion turn off the tape recorder. The tapes will be transcribed so they can be reviewed.

Your name and any other passages in the recording that may identify you will be erased. From then on your records will only be identified by a code. Only myself and my supervisor will have access to the list that links your name to the code. The list will be securely stored separately from other records from the study and will be destroyed at the end of the study.

The interview will take approximately one hour. You can decline to answer any questions and you can stop the interview at any time. To ensure my interpretation of what you said reflects what you intended, I may ask to discuss my impression with you in an additional half hour session. While you may not gain directly from participation, it is hoped that the results of this study will guide program decisions that will benefit teenage girls dealing with healthy weight issues. We guarantee that we will not tell anyone whether you decided to participate or not, or the extent of your participation. Tapes, transcripts and computer disks will be destroyed in three years after the study. Prior to that, they will be stored securely. Notes taken while using the program will be assigned your code number and stored securely as well.

Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the investigators, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time. Your continued participation should be as informed as your initial consent, so you should feel free to ask

for clarification or new information throughout your participation. If you have further questions concerning matters related to this research, please contact:

Jeny Mathews
220-8285

Dr. Billie Thurston
220-6940

If you have any questions concerning your rights as a possible participant in this research, please contact the Office of Medical Bioethics, Faculty of Medicine, University of Calgary, at 220-7990.

Participant's Signature

Date

Investigator's Signature

Date

Witness' Signature

Date

A copy of this consent form has been given to you to keep for your records and reference.

APPENDIX H: Community Resources

YWCA Sheriff King Family Support Centre Counseling Resources List (Fall 1997)

AGENCY	PHONE NUMBER	AREA OF FOCUS Unless specified, the following agencies offer individual, family, couple and group counselling.
Alberta Children's Hospital: Mental Health Program	233-2370	Counselling to children, parents and families. No session limit. No fees. Comprehensive services..
Alberta Alcohol and Drug Abuse Commission (AADAC)	297-3071	Counselling for issues related to addictions (services also for family members including a 5 day workshop held in a rural area).
Calgary Communities Against Sexual Abuse	237-5888 (24 hrs)	Individual & group crisis counselling for family & victims related to sexual abuse. Limited number of sessions. No fees.
Calgary Family Service Bureau	233-2370	Offers counselling in all areas. No session limit. Service in different languages; play therapy; survivor of sexual abuse groups. Locations in different parts of the city. Sliding scale. Waitlist.
Calgary Counselling Centre	265-4980	Offers counselling in all areas. Marriage preparation courses. Abuse-related, eating disorder & children of divorce groups. Sliding scale. No session limit. Waitlist.
Canadian Mental Health Distress Centre	297-1744 266-1605	Suicide bereavement counselling; 24 hr suicide outreach services. Offers counselling in all areas. Six sessions. No fees. Short waitlist. 24 hour counselling line for all issues.
Eastside Family Centre	299-9696	Offers counselling in all areas. Walk-in appointments are free. Scheduled appointments sliding scale. Evening/weekend hours.
Family Resource Centre: Closer to Home Program	543-0555	Extensive variety of services for children, youth and families. Parenting programs, resource data bank. No fee.
Family Therapy Program	230-3300	Offers counselling to families. No session limit. No fee.
Jewish Family Service	287-3510	Offers counselling in all areas. Open to all faiths. No session limit. Sliding scale. Waitlist.
Men's Crisis Service	299-9680	Individual and group counselling for men. Session limit.
Native Addiction Services	251-7921	Individual and group counselling. Drop-in services.
Outpatient Mental Health @ Colonel By Hospital	541-2164	Offers counselling in all areas (13 years & older). Main focus on family, couples & abuse. No session limit. No fee. Referral by physician only.
Provincial Mental Health	297-4520	Offers counselling in all areas. Waitlist.
Sheriff King Family Support Centre (YWCA)	266-4111	Offers group, crisis, & outreach counselling to men, women, children & youth experiencing family conflict. Drop-in programs. Short to no waitlist. Sliding scale. 24hr counselling line ~ 266-3707
Sunshine Counselling Services	243-2002	Christian based individual and family therapy for anyone regardless of race or religion. No session limit. Sliding scale.
Westside Family Centre	239-3313	Offers counselling in all areas. Walk-in appointments are free. Scheduled appointments sliding scale. Evening/weekend hours.
Women's Health Collective	266-9590	Offers individual counselling to women in all areas, particularly healing from abuse. No session limit. Sliding scale. Short waitlist.
Women's Health Resources	232-9152	Offers individual counselling. Limited sessions. Hosts many workshops. Excellent reading room (non-lending library)

NOTES:

- Public libraries have a great selection of book and audio tapes on self-help issues.
- Private practice counsellors are listed in the phone book under social workers and psychologists.
- You are encouraged to "interview" your counsellor before making a decision to work with him/her
- Sliding scale could include a fee that ranges from \$0-\$5 a session based on family income
- Since waitlists can be long, some clients find it useful to put their name on two waitlists
- Self-help and various Step groups are listed in the telephone book.
- This is a partial list and SKFSC is not responsible for the service these agencies provide.
- SKFSC offers clients three crisis counselling sessions while they attend an agency group (sliding scale)

YWCA Sheriff King Family Support Centre
MISC Resource List (Fall 1997)

COUNSELLING / CRISIS 24 HOUR PHONE LINES

Emergency Social Services	270-5335	
Community Resource Team	299-9699	24 -hour mobile crisis team (for families, couples, etc.)

Distress Centre	266-1615	For all issues
Gambling Help Line	free ->	1-800-365-9676
Kid's Help Phone	free ->	1-800-668-8868
Parent Help Line	265-1117	
Parent Support with Teens	270-1819	
Sexual Abuse/Assault Issues	237-5888	Run by CCASA
Suicide Crisis Line	266-0700	Or 266-1605
Telecare	266-0700	Christian based support
YWCA Sheriff King Family Support Centre	266-0707	For issues related to family conflict
Men's Domestic Conflict	266-4357	

LAW:

Calgary Legal Guidance	234-8532	Legal advice for persons of low income. Special assistance is available for victims of family violence (eg. restraining orders)
Legal Aid	297-2260	Lawyers available to persons without sufficient funds
Student Legal Guidance	220-8637	Summary advice: certain administrative matters: tenant matters

MISC:

ACTSS	295-0973	Host community kitchens - prepare 365 days of meals!
Kerby Centre (60+)	265-0661	Services for seniors. Counselling for abuse issues.
• City of Calgary Info & Referral Service	268-4656	Excellent data base on various city resources: landlord/tenant information service; located at City Hall. Drop ins welcome.
Calgary Police	911 or	24 hour non-emergency requests for service call 266-1234
Victim Assistance	268-8398	
Recreation (fee assistance)	268-3889	For programs run by the city
Recycle Info Line	277-7770	
Adult High School	777-8875	
YW Employment Counselling	750-2501	
Burns Memorial Fund	234-9396	Financial help for children who are not on social assistance
Calgary Catholic Immigration Society	262-2006	Extensive variety of services (eg., outreach, employment and counselling services: interpretation services: host visit program)
Calgary Health Services	228-7400	Many services (eg. dental clinics: home care: nutrition: natal)
Calgary Immigrant Aid	265-1120	Interpretation: Info: Culture-links & Employment program
Calgary Immigrant Women's	263-4414	Community groups: counselling: skill training: parenting

FOOD BANK:

Inter-faith Society	263-2056	Also can get referral to Children's Milk Fund. Phone ahead.
Salvation Army	269-5951	Have community drop-off spots. Phone ahead.

SHELTERS - Due to family violence:

• Calgary Women's (CWES)	232-3717	Residential and outreach services for women and their children. Offers weekly groups (open to all abused women) with childcare.
• Native Women's	531-1970	Residential & outreach. Open to all women and their children.
• Sheriff King Family Support Centre	266-0707	Residential and outreach counselling services for women & their children. Community programs for women.
• Wheatland Shelter	934-8634	Shelter services for female & male victims of family violence
2nd stage: Discovery House	277-0713	Live in self-contained units up to 1 year. Counselling available.
2nd stage: Brenda Stafford	270-7240	Live in self-contained units for 6 mos. Counselling available.
2nd stage: Sunshine Centre	243-3002	Supportive living for 1 year. Counselling available.

**YWCA Sheriff King Family Support Centre
Parent & Adolescent Resource List (Fall 1997)**

SOME 24 HOUR COUNSELLING PHONE LINES:

Kid's Help Phone	free →	1-800-688-8888
Parent Help Line	255-1117	
Parent Support with Teens	270-1819	
Distress Centre	255-1605	All issues

• For counselling resources, please refer to the Sheriff King Family Support Centre "counselling resource list"

PARENTING RELATED:

AGENCY	PHONE	SERVICE PROVIDED
Alberta Family & Social Services	270-5335	Child protection services
Best Beginnings	228-8221	High risk pregnancy. Information, prenatal classes, support.
Calgary Birth Control Association	270-3209	Counselling and education on unplanned pregnancy options; birth control; sexually transmitted diseases. Pregnancy tests.
Calgary Community Support for Young Parents	244-4040	In home service to help 16-24 year old parents achieve a successful beginning to their parenting careers.
Calgary Learning Centre	686-9322	Host a variety of courses for children who are ADD/HD
Childcare Subsidy	541-8432	Provides financial help to assist with the cost of formal childcare.
Children's Cottage	233-2273	Crisis nursery (0-8yrs) for max. 3 days. Day program offered.
Closer to Home Family Resource Centre	543-0555	"One-stop shopping" approach for a wide variety of services to children, youth and families in need. Resource data base.
Even Start	541-0277	In home services for children (3-8 yrs) from troubled families.
Families First Program	233-2370	In-home support service. Emphasis on community resources.
Family Resource Unit -ACH	229-7886	Resources for parents, parent library, referrals
Family Toy Lending Library	248-3939	Low or no cost drop-in centers. Toy lending; crafts; snack time
Family, Adolescent & Child Services (FACS)	297-7196	Free counselling to young people (0-18yr) and their families who are experiencing complex emotional problems.
Lasting Impressions	297-1728	Many services for families when there is parental mental illness.
MOCA Family Resource Centre	720-6781	Assists families in Millican-Ogden area. Many services such as toy lending library; clothing exchange; collective kitchen.
Nobody's Perfect	255-0311	Parenting groups
Our Mother Earth	240-4652	Native day program for urban Aboriginal families (age 0-6)
Parent Development Centre	255-1117	Parenting groups
Parents & Children Together	252-2211	For children (birth till 5 years) and parents
Parents as Teachers	238-3111	In-home services and trained parent educators
YWCA Sheriff King Family Support Centre	255-4111	Evening and week-end parenting groups. Located in various parts of the city. Parenting groups by gender or COED. Groups for children (4-13) who have witnessed or experienced family violence.

ADOLESCENT RELATED ISSUES:

KARA Centre	248-3339	For pregnant and parenting teens
Mountain Plains	286-3221	Independent living program for 15+. Formal/informal services offered to children and families in selected parts of the city
Non Abusive Futures for Adolescents at Risk	299-5533	Free co-educational group program for 15-18 yrs. Designed to promote healthy relationships for teens.
S.A.F.E.S.	294-0737	Assists youth (& parents) who have a history of anti-social / criminal behavior. Focus is developing alternative coping skills
Bridging the Gap	293-9936	For 16-24yrs who have mental health concerns. 1:1 mentor
YWCA Sheriff King Family Support Centre	255-4111	Groups for teens (co-ed, same gender) and crisis counselling

APPENDIX I: Consent Form for focus group participants**Research Project Title: Assessing the Need for an Interactive Computer Program on Healthy Weights for Adolescent Girls**

Investigators: Jeny Mathews and W.E. Thurston

This consent form, a copy of which has been given to you, is only part of the process of informed consent. It should give you an idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, feel free to ask. Please take the time to read this carefully.

The purpose of this study is to determine if there is a need for a computer assisted intervention on healthy weights for adolescent females. You will be asked permission to have our group discussion tape recorded and for me to take notes while we talk. The intent is to insure that I do not miss anything you say or change your words somehow. However, you can at any time during our discussion turn off the tape recorder.

Your name and any other passages in the recording that may identify you will be erased. From then on your records will only be identified by a code. Only myself and my supervisor will have access to the list that links your name to the code. The list will be securely stored separately from other records from the study and will be destroyed at the end of the study. The tapes will be transcribed so they can be reviewed. Tapes, transcripts and computer disks will be destroyed in three years after the study.

The focus group session will take approximately one hour. The groups will be asked questions about computers as a tool when addressing healthy weights, and what modifications should be made to a current program, WHY WEIGHT in order to suit teenage girls needs. Each person can give their opinions. Being in a group is voluntary and the people who come to a group interview will not have to say anything if they do not want to. You can decline to answer any questions and you can stop participating at any time. We guarantee that we will not tell anyone whether you decided to participate or not, or the extent of your participation.

In addition, the information you input into the computer will be only accessed by Dr. Thurston and myself. The information will only be used to determine what sections were used or not and the time spent on each section. The notes taken while using the program will be collected at the focus group session, will have only your code number on it and be kept in a secure place.

Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to

participate as a subject. In no way does this waive your legal rights nor release the investigators, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation. If you have further questions concerning matters related to this research, please contact:

Jeny Mathews
220-8285

Dr. Billie Thurston
220-6940

If you have any questions concerning your rights as a possible participant in this research, please contact the Office of Medical Bioethics, Faculty of Medicine, University of Calgary, at 220-7990.

Participant's Signature

Date

Investigator's Signature

Date

Witness' Signature

Date

A copy of this consent form has been given to you to keep for your records and reference.

For individuals under the age of 18 years, living with a parent or guardian:

To be filled out by the Parent/Guardian:

_____ I give permission for my child to participate in the research project "Exploring the Need for an Interactive Computer Program on Healthy Weights for Adolescent Females"

Student's Name: _____

Parent's Signature: _____

Date: _____

_____ I **do not** give permission for my child to participate in the research project "Exploring the Need for an Interactive Computer Program on Healthy Weights for Adolescent Females"

APPENDIX J: Interview Guide for the Focus Groups

Introduction: Thank you for coming out to this group discussion today. My name is Jeny Mathews and I'll be leading our discussion today. To help everyone get to know each other better, why don't we go around the table and talk about our favorite music.

Ground rules:

1. I would ask that only one person respond at a time. If more than one person talks at a time, it will be very difficult for me to understand the tape after.
2. You do not have to answer a question if you do not want to.
3. Although I may refer to you by name during our discussion, when I type up the words from the tape, I will not use your real name.
4. Comments made during this discussion are to be kept confidential. I will ask you to read and sign a group agreement for maintaining confidentiality.
5. If you do not understand what I am asking, please ask me to explain.
6. There are no right or wrong answers.
7. Speak clearly and loudly.

Request for Tape Recording and Note Taking:

"I'd like to tape record what all of you have to say so that I don't miss any of it. I don't want to take the chance of relying on my notes and thereby miss something that you say or inadvertently change your words somehow. If at any time during the session you would like to turn the tape recorder off, all you have to do is press this button on the microphone, and the recorder will stop."

Group Agreement for Maintaining Confidentiality:

- review agreement form, request for a description of the agreement form from the focus group members and have forms signed.

Interview Guide Questions:

1. What was your reaction to using the computer program, WHY WEIGHT?
2. How did this program stimulate your thinking?

3. Can you see yourselves using a computer program, like WHY WEIGHT, to help you address your weight issues? When giving your opinions, please give your reasons for your answer.
 - What are the benefits or disadvantages in a computer program in addressing your health issues?
4. Would you recommend a computer program on healthy weights to friends and family? Why or why not?
5. For those who see yourselves using a computer program, how and where could it be used?
6. What parts of the program, WHY WEIGHT were most enjoyable for you? What parts were informative?
7. When reviewing WHY WEIGHT, what sections of the program did you not find useful or find irrelevant?
8. What sections or issues need to be added to address your weight issues?
9. What recommendations do you have to make the program more interesting and appealing for you?
10. Did you want someone to help you while you used the computer? If yes, what type of help did you want?
11. How can a computer program on healthy weights be used in existing programs or curriculums?
12. Are there any other comments or suggestions that anyone wants to make before this discussion comes to a close?
 - A request will be made for the notes taken while reviewing WHY WEIGHT.

APPENDIX K: Revised Interview Guide for the Focus Groups

Introduction: Thank you for coming out to this group discussion today. My name is Jeny Mathews and I'll be leading our discussion today. To help everyone get to know each other better, why don't we go around the table and talk about our favorite music.

Ground rules:

1. I would ask that only one person respond at a time. If more than one person talks at a time, it will be very difficult for me to understand the tape after.
2. You do not have to answer a question if you do not want to.
3. Although I may refer to you by name during our discussion, when I type up the words from the tape, I will not use your real name.
4. Comments made during this discussion are to be kept confidential. I will ask you to read and sign a group agreement for maintaining confidentiality.
5. If you do not understand what I am asking, please ask me to explain.
6. There are no right or wrong answers.
7. Speak clearly and loudly.

Request for Tape Recording and Note Taking:

"I'd like to tape record what all of you have to say so that I don't miss any of it. I don't want to take the chance of relying on my notes and thereby miss something that you say or inadvertently change your words somehow. If at any time during the session you would like to turn the tape recorder off, all you have to do is press this button on the microphone, and the recorder will stop."

Group Agreement for Maintaining Confidentiality:

- review agreement form, request for a description of the agreement form from the focus group members, and have forms signed.

Interview Guide Questions:

1. Do you think a computer program on healthy body weights should be developed? Why or why not.

2. What kind of information would you like the program to have?
 3. What should the message be to girls about healthy weights?
 4. Where would you see a computer program on healthy weights be used?
 5. How would you make a computer program on healthy body weights more appealing?
 6. Now let's discuss WHY WEIGHT ... What were your reactions to using the program?
 7. What sections in WHY WEIGHT did you find useful or informative?
 8. What sections in WHY WEIGHT should be removed?
 9. Did you think you needed someone to help you use the program? If yes, what type of help?
 10. What ideas would you have for a title for the computer program on healthy body weights?
 11. Are there any other comments or suggestions that anyone wants to make before this discussion comes to a close?
- A request will be made for the notes taken while reviewing the program.

APPENDIX L: Group Agreement for Maintaining Confidentiality

This form is intended to further ensure confidentiality of data obtained during the course of the study entitled "Assessing the Need for an Interactive Computer Program on Healthy Weights for Adolescent Girls." All parties involved with this research, including all focus group members, will be asked to read the following statement and sign their names indicating that they agree to comply.

I hereby affirm that I will not communicate or in any manner disclose publicly information discussed during the course of this focus group interview. I agree not to talk about material relating to this study or interview with anyone outside of my fellow focus group members and the researcher.

Name: _____

Signature: _____

Researcher's Signature: _____

Reference: Berg, 1995, pg. 82

APPENDIX M: Domain Analysis Worksheet

1. Semantic Relationship: Strict Inclusion
2. Form: X (is a kind of) Y
3. Example: an oak (is a kind of) tree

Included Terms		Semantic Relationship	Cover Term
<u>sleep</u>	_____	<u>is a kind of</u> →	<u>behavior</u>
<u>smoking</u>	_____		
<u>drugs</u>	_____		
<u>eating habits</u>	_____		
_____	_____		
_____	_____		

Notes:

Included Terms		Semantic Relationship	Cover Term
_____	_____	_____ → _____	_____
_____	_____		
_____	_____		
_____	_____		
_____	_____		
_____	_____		

Notes:

APPENDIX N: Ethics Approval



1997-12-18

Dr. W.E. Thurston
Department of Community Health Sciences
The University of Calgary
Calgary, Alberta.

Dear Dr. Thurston:

RE: Exploring the Need for an Interactive Computer Program on Healthy Weights for Adolescent Females
Student: Ms. Jenny Mathews Degree: MSc

The above-noted thesis proposal has been submitted for Committee review and found to be ethically acceptable. Please note that this approval is subject to the following conditions:

- (1) a copy of the informed consent form must have been given to each research subject, if required for this study;
- (2) a Progress Report must be submitted by 1998-12-18, containing the following information:
 - (i) the number of subjects recruited;
 - (ii) a description of any protocol modification;
 - (iii) any unusual and/or severe complications, adverse events or unanticipated problems involving risks to subjects or others, withdrawal of subjects from the research, or complaints about the research;
 - (iv) a summary of any recent literature, finding, or other relevant information, especially information about risks associated with the research;
 - (v) a copy of the current informed consent form;
 - (vi) the expected date of termination of this project;
- (3) a Final Report must be submitted at the termination of the project.

Please note that you have been named as a principal collaborator on this study because students are not permitted to serve as principal investigators. Please accept the Board's best wishes for success in your research.

Yours sincerely,

Ian Mitchell, MB, FRCPC
Chair, Conjoint Health Research Ethics Board

cc: Dr. L.R. Sutherland (information)
Ms. Jenny Mathews

APPENDIX O: Renewed Ethics Approval



UNIVERSITY OF
CALGARY

FACULTY OF MEDICINE

Office of Medical Bioethics
Heritage Medical Research Building/Rm 93
Telephone: (403) 220-7990
Fax: (403) 283-8524

1999-03-25

Dr. W.E. Thurston
Department of Community Health Sciences
University of Calgary
Calgary, Alberta.

Dear Dr. Thurston:

RE: Exploring the Need for an Interactive Computer Program on Healthy Weights for Adolescent Females
Student: Ms. Jenny Mathews (MSc Thesis)

Thank you very much for the progress report which you have provided on the above-named protocol. Please be advised that this report has been added to your file.

The above-noted research proposal has been re-evaluated with respect to continuation of ethical approval.

As Chair of the Conjoint Health Research Ethics Board of the Faculty of Medicine, University of Calgary, and the Affiliated Teaching Institutions, I am pleased to advise you that ethical approval for this proposal has been extended to 1999-12-18.

Please note that this approval is contingent upon strict adherence to the original protocol. Prior permission must be obtained from the Board for any contemplated modification(s) of the original protocol.

A progress report concerning this study will be required by 1999-12-18. This report should contain information concerning:

- (i) the number of subjects recruited;
- (ii) a description of any protocol modification;
- (iii) any unusual and/or severe complications, adverse events or unanticipated problems involving risks to subjects or others, withdrawal of subjects from the research, or complaints about the research;
- (iv) a summary of any recent literature, finding, or other relevant information, especially information about risks associated with the research;
- (v) a copy of the current informed consent form;
- (vi) the expected date of termination of this project.

Please accept the Board's best wishes for continued success in your research.

Yours sincerely,

Ian Mitchell, MB, FRCPC
Chair, Conjoint Health Research Ethics Board

c.c. Ms. Jenny Mathews

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