

ABSTRACT

DYSART, MILLIE MAXWELL. The Effectiveness of Media Literacy and Eating Disorder Prevention in Schools: A Controlled Evaluation with 9th Grade Girls. (Under the direction of Edwin Gerler.)

The prevalence and deleterious nature of eating disorders encourages prevention efforts.

Schools afford a unique opportunity for effecting change and promoting student well-being, but the infancy of prevention research, the complexity of the disorders, and the limitations of school resources challenge the development of a cohesive body of empirically-supported interventions. The following study evaluated an 8 week media literacy program with 9th grade students ($n = 62$) at posttest and 6 weeks. An additional 6 month follow-up ($n = 75$) incorporated a non-randomized new student control group. Analyses of variance demonstrated that internalization of the thin ideal, viewing the media as an important source of information, and seeing oneself and others and similar to media ideals reflected significant group differences at each data collection. Drive for thinness differences were significant initially, but not in follow-up studies. Body dissatisfaction differences approached significance at posttest and 6 months, but bulimia, weight-related anxiety, realism, and self-esteem results were non-significant throughout the study. The noteworthy, sustained results for internalization lend credence to the inclusion of media literacy as a primary prevention effort in high schools.

The control group for the study experienced a substance education intervention. Significant group differences for substance use were reported at posttest, but not in either follow-up study. The comparative studies allowed inspection of some minor overlap of variables: substance use was associated with lower self-esteem, and drinking was linked to body dissatisfaction and weight anxiety. These findings encourage further examination

of substance use behaviors, self-esteem, and body image distress as well as the development of multifaceted prevention efforts that address these relationships.

The Effectiveness of Media Literacy and Eating Disorder Prevention in Schools: A
Controlled Evaluation with 9th Grade Girls

by
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DEDICATION

To my nieces, my former and current students, and the young women

to follow them:

May you have the courage and confidence
to transcend the struggles...and may you use your
privilege and power to spare them for others.

BIOGRAPHY

Millie Maxwell Dysart is a licensed professional counselor in North Carolina and currently teaches Advanced Placement Psychology at Saint Mary's School in Raleigh. Her primary interests are in risk identification and prevention efforts, and her focus on women's issues undoubtedly stem, in part, from her years at Camp Seafarer in Arapahoe and Salem Academy in Winston-Salem. In addition to eating disorder prevention, her other main research interests include relational aggression, giftedness, depression, and self-injurious behaviors in children and adolescents. She holds a BA in English from Wake Forest University, an MA in English from North Carolina State University, and an MEd in counselor education also from North Carolina State University. She has taken additional coursework in counseling and psychology from Campbell University and Duke University and multiple courses in eating disorders from Saddleback College. She has also received some brief training on phototherapy from Judy Weiser in Vancouver, Canada and has explored its use in group and individual counseling sessions. She is an avid and former collegiate level tennis player, as well as a hiker, runner, and snow skier. She especially enjoys spending time with her husband and three dogs: Lucy, Belle, and Olive. Millie uses her maiden name, Millie Maxwell, professionally and in publications.

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CHAPTER I

Introduction

In the last few decades, the terms anorexia and bulimia have edged into the American lexicon. Chaotic eating and body dissatisfaction have become routine and almost expected behaviors for female adolescents, and studies report that approximately 80 % of American women are unhappy with their appearance (Smolak, 1996). In fact, the ubiquity of body image dissatisfaction has rendered it “normative discontent” (see Striegel-Moore, Silberstein, & Rodin, 1986). However, normalizing eating problems, discontent, and even dieting is imprudent if not dangerous, as eating disorders currently cause demonstrable distress to individuals and often their friends and families. Given the expense of mental health treatment, the multifaceted etiology of eating disorders, the physical and psychosocial consequences of protracted or ineffective therapy, and the allegation that some interventions do more harm than good, the responsibilities to conduct prevention research and present empirical findings becomes critical.

Rationale for Prevention

Prevalence

Researchers attest to the prevalence and marked increase of eating disturbances, often citing them as rampant or epidemic (Costin, 1999; Holston & Cashwell, 2000; Murray, 2003; Nagel & Jones, 1992; Thombs, Rosenberg, Mahoney, & Daniel, 1996), and practitioners confirm that eating problems are becoming more prominent issues raised in counseling sessions (Gatto-Walden, 1999; Peterson & Mitchell, 1999). It is estimated that nearly one in five American women currently struggles with an eating disorder or

disordered eating (The Renfrew Foundation, 2003) and that 10 out of every 100 women will struggle at some point in their lives (American Academy of Child and Adolescent Psychiatry, 2004). Reviews suggest that the prevalence of eating disorders in Western countries ranges from .1% to 5.7% for anorexia nervosa (AN) and .3% to 7.3% for bulimia nervosa (BN; Mariko, Tsuboi, & Dennerstein, 2004). Nosological limitations determine that most individuals suffering from a significant eating problem do not meet all of the specified diagnostic criteria (Striegel-Moore & Bulik, 2007). For instance, subclinical manifestations of eating disorders have been cited as close to 30% (Heatherton, Nichols, Mahamedi, & Keel, 1995) and even as high as 61% in American college women (Mintz & Betz, 1988). In high school girls, this approximated number falls to a still unacceptable 20.8% (Stein, Meged, Bar-Hanin, Blank, Elizur, & Weizman, 1997). Eating disorders-not otherwise specified (ED-NOS) and the secretive nature of eating disorders likely account for even higher rates than those reported (Kotler, Cohen, Davies, Pine, & Walsh, 2001).

Medical Complications

The concern over the prevalence of eating problems is only magnified by the health implications of developing an eating disorder. AN has the highest mortality rate of any psychiatric illness (Sullivan, 1995; National Eating Disorders Association, n. d.) and may carry a suicide risk 56 times greater than in the normal population (Keel et al. 2003). The mortality rate of patients with BN is significantly less than those with AN, primarily because of reduced suicidality; nonetheless, nearly 80% of all patients with eating

disorders display abnormal echocardiographs, signs of arrhythmias and warnings of cardiac complications (see Zipfel, Lowe, & Herzog, 2003).

Other medical complications of AN include osteoporosis, immune system deficiencies, and cognitive impairment due to starvation, while dental decay, electrolyte imbalances, and gastric perforations are some of the threats for BN and purging patients (National Eating Disorders Association, n. d.). Recent research also suggests that endocrine abnormalities and the temporary cessation of menarche may have adverse reproductive implications for AN patients even later in life. Similarly, BN may prevent conception (see Pomeroy & Mitchell, 2002) and has been revealed as a predictor of infertility in women with poor recovery (Carter, McIntosh, Frampton, Joyce, & Bulik, 2002). Clearly the physical impairments from eating disorders have physical as well as psychosocial ramifications.

Psychological Complications and Comorbidity

AN and BN are associated with a broad range of psychiatric conditions, psychological disorders, and poor interpersonal functioning (Bulik, 2002; Hoek, 2002). The comorbidity of anxiety and affective disorders with these eating disorders is particularly high, though it remains uncertain if the eating problems are precursors, sequelae, or expressions of the anxiety and mood disorders (Bulik, 2002). The natural onset of anxiety disorders (e.g., Obsessive Compulsive Disorder) in childhood does generally predate the typical adolescent onset of AN and BN (see Bulik, 2002), but obsessive-compulsive personality traits have been identified as precursors to eating disorders (Fairburn, Welsh, Doll, Davies, & O'Connor, 1997). Another study confirms

that adolescents with eating disorders have a strong elevated risk for anxiety disorders, chronic fatigue and pain, infectious diseases, insomnia, and neurological symptoms (Johnson, Cohen, Kasen, & Brook, 2002). In fact, the study showed that having even subclinical eating problems or weight concerns during adolescence conferred a substantial risk for these difficulties. Eating disorders are often comorbid with other conditions such as personality disorders in adults, self-injurious behaviors, and surviving sexual abuse (e.g., Braun, Sunday, & Halmi, 1994; see Zaider, Johnson, & Cockell, 2002). While preventing eating disorders may not prevent other psychological maladjustment, reducing the complexity of suffering for individuals with a host of difficulties would be undeniably beneficial.

Psychosocial Complications

Compared to medical and psychological complications, the psychosocial consequences of developing an eating disorder have been investigated less frequently. Obviously suffering from an active eating disorder is likely to impact the relationships and social life of an adolescent girl, and research indicates that women with eating disorders demonstrate significant social impairment (Grisset & Norvell, 1992; Herzog, Norman, Rigotti, & PePOSE, 1986; Holt & Espelage, 2002). In addition to high expectations of themselves, young women with eating disorders often have unrealistic expectations of others (Thomsen, McCoy, & Williams, 2001), and they typically do not seek out social support (Troop, Holbrey, Trowler, & Treasure, 1994). Bulimic women, especially, report spending significant time alone (Johnson & Larson, 1982) and feeling more disconnected from family members (Weiss & Ebert, 1983).

Striegel-Moore, Seeley, and Lewisohn (2003) specifically examined the impact of having an eating disorder on an individual's young adulthood psychosocial development. Women with a previous history of an eating disorder experienced significant overall impairment expressed in poorer health, greater depression, lower self-esteem, and less family support—even if completely recovered. This research confirms earlier studies noting the diminished social, sexual, educational, and vocational functioning of patients in follow-up studies, perhaps due to the impact of suffering during the critical period of adolescence (see Striegel-Moore et al., 2003).

Treatment Difficulties

Not only are eating disorders prevalent and quite dangerous, but they appear persistent and somewhat intractable (Fairburn & Harrison, 2003; Wilson, 1996). In fact, they constitute the third most chronic illness in young women (see Abrams & Stormer, 2002). One longitudinal study found that more than 20% of college students with eating disorders met diagnostic criteria even 10 years later (Heatherton, Mahamedi, Striepe, Field, & Keel, 1997). Similarly, having an eating disorder during childhood or adolescence is associated with a strong risk for having an eating disorder in young adulthood (Kotler et al., 2001). Another 10 year study also found that 16% of sufferers reported an eating disorder duration of 11-15 years; 31% indicated a duration of 6-10 years; and only 50% reported being cured (Anorexia Nervosa and Associated Disorders, n.d.).

As healthcare becomes increasingly expensive and economically inaccessible, the prevention of eating problems becomes more pressing. Inpatient treatment for eating

disorders can cost up to \$30,000 a month, and outpatient services for the course of BN can exceed \$100,000 (Anorexia Nervosa and Associated Disorders, n.d.). While estimates indicate that only 1 in 10 people suffering from a disorder actually engages treatment (The Renfrew Foundation, 2003), even if every one of the estimated women with eating disorders in America did seek treatment, the lack of healthcare professionals with experience in treating eating problems would render it physically impossible for those wanting assistance to receive it (see Levine & Smolak, 2006). Put simply, prevention is needed because of a lack of adequate healthcare and a surfeit of people suffering in silence.

For the fraction of sufferers who do obtain treatment, the potential therapeutic interventions are as multifaceted as the disorders themselves. Like the fields of psychology and counseling in general, the field of eating disorder research has experienced increased interest in establishing core “best practices.” Currently cognitive-behavioral therapy stands as the most empirically supported treatment for BN and is growing empirical support for AN (Williamson & Netemeyer, 2000). Interpersonal therapy reveals some documented success and efficacy for the treatment of BN (Fairburn, Jones, Peveler, Hope, & O’Connor 1993), and family therapy is often indicated as an effective treatment for AN (Dare & Eisler, 2002). Nonetheless, the breadth of interventions and lack of training with manualized treatments for eating disorders (Mussell, Binford, & Fulkerson, 2000) leaves many practitioners unsure of what works best for individuals. This uncertainty coupled with the increased pervasiveness and

chronic nature of eating disorders has perhaps recently compelled more researchers to consider and examine prevention efforts.

Purpose of the Study

The primary purpose of this study is to evaluate an experimental intervention for 9th grade girls that promotes healthy female adolescent development and prevents risk factors associated with eating disorder pathology. Increase in the use of media has spawned an interest in developing media literacy, which, in its basic form, is the ability to critically evaluate and analyze media messages, particularly recognizing persuasive influences of a variety of media constructions (Irving, DuPen, & Berel, 1998). Through adaptation and creation of lessons focused on media literacy education that relate to body image, advertising, and critical analysis skills in general, the researcher endeavors to gain a better understanding about the concerns of 9th grade female adolescents, to determine the effects that the media and other social pressures may have on students, and to ascertain any effectiveness of media literacy education in the reduction of eating disorder risk factors.

To reduce the threat of intervention bias, a control group is exposed to an alcohol and drug prevention program while the experimental group experiences the media literacy intervention. Thus, a lateral purpose of this study is to determine if the parallel intervention has a desired effect on risk-taking and resistance behaviors associated with substance use. Furthermore, since the average student-to-counselor ratio in the United States is 478:1 (U.S. Department of Education, 2004), this study implicitly seeks to

determine if classroom teachers, with relatively brief training, can be effective in the delivery of psychoeducational programming.

Importance of the Study

Adolescent Population

The proposed study intentionally targets female adolescents, ages 14-15. Recognizing that most eating disorders develop in individuals between the ages of 15 and 19 (Stice & Shaw, 2004), it is surprising that so few empirically supported interventions exist for high school students. In a metaanalysis, Stice and Shaw (2004) reported results from 38 studies, only 6 of which were conducted with high school students exclusively (including one vocational school program in Italy), and 2 with a combination of high school and college students. While the inclusion criteria of the meta-analysis only allowed for controlled trials, the presence of less than 25% of the programs in this age group is conspicuous. Even quasi-experimental prevention programs targeting high school students are somewhat sparse. The most notable extend from evaluations of National Eating Disorder Association's GO GIRLS!™, a 12 week media literacy and advocacy program (Eating Disorders Awareness and Prevention, 1998; see also Piran, Levine, Irving, & the EDAP/NEDA Staff, 2000, as cited in Levine & Smolak, 2006). Weiss and Wertheim (2005) also recently created the Making Choices Program, used with 9th grade students in Australia, and Irving and colleagues (1998) measured a brief program aimed exclusively at high school sophomores, but the dearth of research on prevention efforts with adolescents is compounded by the assertion that interventions with younger children and younger adolescents may be less effective as they lack abstract

reasoning as well as life-experiences that make eating and body image discussions more relevant (Stice & Shaw, 2004).

Another imperative reason for evaluating this age group is that adolescence often marks the beginnings of dieting behaviors. Like eating disorders, the prevalence of dieting has been increasing and is of considerable concern to healthcare professionals. Young women represent the largest population dieting at any given time, and prevalence estimates have been even as high as 77% (French, Story, Downes, Resnick, & Blum, 1995). Notably, adolescents report dieting slightly more than adult women and more than younger girls (see Hill, 2002). Dieting behaviors in this population are not exclusive to those who are overweight. In one study, 32% of *normal* weight adolescents reported dieting to lose—not just maintain—weight, and 51% of the underweight adolescents professed a fear of being overweight (Moses, Banilivy, & Liftshitz, 1989). While dieting, serious dieting, and subthreshold eating problems may seem inconsequential, it is critical to note that subclinical, partial eating disorders may lead to clinical ones. Dr. Craig Johnson, a medical expert in the field, refers to dieting as the “royal road” to eating disorders (The Associated Press, 2007), and dieting has been identified as a risk factor for both obesity and eating disorders (see Levine & Smolak, 1996).

At-risk Population

Though Caplan’s taxonomy (1964) would deem the proposed study’s intervention a *primary* prevention program because it targets a group of nonsymptomatic individuals, it could also be categorized as *selective prevention*. Levine and Smolak (2006) outline the parallels between Caplan’s and Mrazek and Haggerty’s Institute of Medicine (1994)

classifications, revealing that the selective notation corresponds with primary prevention but adds specificity as it is reserved for a group of individuals who are nonsymptomatic, but deemed at a high risk (Levine & Smolak, 1996). The population chosen in this study comprises a fairly high-risk sample in a number of ways.

First, the sample is composed predominantly of White female adolescents of middle to upper socioeconomic status (SES). While no population is immune to eating difficulties, the individual from this group epitomizes the “prototypical eating disorder case” (Striegel-Moore & Bulik, 2007, p. 182). Determining if race and ethnicity contribute to eating disorder risk remains difficult given that White women are overrepresented in seeking and receiving treatment for eating disorders (see Striegel-Moore & Bulik, 2007); however, White adolescents likely make up the greatest dieting population, estimated at 60-80% (see Nichter, Vuckovic, & Parker, 1999), and dieting poses a significant risk for eating disorder development. Similarly, SES may be a contributing factor, and AN tends to be more prevalent in girls of higher SES (Lindberg & Hjern, 2003; McClelland & Crisp, 2001). Research is, however, less definitive in linking BN or other eating problems to socioeconomic factors (Striegel-Moore & Bulik, 2007).

Attending private school functions as another risk for this study’s population. One investigation determined that private school students are at a greater risk than public school students for developing eating pathology (Lesar, Arnow, Stice, & Agras, 2000). The researchers acknowledge that private school students may be qualitatively different from public school students in areas such as SES and parental pressures; nonetheless,

they assert that the private school atmosphere and subculture may also produce greater pressure to conform and to excel both in academics and in achieving cultural ideals.

Similarly, the research population in the proposed study is comprised entirely of girls from a single-sex high school. In a secondary data analysis, Mensinger (2001a) discovered a clear link between attending a single-sex institution and disordered eating, with girls from coeducational schools displaying less body dissatisfaction, fewer bulimic behaviors, and a lower drive for thinness. A subsequent very small focus group study of a volunteer sample was inconclusive, but led the researcher to proclaim:

Overall, I do believe it is safe to accept that while coeducational environments may tend to produce young women who are less academically focused and exposed to more potentially dangerous sex role stereotyping, the intense pressure of single sex environments in conjunction with particularly confusing gender role messages may be just as threatening to a vulnerable adolescent. (Mensinger, 2001b, p. 26)

Thus, if for no other reason, this proposed study bears importance in assessing the needs of a group of young women who may be at a significant risk for developing potentially life-threatening eating disturbances.

Controlled Study and Possible Contributions

The opportunities for randomized, controlled studies in school settings are decidedly limited. Too often academic classes and schedules dictate student assignment to experimental or control conditions, changing the group dynamic and increasing the possibility of confounding variables. Similarly, exigent pressures often compete for

school counselor time, restricting their energies to research, create, and implement appropriate preventions. This study represents controlled field research and its successes and failures may augment the current body of literature in eating disorder prevention. Additionally literature supports that eating disorders are often reactions to normal developmental concerns such as dating and menstruation (e.g., Levine, Smolak, Moody, Shuman, & Hessen, 1994). Since one of the goals of counselors is to promote healthy development, this research may empower school counselors to advocate for the necessary provisions in designing preventions that meet the needs of many promising young girls.

Research Questions

Primary research questions:

1. Does the media literacy intervention reduce a composite of general risk factors associated with eating disorder development?
2. Does the media literacy intervention promote a critical analysis of media-related images and social messages?

Secondary research question:

3. Does the media literacy intervention reduce body image-related anxiety and enhance general self-esteem?

Tertiary research question:

4. Does the substance education intervention reduce substance use behaviors and increase substance resistance behaviors?

Assumptions

According to the continuum hypothesis, AN, BN, and ED-NOS share many features and patients often move between them (Fairburn & Harrison, 2003). This research assumes that although AN, BN, and ED-NOS are clinically separate disorders, they may share salient risk factors such as a drive for thinness and body dissatisfaction.

A major assumption of this study is that the treatment and control groups are similar. Random assignment makes this assumption statistically probable; however, a pre-test is also employed in an attempt to bolster the likelihood that any observed differences are due to intervention effects. Also, though group facilitators differ in age and levels of counseling experience, it is believed that few random irrelevancies exist between and within conditions.

Another supposition is that participants give honest responses on instruments and in answering assignment prompts. Participants are required to participate in the program, but give voluntary assent for their data to be used. Their resistance or compliance could be magnified by this obligation. Because of the sensitive nature of some of the questions, evaluation apprehension could be a factor; however, the researcher assumes that participants are being as honest as possible.

Limitations

The risk factors chosen for evaluation are not exhaustive. Certain biological, familial, and psychological factors contribute to the etiology of eating disturbance. The targeted variables in this study are sociocultural and cognitive ones that may be most amenable to a school-based intervention.

The choice of a single intervention site also undermines the internal validity of this study. Because participants in both the treatment and control groups may share classes, extra-curricular activities, and (due to the boarding environment) a dormitory, an increased possibility of spillover effect exists. It is more likely that intervention effects may be obscured or that a Type II error may be committed. Fortunately, the use of some well-validated, standardized instruments may make it possible to compare later the experimental group to other populations, which could help account for these contamination effects.

Similarly, since students are aware that half of their class is learning about media and the other half is focusing on substance education, the danger of compensatory rivalry between the treatment and control groups exists. The relatively small sample size further limits the statistical power of the study. Consequently, a couple of the dependent variables are measured with two instruments to increase the validity of the study as much as possible.

Delimitations

This study only addresses female adolescents and their development. Older women certainly suffer from eating disturbances, and boys/men comprise about 10% of eating disorder cases (Anorexia Nervosa and Related Disorders, n.d.). Even so, adolescent girls are consistently reported as being at the greatest risk for developing eating problems. This study's generalizability is further limited to 9th grade students enrolled in spring of 2007 and 10th grade students enrolled in fall of 2007 at an all girls boarding and day school.

Definitions

- Body image – a dynamic construct that includes an individual’s self-perceptions and attitudes about one’s body and physical appearance (Cash & Pruzinsky, 1990; see also Cash, Melnyk, & Hrabosky, 2004).
- Body image related anxiety – the level of nervousness or distress related to different parts of one’s body (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999).
- Body dissatisfaction – the degree of discontent with the overall shape and size of one’s body (Garner, 2004).
- Eating Disorders--*The Diagnostic and Statistical Manual of Mental Disorders IV* (American Psychiatric Association, 1994) classifies three eating disorders:
 - Anorexia Nervosa (AN) is characterized by extreme self-starvation, a fear of gaining weight, a disturbance in perception of body size or shape, a refusal to maintain 85% of medically determined ideal body weight, and the absence of three consecutive menstrual cycles in postmenarchal females. Binge-eating/purging and restricting subtypes further define the disorder.
 - Bulimia Nervosa (BN) involves recurrent episodes of binge eating followed by inappropriate compensatory behaviors such as purging, laxative abuse, or excessive exercising. Unduly importance is placed on body size and shape.

- Eating disorder, not otherwise specified (ED-NOS) delineates significant distress surrounding eating but individuals do not present one of the major criteria for either AN or BN. Additionally, ED-NOS includes binge-eating disorder.
- Disordered eating – Disordered eating or an eating disturbance is characterized by abnormal behaviors such as repeated bingeing and purging or continuous restrictive dieting (The Renfrew Foundation, 2003).
- Drive for thinness – an intense desire to be thinner, marked by extreme concern with dieting, a fear of gaining weight, and a preoccupation with weight, shape, and size (Bruch, 1982; Garner, 2004).
- Media literacy – the ability to critically evaluate and analyze media messages, particularly recognizing persuasive influences of a variety of media constructions (Irving, et al., 1998).
- Schema – a conceptual framework for thinking about and perceiving events and people, a set of expectations that interprets and organizes information (Beck, Rush, Shaw, & Emery, 1979).
- Self-esteem – an individual’s concept of self-worth, belief in one’s self, and self respect (Eating Disorders Awareness and Prevention, 1998).
- Thin-ideal internalization – the process of engulfing culturally or socially promoted standards that equate beauty with being slender (Ahern & Hetherington, 2006).

Organization of the Study

This dissertation includes five chapters. Chapter I, as presented above, illustrates the rationale, importance, and purpose of the study. It addresses assumptions, limitations, and relevant definitions and delineates the study's specific research questions. Chapter II includes a literature review of the history and etiological models of eating disorder development. It reviews eating disorder prevention programs and also examines relevant social-cognitive, developmental, and feminist theories and their applications to eating disorder prevention research. Chapter III outlines the research methods, describing the participants, intervention design and development, data collection, and statistical data analysis procedures. In Chapter IV, intervention results and findings are presented. Chapter V integrates an evaluation of the research and its application to the current body of literature on eating disorder prevention. Further limitations, implications, and recommendations for practice and future research are identified.

CHAPTER II

Review of History, Theories, and Literature

Eating Disorder History

Despite an increase in the documentation of eating disorders in the last several decades, eating disturbances were in existence well before current forms of media and during times when cultural ideals promoted hour-glass figures and even corpulence. In the 17th century, an English physician, Richard Morton, first noted emaciation resulting from emotional instability. Much later, in 1873, two European doctors, Ernest-Charles Lasegue and Sir William Whitney Gull, simultaneously documented separate descriptions of “anorexia hystserica” affecting young women (see Vandereycken, 2002). Throughout and before these periods, though, some people also relished an ascetic superiority in the act of fasting. In fact, in *Holy Anorexia*, Rudolph Bell (1987) recounts medieval Italian saints who were perfectionistic and starved themselves in the quest for piety and perfect holiness. Plausibly, individuals also felt other types of social pressures or oppression, and eating disorders possibly became expressions of self-loathing and pain, not entirely unlike the contemporary disorders. However, it was not until the 20th century that the American medical press expressed significant interest in AN. In the 1960s, Hilde Bruch, a German-born American psychiatrist, initiated a conceptualization of AN in the context of distorted body image, poor self-esteem, and a tenacious drive for thinness (see Vandereycken, 2002).

Behaviors associated with BN such as morbid hunger stretch back to ancient times, and the term itself is believed to be derived from the Greek roots *bous* (ox) and

limos (hunger). As early as the 18th century, clinicians documented what would now be considered bulimic behaviors, and throughout the 19th century, they frequently noted cases of overeating and vomiting. Most physicians viewed bulimic symptoms as gastric dysfunctions (Vandereycken, 2002) until 1979 when Gerald Russell first coined the term “bulimia nervosa” to explain a syndrome marked by relentless urges to overeat, irrational fear of gaining weight, and the use of vomiting and/or laxatives (Nasser & Katzman, 1999).

During the 1980s, theoretical and epidemiological research focused on the cultural and environmental factors contributing to eating disorders, and eating problems began being regarded as culture-bound syndromes (Nasser & Katzmen, 1999). The desirability of thinness in Western cultures emerged as a possible factor contributing to eating pathology, and researchers recognized the prevalence rates for AN in one New York country were estimated to have increased as much as 150% in two decades (Jones, Fox, Babigian, & Hutton, 1980; see Nasser, & Katzmen, 1999). In the following decade, feminist analysis increased in popularity in an attempt to explain the symbolic and/or metaphorical significance of the quest for thinness. The ideology of female oppression, gender role confusion, and limited opportunities for expression of power were proposed as contributors to the “gendered nature” of the disorders (Nasser & Katzmen, 1999, p. 29).

Currently, prevention work is becoming increasingly important and necessarily depends on an etiological model that identifies and targets risk factors (Piran, 2002), but the natural development of eating problems remains complex and still poorly understood.

Developing a strong theoretical base is especially germane to the complexity of eating disorders commonly seen as multifactorial (Schmidt, 2002). Numerous theories contribute to a burgeoning understanding of the etiology of the disorders as well as guide prevention efforts.

Review of Relevant Theories

Social Cognitive Theory and Related Theories

Social cognitive theory (SCT; Bandura, 1986, 2001) evolved from social learning theory which posits that individuals learn from observing and imitating others (Bandura & Walters, 1963). Social learning theory departed from radical behaviorism of the time by contending that operant learning and tangible reinforcements were less efficient modes of learning than vicarious learning or modeling. Contemporary SCT, however, borrows from both social learning theory and behaviorism. It acknowledges the influence of observational learning while recognizing the power of direct and indirect reinforcements to strengthen behaviors.

A core concept of SCT is *reciprocal determinism* which views all behaviors—both normal and abnormal—as interactions between (a) individual processes, (b) behaviors and competencies, and (c) environmental contexts (see Levine & Smolak, 2006). Indeed, the dynamic interplay between an individual's environment, characteristics, and behavior form the crux of the theory in understanding the systemic implications of change or forces in any domain.

One of the underlying tenets of SCT is that humans have *symbolizing capabilities*. This sophisticated cognitive ability allows individuals to test problems and imagine

solutions symbolically, rather than via direct enactment or trial and error. Similarly, symbols help individuals construct meaning in their personal experiences (Bandura, 1986). Rooted in symbolizing ability are the abilities of *forethought* and *vicarious learning*. *Vicarious learning* is the acquisition of behaviors stemming from watching the outcomes of another's behaviors. It can take place when an individual extracts and internalizes cultural messages from parents, peers, and the media. SCT maintains that cognitive representations of future desirable and undesirable events generate motivating, purposive forces and that humans necessarily are able to learn and acquire rules for behaviors through observation of others.

SCT reveals several other important concepts crucial to understanding eating disorder development. Inexorably related to learning are *outcome expectations*, which are the anticipated results of a behavior, and *outcome expectancies*, the values given to these expectations. For instance, a young girl may notice praise or attention conferred to those who are thin (positive reinforcement) and disparaging comments uttered about those who are overweight (punishment). She may also notice the intensity and frequency of dieting messages communicated by her peers and the media, and she may unknowingly and fallaciously learn that diet and exercise can make anyone as thin as models. Her *outcome expectation* could be that she can diet and lose weight, and her *expectancy* might be the value she attributes to being thin: that she will find greater social approval, exude more romantic appeal, or generally be happier.

Other important cognitive components of SCT are *self-regulatory capability* and *self-reflective capability* which suggest that humans are driven by their own internal

standards and evaluations of self (Bandura, 1986). For an individual suffering from disordered eating, *self-regulation* often morphs into unhealthy self-surveillance (see Piran and Cormier, 2005). Bandura also added *self-efficacy* as a pivotal, agentic cognitive concept of this theory; the confidence an individual feels about performing a certain behavior and overcoming any perceived obstacles is championed as a primary requisite for behavior change (Bandura, 1986). *Self-efficacy* ironically reflects multiple angles of eating disorders. An individual developing eating problems likely feels overwhelmed or inefficacious in most parts of her life and subsequently develops self-efficacy as a dieter. Conversely, in recovery, a certain degree of self-efficacy is needed for the individual to believe she can make positive changes; indeed, this construct has been noted as a predictor of behavior change in multiple health venues, including eating disorder recovery (see Pinto, Guarda, Heinberg & DiClemente, 2006). In terms of eating disorder prevention, it may be that individuals need to develop self-efficacy and believe they can enact social change as well as resist pressures to succumb to cultural ideals.

The SCT concept of *triadic reciprocal determination* arises in that behavior is motivated by environment, behavioral, and cognitive evaluations that continually, though not necessarily simultaneously, reinforce each other. For instance, if a girl does lose weight, her environment likely reinforces her behavior (via compliments from friends and family) and strengthens both her behavior and cognitive belief in the necessity of being thin and pursuing social acceptance. Irrefutably, numerous pathways lead to eating disorder development, but the plasticity of SCT bolsters an understanding of important social, behavioral, and cognitive aspects.

Becker (2004) exemplifies features of SCT in a qualitative, cross-sectional study investigating the effects of the introduction of Westernized television on identity and body image in Fijian adolescent girls. Fiji was chosen as a site because of the culture's "media naivety" and its historical acceptance of, if not preference for, robust female figures. A sample of 30 participants with a mean age of 16.9 was drawn from a 65 person population study in two comparable schools in Nadroga, Fiji. This population was already participating in the second-wave of a three year cohort-sequential study, assessing the relationship between television and eating disorder development. Semi-structured interviews were conducted in English—the formal language in schools—by an American researcher with the help of a Fijian facilitator. The identified research questions also considered the impacts of Western television in the context of social and economic transition.

Though not explicitly stated, the research appears to be guided by critical theory. Unlike grounded theory or constructivist theory, critical theory in qualitative research seeks to confront societal injustices and attempts to account for the inevitable intersection of more than one type of oppression. This worldview maintains that "social constructions are shaped by the social, political, cultural, and economic forces in the environment, particularly forces created by powerful individuals" (Heppner, Kivlighan, & Wampold, 1999, p. 240). In this study, the researcher examines both economic and gender issues, and she employs the "theory-before-research" model (Nachmias & Nachmias, 1992) which progresses in the following order: idea, theory, design, data collection, analysis, and findings. Though the researcher clearly formulates a theory before embarking on the

data collection, she still adopts a constructivist stance to some degree in acknowledging the co-construction of knowledge between investigator(s) and participants.

The data analysis process in Becker's study identified themes associated with body image, identity, and social change. Themes emerged indicating that many Fijian girls explicitly aimed to model the characters presented in the television shows in an attempt to advance themselves socially, professionally, and economically. Among other SCT concepts, the participants may have vicariously learned that being thin engenders power, and the beginning shifts in dieting, exercising, and eating disordered behaviors were highlighted by the researcher (Becker, 2004).

Becker's work adopts a socially constructed definition of identity. This stance seems particularly appropriate as adolescents may rely on media images and other cultural factors in the construction and representation of themselves. This qualitative work captures the voices of these young women as they face numerous pressures during a period of rapid social and economic change for their culture, but their voices eerily echo the struggles of many girls throughout the world. Despite cultural differences, the external validity of this study should not be underestimated. Westernized media representations appear to be powerful influences as they contributed to body image dissatisfaction in some of these young women in a very short time period. Determining if this phenomenon is more or less salient in cultures with increased and earlier exposure could be further advantageous to advancing an understanding of prevention efforts.

Sociocultural theory. Intertwined with SCT are the tenets of sociocultural theory. Vygotsky's theory (1978, 1986) primarily intended to explain cognitive development and

language acquisition in children, but has found wide applicability and favor in other disciplines. The theory espouses several basic principles: a) children construct knowledge; b) development is inextricable from its social context; c) learning can lead development; and d) language is instrumental in mental development. Each of these premises applies to an understanding of eating disorder development or prevention. The most pertinent of these tenets is that the social context inexorably contributes to development. While environments are not the sole factors in human development, they nonetheless cannot be denied as contributors. Second, the idea that knowledge is constructed aids an understanding of the ingrained beliefs about the importance of appearance as well as the cognitive processes that reinforce fallacious beliefs; the notion that individuals construct knowledge is central to interactive learning and cognitive restructuring. Third, what an individual learns can lead (or perhaps impede) and direct her development. A host of psychosocial implications await a young girl who learns to absorb cultural ideals and develops significant eating problem. Finally, language—especially if viewed as an oppressive social discourse—can affect the mental and cognitive development of a young woman. Cognitive impairment, unrelated to mood, has been noted in individuals with AN (McDowell, Moser, Ferneyhough, Bowers, Andersen, & Paulsen, 2003).

The sociocultural model of eating disorder development focuses on social pressures that promote and reinforce disordered eating behavior. It maintains that media images, especially, convey powerful and often pernicious messages defining beauty; consequently, many young women internalize these culturally sanctioned ideals.

Adhering to this theory, Stice, Nemeroff, and Shaw (1996) have conceptualized the dual pathway model—the most “scrutinized and tested in the empirical literature” (Franko et al., 2005, p. 568)—predicated on the idea that the sociocultural pressure to achieve the thin ideal results in body dissatisfaction, dieting, and negative affect, all increasing the risk of developing an eating disorder.

Extensive research suggests that sociocultural pressures valuing a thin ideal do contribute to the promotion of body image dissatisfaction, dieting, and eating disturbances in young women (e. g., Levine & Smolak, 1996; see Stice, Maxfield, & Wells, 2003; Tsiantis & King, 2001). Sociocultural pressure manifests itself in the forms of messages from parents, siblings, peers, or the media. For instance, based on qualitative literature suggesting that social pressure from peers contributes to thin-ideal internalization and subsequent body dissatisfaction, Stice, Maxfield, et al. (2003) aimed to manipulate participants’ pressure to thin-ideals to determine if such exposure cultivates body dissatisfaction and negative affect, attributes linked to developing eating disorders. The researchers employed a between groups, pretest-posttest control group design and used two attractive, thin female undergraduate students as confederates to subjects in dyadic sessions. The confederate either complained about her weight (experimental condition) or discussed neutral topics (control condition). Findings revealed a statistically significant (medium effect size) increase in body dissatisfaction for the experimental group, but no changes in negative affect for either group.

The study extends research concerning the power of sociocultural messages promoting thinness and is rooted in SCT. The status of media exposure’s relationship to

body dissatisfaction is well-established (see Becker, 2004; Piran, 2002), but less is known about the more subtle nature of peer pressure and social comparison variables in the development of body dissatisfaction and even eating disorder pathology. An awareness of the multiple ways negative body image develops can enhance both prevention and treatment efforts.

The media, however, plays a pivotal role in maintaining the influence of the thin ideal, promoting virtually inescapable, incessant messages aimed predominantly at female consumers. Correlational studies have documented a relationship between reading fashion magazines and body dissatisfaction and even an association between health magazines and a drive for thinness (e.g., Harrison & Cantor, 1997). Thomsen, Weber, and Brown (2002) conducted a large correlational study and documented that taking diet pills and restricting calories (below 1,200 a day) were associated with reading fashion magazines. Notably, more pathological behaviors such as vomiting, laxative use, and skipping multiple meals revealed either no or spurious relationships at best. A number of experimental studies do confirm some related associations. In a randomized lab experiment with 49 undergraduate females, (Turner, Hamilton, Jacobs, Angood, & Dwyer, 1997) researchers found that exposure to fashion magazines compared to news magazines influenced levels of body image satisfaction. Similarly, Munro and Huon (2005) noted that appearance-related anxiety and body shame increased after exposure to idealized images in magazines. Indeed, in a meta-analysis, Groesz, Levine and Murnen (2002) confirmed that women who were exposed to media images showed an increase in body dissatisfaction in several studies. Other researchers (Levine, Piran, & Stoddard,

1999) caution that experiments measuring immediate body dissatisfaction associations with media exposure need significant improvement to account for the complexity of factors likely obscuring an understanding of direct relationships. For instance, studies typically reveal that low self-esteem or body dissatisfaction prior to the exposure predicts the immediate negative effects of exposure, rather than body dissatisfaction being a direct effect of the media presence. Notably, the person-environment interaction seems most prominent when adolescent girls are comparing themselves to adult fashion models (see Levine et al., 1999).

The direct relation of simply watching television to body dissatisfaction remains a little ambiguous. In a study of 1,452 Australian teens, Tiggemann (2005) discovered that total time spent watching television was *not* related to body image variables for either boys or girls. However, for girls, watching soap operas expressly was related to drive for thinness, internalization of societal ideals, and appearance schemas. In boys, watching soap operas was associated with a drive for muscularity. Intuitively, it appears that the type of television matters. Those shows providing daily reinforcement of feigned reality and the preponderance of ideal body images to the virtual exclusion of negative ones may be especially insidious. An earlier study, (Tiggemann & Pickering, 1996) similarly detected a relationship between soap opera watching and body dissatisfaction, but also noted that watching music videos was associated with a drive for thinness. This finding was not replicated in the more recent study (Tiggemann, 2005), but may be due to the representation of a younger population, perhaps less invested in music videos. Teens reported an average of 3.2 hours of television watching per day, and teenagers are

arguably the largest consumers of mass media. Thus, efforts to promote media literacy in this population may be acutely important.

The media and its permutations stand as just one of many influential forces; yet, acute media exposure to thin-ideals has produced body dissatisfaction (see Piran, 2002), and the power and intensity of media messages have been documented by researchers exploring Western influences on developing countries. In addition to Becker's studies (1995, 2004), other researchers have suggested a positive association between disordered eating and Westernization. In a study of Hispanic adolescents, Pumariega (1986) noted a correlation between eating pathology and acculturation. Similarly, increased public information about weight control behaviors in Hong Kong may be partially responsible for the 3-10% reported prevalence of disordered eating behaviors there (see Lee & Katzman, 2002). Other studies suggest that immigrants to Western cultures are more likely than their homeland peers to develop an eating disorder (see Hoek, 2002). In *Exactng Beauty: Theory, Assessment and Treatment of Body Image Disturbance* (1999), Thompson and colleagues present an edifying quotation: "Anorexia nervosa seems to follow the subscriptions to *Vogue*. If *Vogue* makes it to your country, anorexia nervosa will eventually follow" (McHigh, 1997, p. K4).

Social comparison theory. Social comparison theory (Festinger, 1954) tenders a partial understanding of the muscle of sociocultural influences such as the media and peers. Social comparison theory postulates that individuals evaluate themselves through comparison with others. A downward social comparison occurs when an individual measures herself against someone with less of a desirable quality. Alternatively, an

upward comparison transpires when an individual judges herself against someone perceived to possess more of a desirable trait. This theory has frequently been applied to relationship and attraction studies (e.g., Gilbert, Price, & Allan, 1995). In terms of eating disorder development, it is surmised that individuals engage in upward comparisons with others (i.e., unrealistic media images, models, family members, and peers) and body image dissatisfaction occurs. Body dissatisfaction has been shown to predict future eating disorder symptoms (Wertheim, Koerner, & Paxton, 2001), but it is important to note, however, that direct relationships of thin-ideal internalization and body dissatisfaction to *full-blown* eating disorders is somewhat specious (Striegel-Moore & Bulik, 2007).

Social comparisons likely occur frequently between women. One study noted that women engage in more social comparisons than men and that women with eating disorders are more likely to make social comparisons than asymptomatic women (Murray, Touyz, & Beumont, 1995). A theoretical comparison study lends more support for the importance of social comparison. Stormer and Thompson (1996) compared maturational status, negative verbal comments (teasing), behavioral social comparison, and awareness of the thin ideal and found that frequency of appearance comparisons accounted for some of the variance in body image measures. Similarly, it accounted for some of the unique variance in predicting drive for thinness and bulimic behaviors. Correspondingly, in an expansion of Stice, Maxfield, et al.'s (2003) earlier work, Krones, Stice, Batres, & Orjada (2005) found exposure to the thin-ideal endorsed by a confederate increased body dissatisfaction. An earlier experiment found this result even with pictures of attractive peers (Cash, Cash, & Butters, 1983). Irving (1990) conducted a randomized

experiment with women displaying varying bulimic symptomology and found that exposure to thinner models resulted in reports of lower self-esteem and weight satisfaction, regardless of bulimic severity, and another study (Wardle & Watters, 2004) noted that simply attending a school with older peers was associated with thin-ideal internalization, a perception of being overweight, and lower self-esteem.

Sometimes sibling rivalry serves as social comparison and contributes to body dissatisfaction. A study exploring comparisons made between family members found that negative comparisons with older sisters predicted body dissatisfaction and body size distortion in younger sisters (Tsaintis & King, 2001). A similar study also cited that perceived sibling attractiveness was related to importance given to appearance and body image dysphoria, but not to a fear of being fat (Rieves & Cash, 1996).

Sociocultural pressure coupled with social comparison tendencies may be particularly injurious, especially given the ubiquity of unrealistic media images. Over the last several decades, the idealized feminine body has changed demonstrably. The body size and weight of the ideal woman promoted by the media has decreased while exposure to this image and endorsements of dieting have increased (Rand & Wright, 2000; Stice, 2002). An influential study by Garner, Garfinkel, Schwartz, and Thompson (1980) revealed that during a 20 year period, the body weight and curvaceous figures of *Playboy* models and Miss America contestants declined while the average woman's body size increased. In a contemporary content analysis of *Teen Magazine*, Levine and Smolak (1996, as cited in Thompson, et al., 1999) noted that all of the 95 images of girls/women showed only thin bodies, with only a couple of women representing even moderate

waistlines or hips. Moreover, the magazine seriously lacked minority representation. Thus, young women (and men) are gradually presented with more unrealistic and biologically unattainable feminine images. This disparity has psychological consequences as the greater the distance from the perceived ideal self, the greater the accompanying psychological distress (Higgins, 1987).

Cognitive-behavioral model. Sociocultural theory and social comparison theory help explain the social components and cognitive undertones of SCT. The cognitive-behavioral model, however, emphasizes the cognitive aspects further. The cognitive-behavioral model stems from the cognitive and behavioral branches of psychology and arises from Ellis' (1979) and Beck's (1976) treatment approaches for eradicating cognitive distortions and the ensuing maladaptive behaviors. Cognitive-behavioral therapy (CBT), in general, is indicated for a host of behavioral and cognitive disturbances, including phobias, anxieties, and mood disorders (Nathan & Gorman, 2002).

The cognitive theory of eating disorder development posits that an individual with an eating disorder disproportionately links self-worth to physical appearance. A young woman may become responsive to external reinforcements, process information with cognitive biases, and engage in maladaptive dieting behavior. Schemas consolidate both thinking and feeling and serve as important concepts in CBT. Thompson and colleagues (1999) provide a useful example of a negative schema. A young woman who feels negatively about her body assumes and expects that others not only notice her body but judge her just as harshly. Body image schema, then, is an individual's expectations,

thoughts and feelings about his or her appearance. Indeed, Women with AN and BN are “distinguishable from normal women in the content, intensity, and absolutism of their beliefs about eating and weight” (Vitousek, 2002, p. 309). Women with AN often cling to notions of moral certitude, uniqueness, and competitiveness in their food abstinence (Vitousek, 2002).

Cognitive disturbances such as automatic thoughts and dysfunctional beliefs also comprise the “core psychopathology” of BN, in which an inordinate amount of value is placed on eating and appearance (Fairburn, 2002). Other cognitive dysfunctions such as low-self esteem and extreme perfectionism likely accompany or even predate the disorder. Binge-eating, a behavioral feature of BN, is ostensibly antithetical to the overvaluation of size and shape; yet, researchers suggest binge-eating often functions as a consequence of extreme and unrealistic dietary restraint (Fairburn, 2002). Usually, a vicious cycle ensues, exacerbating the cognitive disturbance of the individuals and their concern about being able to control their eating and appearance. In fact, the CBT model of the maintenance of BN (Fairburn, Marcus, & Wilson, 1993) reveals a multilayered cycle beginning with low-self-esteem, extreme concern about weight, strict dieting, binge-eating, and vomiting/laxative abuse. The cycle is perpetuated as each behavior and state reinforces another component of the disorder. The mind of the individual also reinforces the disorder, but, echoing SCT, external forces such as parents, peers, and the media often serve to solidify the cognitive distortions even further.

Cognitive dissonance theory. Cognitive dissonance theory (Festinger, 1957) contends that psychological discomfort arises when an individual’s personal values and

attitudes are incongruent with her behaviors. The discomfort worsens when the attitude-discrepant belief is made public. To allay the discomfort, the individual either alters the discrepant attitude or alters the behavior and must believe she does so *voluntarily*. This theory has recently been applied to various issues such as preventing college student smoking (Simmons, Webb, & Brandon, 2004), promoting race relations (Leippe & Eisenstadt, 1994), and reducing dating aggression (Schumacher & Slep, 2004). Cognitive dissonance theory relates to eating disorder prevention in experiential activities allowing an opportunity for individuals to argue or act against a previously held idea, such as the notion of the thin ideal.

Numerous studies have recently employed and evaluated cognitive dissonance theory's relation to eating disorder prevention. Stice, Mazotti, Weibel, and Agras (2000) created a dissonance-based targeted prevention program aimed at bulimic pathology and its moderating variables. Using a quasi-experimental, delayed control group, pretest-posttest design, this prevention program recruited students by advertisements asking for assistance in evaluating an intervention to help college women improve their body image. This prevention was a selective one as it assumed that women who were interested in body image were symptomatic or at the very least at a high risk for developing eating problems. Dissonance was created by having participants discuss and create a program that would help promote body acceptance in high school girls.

The small sample size of the study ($n = 10$ in the experimental condition) limits the statistical power of the experiment. In an effort to increase validity, researchers incorporate multiple measures and measure each factor. Nevertheless, the results of the

study still detect clinically significant reductions in thin-ideal internalization and body dissatisfaction. Findings reveal moderate clinical significance for prevention of bulimic symptoms, because the control group actually showed significant increases in bulimic symptoms compared to the treatment group. Repeated measures ANOVAS showed a decrease in body dissatisfaction, bulimic behaviors, and thin-ideal internalization; the bulimic decrease was not maintained at four week follow-up.

More recently, a randomized trial compared a modified version of a cognitive dissonance intervention to a yoga based intervention as well as a no-treatment control group (Mitchell, Mazzeo, Rausch, & Cooke, 2007). The selective intervention was comprised primarily of female undergraduate psychology majors. No significant differences emerged between the yoga and control groups; however, the dissonance group revealed significant differences from both of the other groups on measures of disordered eating, drive for thinness, body dissatisfaction, alexithymia, and anxiety. This study supported findings from previous research (e.g., Matussek, Wendt, & Wiseman, 2004; Stice, Trost, & Chase, 2003) that revealed cognitive dissonance as a viable intervention strategy. A dismantling study (Roehrig, Thompson, Brannick, & van den Berg, 2006) replicated the full intervention from Stice, Trost, et al. (2003) and compared it to an intervention that consisted solely of the counter-attitudinal advocacy procedure; both conditions seemed equally effective in reducing thin-ideal internalization, body dissatisfaction, dieting behaviors, negative affect, and bulimic behaviors. Effects were maintained at 1 month follow-up for all constructs except negative affect.

An elaborate, randomized trial of a high level dissonance group, a low level dissonance group, and a control group in symptomatic and asymptomatic undergraduate women sought to isolate specific mechanisms and optimal conditions for cognitive dissonance (Green, Scott, Diyankova, Gasser, & Pederson, 2005). The findings did not support some earlier studies (Stice, Chase, Stormer, & Appel, 2001; Stice et al., 2000) which indicated a reduction in eating pathology in participants from cognitive dissonance groups. Though the overall study was large, small cell sizes may have inhibited statistical power to detect significant differences. Asymptomatic and symptomatic outcomes showed no differences, though, notably, 50.3% of the participants presented as symptomatic prior to the intervention, underscoring the need for greater researcher attention to eating problems in the general population.

Identity Development Theory

Significant eating problems almost always have their genesis in adolescence (Striegel-Moore & Bulik, 2007), and teenage years can be a challenging time socially, physically, emotionally, and sexually for young girls. This idea is hardly novel. Since G. Stanley Hall's (1904) declaration of adolescence as a time of "storm and stress," developmental theorists have become enamored with the sometimes arduous task of transitioning from childhood to adulthood (Lloyd, 2002). The crucial developmental roles generally associated with this transition stem from Eric Erickson's (1950) seminal work, *Childhood and Society*, which delineates the life cycle in "Eight Stages of Man" and introduces a paradigm shift away from an emphasis on Freudian psychosexual development. Erikson outlines a sequence of eight psychosocial stages of human

development, with each stage representing critical physical and psychological tasks situated in a social context (Bergh & Erling, 2005); he maintains that identity formation culminates from the successful progression through each of the stages as the individual interacts with society. Much of Erikson's latter work highlights the concept of identity and the inherent, essential, and normative crises associated with identity formation.

James Marcia (1966) expands on the 5th stage of Erikson's epigenetic model—identity versus role confusion—creating an ego identity status model which assesses identity formation. Notably, the last two decades have witnessed increased attention to identity development, and Marcia's model has inspired many hundreds of publications (Kroger, 2002) and research in different countries (Marcia, 1993). Its prolific employment has contributed to psychological, educational, and sociological research.

Marcia's model is founded on the independent constructs of *exploration* and *commitment*. It attempts to operationally define identity by contending that the degrees of these dimensions determine which of four identity statuses an individual represents. Thus, the theory assumes that exploration and commitment are related to each of the four statuses, illustrated in a bifurcated design (Schwartz, 2002). *Identity achievement*, marked by high degrees of both exploration and commitment, reflects that the individual has encountered and successfully resolved crises associated with adolescent development. *Identity moratorium* shows considerable active exploration without commensurate commitment and reveals an individual often in the throes of a crisis. *Identity foreclosure* represents an individual who has made a commitment without essential exploration and searching. Finally, *identity diffused* or *identity confused* subjects reflect both low levels of

exploration and commitment and are usually considered to be in the most immature identity status (Schwartz, 2002). The model promotes vocational, religious, political, and sexual commitments as the most salient to identity formation, and an individual can simultaneously demonstrate characteristics of more than one status as she reconciles various beliefs (Muuss, 1988).

Marcia's model and operationalized conception of psychosocial theory have specifically been employed to enhance an understanding of the intersection of identity and eating concerns. Sparks (1993, as cited in Wheeler, Adams, & Keating, 2001) found that individuals with eating disorders scored higher on identity confusion and lower on identity achievement scales. Similarly, Schupak-Neuberg and Nemeroff (1993) detected identity confusion in a sample of women with subclinical BN. Auslander and Dunham (1996) also creatively relied on Marcia's model to highlight relevant literature revealing the overlap of characteristics empirically associated with both bulimic and diffused individuals. The identification of an association of BN with identity diffusion creates a need for a greater understanding of the mechanisms of both struggles. The consequences of prolonged diffusion are well documented with associations to academic underachievement, poor self-esteem, drug abuse, and intimacy difficulties (see Wires and Barocas, 1994), and clearly both of these struggles may hold implications beyond the adolescent period.

As an expansion of Erikson's theory, Marcia's model necessarily assumes that individuals in the identity versus role confusion stage have successfully transitioned through each of Erikson's earlier stages. Marcia's taxonomy, however, does not always

represent a pure sequential progression. While identity achievement represents the pinnacle, *moratorium*, as it is associated with crisis and experimentation, is the only status crucial for identity achievement (Muuss, 1988; Stringer, 1994). For instance, for many older adolescents, attending college serves as a quintessential manifestation of moratorium status, with opportunities for exposure to a variety of perspectives and challenges to previously crystallized and sometimes tenuously held beliefs (Munro & Adams, 1977). Thus, crisis, generated in moratorium, stands as a fundamental factor in identity formation, and the model posits that neither *foreclosure* nor *diffusion* provides essential conflict; they do not function as requisite states for some individuals. Furthermore, the theory assumes that each of the statuses can be terminal, with varying negative implications for all but identity achievement (see Muuss, 1988).

While serving as a foundational and inspirational model that has generated considerable research, Marcia's work may not be immediately applicable or generalizable to numerous ethnic and racial groups. One inherent flaw lies in its creation and reflection of primarily the White, male experience. Martin and Chiodo (2004) highlight this distinction, noting Marcia's emphasis on the inner, psychological components of development as opposed to the creation of self-concept in relation to others. Researchers addressing ethnic and racial identity development tend towards the latter philosophical posture, considering sociopolitical and economic contexts. Marcia's model as well as Erikson's theory meet criticism as they "discount the effect of external socio-cultural influences upon internal psychological processes and unfairly place much or all of the responsibility for successful identity task completion upon the individual" (Yoder, 2000,

p. 95). Failing to acknowledge potential barriers to identity achievement and the complexities of barriers is a shortcoming of the model (Stevens, 1997). Similarly, it does not account for family systems, family climate, or self in relation to family (Perosa, Perosa, & Ping Tam, 1996), though studies have begun to identify relationships between identity statuses and perceptions of relationships to parents (see Muuss, 1988). It is ironic that the first theories (Erikson's and Marcia's) to account for social influence are decidedly limited in the social arena.

In terms of AN and BN, the issue of identity development has historically and lately received attention. Bruch (1982) described an "identity deficit" in AN patients created by pathological family systems. More recently, numerous researchers maintain that identity confusion contributes to the development of eating problems, and they have identified identity confusion and poor self-concept as correlating with BN (see Auslander & Dunham, 1996).

Erikson's theory has been loosely applied to both the development of AN and BN. In a qualitative study, Akeroyd-Guillory (1988) painstakingly detects the similarities between some of Erikson's stages and the behaviors of the individual with AN. For example, Erikson describes the failure to progress through stage one, *trust vs. mistrust*, with individuals who sometimes "close up, refusing food and comfort and becoming oblivious to companionship" (Erikson, 1968, p. 97, as cited in Akeroyd-Guillory, 1988), and in stage two, *autonomy vs. shame and doubt*, he proposed that negativity could result in a need for control and compulsivity. In the third stage, *initiative vs. guilt*, he stated that conflicts could result in "hysterical denial or self-restriction" (p. 120, as cited in

Akeroyd-Guillory, 1988). The researcher notes how Erikson's behavioral descriptions strikingly echo those of AN, and she elaborates that the fourth stage, *industry vs. inferiority*, seems to be a particularly critical time of vulnerability for young girls. In this period an individual strives to show competence, and "Few people want to describe themselves as inferior and incompetent. This is especially true of the anorexic" (Akeroyd-Guillory, 1988, p. 29). The failed resolution and difficulties for individuals in these stages can certainly contribute to the development of eating disordered behavior; indeed, the researcher detected negative experiences and development associated with each of these stages in her interviews of women and girls with AN. Interestingly, in stage five, *identity vs. role confusion*, she noticed an unexpected shift from negative identity development to perceived positive identity and postulates that this positive shift is the result of overcompensation. This explicitly contradicts Erikson's theory that a successful transition from each stage is necessary for positive identity development; however, given the cultural quest for thinness, it seems plausible that developing AN may denote the achievement of a positive identity for many girls.

This qualitative research (Akeroyd-Guillory, 1988) is dated and limited in a number of ways. The number of participants interviewed is not disclosed, but it is noted that they are drawn from a variety of settings (i.e., colleges, hospitals, and eating disorder therapy groups). Confirmation bias also poses a threat to the study as the researcher explicitly sought to notice AN in the context of Erikson's psychosocial theory. Furthermore, triangulation, auditing, and other measures to reduce bias are not mentioned. Nonetheless, the connection of psychosocial development to eating disorder

development and an accompanying positive identity proves interesting and actually in many ways anticipated later research.

Indeed, some extant research supports the development of a positive identity for sufferers of AN, and one researcher even writes of the “club” of AN (Hoskins, 2002). Giles (2006) conducted a qualitative study analyzing naturally occurring discourse on 20 Internet websites that offer support and even reinforcement for individuals with AN. “Pro-ana” and “pro-mia” websites, often encouraging anorexic and bulimic behaviors respectively, have become prevalent environments, creating on-line communities with inherent subgroups and boundaries that contribute to identity construction. The researcher retrieved material from discussion forums and message boards and focused on threads that suggested interesting conflicts and debates. Themes identified include idealization of the anorexic identity, the defense of the bulimic identity, and the fluctuation of identities. These themes centered on issues categorizing individuals as either newly entrenched in AN “newbies,” wishing they had AN “wannabes,” or reviling those with the disorder “haters.”

Many of the participants in the Giles’ study fiercely defended their AN identities. This highly interesting research provides a glimpse into the cognitive errors and social reinforcements that contribute to eating disorder perpetuation and maintenance. Recognizing numerous individuals’ subversive promulgation of AN as a hierarchically superior identity—defined by purity, idealism, and elitism—can aid educators, clinicians, and researchers in understanding the resistance of some girls with AN to seek treatment. Similarly, it can illuminate the resistance of bingeing individuals who may deem

themselves as falling short of the anorexic ideal. Moreover, the intensely fierce protection of the pure “ana” identity against out-groups perhaps creates further solidarity as well as solidification of the identity and conceivably renders it even more desirable to those visiting the sites.

Wheeler and colleagues (2001) investigated two separate models that suggest eating problems may result from a need to avoid ego-related identity concerns. Their correlational study compares escape theory (Heatherton & Baumeister, 1991) and bulimia-as-purposeful theory (Polivy, Herman, & McFarlane, 1994) to determine which one of the models best explains the pathway of bulimic behavior. Escape theory proposes that self-consciousness and perfectionism create negative affect that induces a desire to avoid meaningful thought about identity. The attention then shifts to food, rather than identity concerns, and bingeing/purging behavior ensues. Bulimia-as-purposeful theory similarly posits that aversive self-consciousness causes distress, but that binge-eating is not a passive consequence of mental narrowing and shifting attention, but rather a coping mechanism for dealing with ego-related concerns. In other words, the individual blames distress on the bulimic behavior rather than on the identity difficulty that precipitated the bingeing behavior. The researchers hypothesized that a diffuse-avoidant identity style would be related to bulimic behaviors.

A large sample of college women ($n = 193$) volunteered to take the survey. Most of the students were underclasswomen in a Canadian university, majored in social sciences, and earned course credit for their participation. Participation simply involved completing a survey which consisted of scales aimed to measure self-consciousness,

perfectionism, ineffectiveness, depression, avoidance of existential issues, and identity style. The identity style measure stemmed from Berzonsky's (1989) expansion and revision of Marcia's (1966) relatively fixed identity statuses into dynamic processing styles. The study focused exclusively on the diffuse-avoidance orientation, which suggests a maladaptive tendency to procrastinate decisions and problem-solving. Surprisingly, a central hypothesis of the study was not supported in that a diffuse-avoidant identity style did not predict bulimic behavior in either model. Conversely, in the bulimia-as-purposeful model, bulimic behavior actually predicted diffuse-avoidance identity, though the multiple correlation coefficient in this direction was quite small. Ultimately, findings showed more support for the bulimia-as-purposeful model than for the escape model.

This study is both interesting and impressive. Though regularly couched as critical to understanding BN, the empirical literature linking identity concerns with bulimic behavior is lacking, and this study adds to the literature in important ways. Two pathways for bulimic behavior were uncovered. First, public self-consciousness was directly related to bulimic behavior. It was also linked to escaping desires, but these desires did not show any predictive value. Second, ineffectiveness coupled with perfectionism accounted for much of the variability in depression, which in turn was related to bulimic behaviors. Again, the study revealed an avoidant-identity style as a possible result rather than predictor of bulimic behavior. This urges researchers and educators to explore further the impact BN has on psychosocial identity development and

the possible egosyntonicity that results from an individual internalizing the eating disorder behavior into her identity.

An understanding of identity, especially as it converges with SCT, is important to eating disorder prevention efforts in the sense that identity achievement may be becoming increasingly more complex for adolescents. A rapidly changing world simultaneously vexed and enriched by evolving technologies presents a multitude of choices, roles, and behaviors which often overwhelm young girls who may face sexualized messages and images long before they are developmentally prepared to process them. In terms of eating disorder etiology and prevention, it is clearly helpful to recognize the identity crisis as a potentially central feature.

Feminist Theories

Cultural feminism. Unfortunately, the historically accepted identity theories tend to ignore the impact of context on individuals, and this exclusion is especially problematic for understanding female development (Peterson, 2000). While numerous meanings of feminism abound, a general definition describes feminism as a “perspective that seeks to eliminate the subordination, oppression, inequalities, and injustices women suffer because of their sex” (Porter, 1991, as cited by Beasley, 1999, p. 27). Cultural feminism builds on and borrows from radical feminist thought in that it perceives gender as the primary division of people and a source of inequality. Moreover, cultural feminism has been the dominant feminist approach in psychology (Levine & Smolak, 2006) that aims to reverse the ways women are valued (Echols, 1989, as cited in Saulnier, 1996). Unlike other branches of feminism (e.g. liberal feminism), cultural feminism recognizes

the differences—both physiological and sociologically induced—between women and men and posits that women’s virtues of nurturance, warmth, and connectedness are effectual and indispensable (Gilligan, 1982; Saulnier, 1996).

Being female constitutes the greatest risk factor for developing an eating disorder (see Striegel-Moore & Bulik, 2007), and gender differences are more pronounced in eating disorders than in most other disorders listed in the *DSM-IV* (American Psychological Association, 1994; Levine & Smolak, 2006). Hoskins (2002) focuses on identity formation and eating disorder development in adolescent girls and underscores the struggle for many young girls, deciding how to live in relation to societal expectations. Indeed, Gilligan (1982) theorizes that socialization is critical to development and that girls’ identities are formed in relation with others and they too often silence their beliefs and needs in an effort to gain and foster close relationships. Recent correlational research connects this self-silencing behavior to eating disorder development (Geller, Cockell, & Goldner, 2000; Zaitsoff, Geller, & Srikameswaran, 2000).

Ironically, the onset of the feminist movement has increased opportunities for women, but may have contributed to identity confusion (Brylinsky, 1990). Correspondingly, one study revealed that women who indicated having a greater number of gender roles as being salient to their identities presented with more eating disorder behaviors (Timko, Striegel-Moore, Silberstein, & Rodin, 1987). Mensinger (2001b) reviews *The Cost of Competence* (Silverstein & Perlick, 1995) and notes the assertion that identity formation is most difficult during historical periods of changes in gender

roles. These times are emotionally distressing particularly for intelligent adolescents with non-traditional aspirations. Sadly, it is averred that “disordered eating is just one of the costs of competence paid by talented women who strive to succeed” (Silverstien & Perlick, 1995, as cited in Mensinger, 2001b, p.11).

Cultural feminism has some major flaws. First, in seeing gender as the primary divider of people, the theory relegates race and class as less important. This assumption cannot be generalized, as the cardinal aspects of identity feature prominently and in varying degrees for different people. Also, some cultural feminists have historically exalted women as superior to men (see Saulnier, 1999). While this posture likely originated with zealous advocacy for women, such a stance degrades men and fails to take responsibility for the ways in which women participate in the denigration of themselves and are partially culpable for cultivating a climate of sexism. Further, portraying women and men as fundamentally different may propagate stereotypes, doing damage to those who fail to conform. And, a paradox of the theory is that if women are indeed more nurturing, compassionate, and relational, then the shifting of men’s and women’s roles may exacerbate stress and problems (Elshtain, 1982).

As a methodology, a feminist approach encounters many challenges. Piran (1999) explicates that a feminist perspective necessarily requires giving participants ample opportunity to discuss issues and hone their voice, and it may be difficult to find and train intervention facilitators who are comfortable in this flexible format; these leaders must be willing and able to model activism outside of the classroom as well. Additionally, a feminist approach requires engaging administrators, faculty, staff, parents, and students in

the collaboration, and when different cohorts are responsible for different facets of programming, collaboration requires considerable effort (Piran, 1999). Despite these theoretical challenges, cultural feminism has created a means of valuing women and celebrating all of their strengths.

Objectification theory. Objectification theory (Fredrickson & Roberts, 1997) is essentially a feminist theory that explores the difficulties of being female in a society that sexualizes the female body (Slater & Tiggemann, 2002). The accessibility of a variety of media that depict girls and women in sexualized ways adds credence to this theory. An American Psychological Association (APA, 2007) task force on the sexualization of girls recently published a report, citing a plethora of evidence of objectification in a variety of media forms. For instance, in a content analysis of popular prime-time television comedies showing workplace scenes, one study (Lampman et al., 2003) discovered that 23% of sexual behaviors involved objectifying women via catcalling, oogling, staring, and leering; 16.5% of the sexual remarks focused on body parts and/or nudity; and almost 7% of sexual remarks were sexist or sexual slurs. Similarly, in music videos, women are often depicted as ornamental and are considerably more likely to be dressed provocatively than men. The APA publication (2007) compiled copious research on countless examples of objectification of girls in the media—from television to the Internet; cartoons to feature films; magazines to computer games.

Objectification theory extends to account for the fact that the pervasive, insidious sexual objectification of girls and women compels them to internalize society's views as their own and subsequently to see themselves the same way (Slater & Tiggeman, 2002).

In other words, girls learn to take an observer's stance and evaluate themselves primarily, if not solely, on their physical appearance. Fredrickson and Roberts (1997) call this phenomenon "self-objectification," which describes the tendency to value appearance over all other attributes and to monitor appearance continually. The milieu of self-objectification is hardly surprising given the Western world's predilection if not insistence for thinness. Undeniably, stereotypes vilify "fatness" as bad, lazy, or immoral (Nagel & Jones, 1992) and are too often juxtaposed with ideals connoting "thinness" as popular, enviable, or socially/sexually desirable. Thin individuals are sometimes deemed morally superior, and a presumption exists that a host of other desirable traits accompanies thinness (Harrison, 2000). Indeed, a lack of physical attractiveness operates as a social liability for women—much greater than for men (Bergner, Remer, & Whetsall, 1985, as cited in Thompson et al., 1999). But, this burden surpasses merely social hindrances: the oppression may be financial as well. Levine and Smolak (2006) cite *Fat Is a Financial Issue* (2000) and note that after controlling for relevant variables, obese women earn 40% less than normal weight women over a lifetime.

Some feminist theorists further postulate that women attempt to control their bodies to compensate for the lack of control they may feel in other parts of their lives (see Thompson, 1999). In fact, some researchers have noted that women, especially White women, often diet to increase their confidence and gain control in the lives (Parker et al., 1995). As a result of the power that accompanies thinness, many young girls logically internalize the thin ideal and begin to scrutinize and judge themselves and their bodies based on their sexual appeal. The irony, of course, is that as young girls attempt to

acquire and exert control in this way, they are ultimately conforming and acquiescing their power (Thompson et al., 1999).

Studies have linked self-objectification to disordered eating (Fredrickson, Roberts, Noll, Quinn, & Twenge, 1998; Tiggemann & Slater, 2001). Understandably and predictably, such self-scrutiny likely heightens body shame and anxiety (see Munro & Huon, 2005). Of course, the culture of thinness is also promoted by a variety unwitting culprits, but the primary agent is the media. The media's promotion of idealized, unrealistic images encourages self-scrutiny (Kilbourne, 1994). Ultimately, then, promoting media literacy becomes a cultural feminist approach to eating disorder prevention.

Prevention Designs

Media Literacy

The media's presence and role in diminishing and objectifying both women and men makes media literacy training a potential source of combating some negative media influences. Advertising is the furtive force driving the preponderance of unrealistic images, and American corporations spend over 200 billion dollars in advertising each year, with a significant portion of that being marketed to children and teens (Kilbourne, 1999). The implication is that media images are effective and persuasive; the exorbitant cost for a Super Bowl commercial could not be justified otherwise (Killbourne, 1999). Advertisers essentially attempt to create consumer dissatisfaction and proffer their products as a unique panacea. Becker (2004) notes, "This strategy has become especially powerful against the backdrop of the American ethos and predilection for reshaping and

cultivating the body” (p. 534). In recent years, media literacy programs have demonstrated potential to help combat marketing social persuasion techniques, to enhance an understanding of the unreality of general media images, and to reduce idealization of thinness (Wilksch, Tiggemann, & Wade, 2006).

Irving and colleagues (1998) conducted a brief media literacy intervention. This quasi-experimental, post-test only study was conducted by a professor, a graduate student, and a high school senior who aimed to encourage girls to become more critical consumers of appearance-related media images in an effort to prevent the development of eating disorders. An experimental group of 24 students from one English class were compared to 17 girls from another English class that formed the non-treatment control group. The high school senior led the media literacy interventions by showing a 15 minute clip from Jean Kilbourne’s *Slim Hopes* followed by a semi-structured discussion of media influences and body image. Results indicate that compared to the control group, girls in the media literacy intervention reported less thin-ideal internalization as well as a lower perceived realism of media images. Measures of body dissatisfaction, desirability, expectations, awareness, negative affect, and anxiety revealed no significant differences.

Levine and Smolak (2006) review some longer and more intensive prevention programs that employ media literacy with high school students. Two separate trials using the GO GIRLS!TM program (EDAP, 1998) revealed some promising results. Using the 12 session curriculum, Levine and colleagues (1999, as cited in Levine & Smolak, 2006) found that the small groups who were particularly engaged in all facets of the program showed reductions in weight-shape concerns as well as thin-ideal internalization, though

neither reached statistical significance. In another application of GO GIRLS!TM with primarily juniors and seniors (Piran et al., 2000, as cited in Levine & Smolak, 2006), significant differences in drive for thinness, thin-ideal internalization, self-acceptance, and empowerment were noted. Neither program reported significant changes in dieting behaviors or weight concerns.

A number of other media literacy programs have documented varying success with grade school and college-aged participants. For instance, Rabak-Wagener, Eickhoff-Shemeck, and Kelly-Vance, (1998) created a four session (6 ½ total hours) program using a quasi-experimental design of preexisting undergraduate classes. They used advertisements as well as the video *Slim Hopes* and had participants generate advertisements and collages that challenge current media ideals. The researchers created their own 11 item instrument to assess beliefs and behaviors and detected significant differences in beliefs only.

Briefer interventions with college students also reveal some success. For instance Stormer and Thompson (1995) created a 30 minute program that attempted to challenge the slender ideal and reveal to participants that many media images are intentionally and deliberately constructed. The intervention did show promising results in the reduction of appearance anxiety and internalization of the slender ideal.

Interventions with younger participants show additional potential. Varnado-Sullivan, Zucker, and Williamson (2001; see Varnado-Sullivan & Zucker, 2004) created the Body Logic Program. Body Logic I is a universal prevention program that incorporates cognitive bases of body image, challenges media ideals, and promotes

nutritional education. A second phase of this highly interactive program serves as the family-based version. A couple of other brief media literacy programs have reported gains (see Levine & Smolak, 2006). For instance, Wilksch and colleague's large study (2006) included 8th grades boys and girls who received 1 of 6 different media lessons aimed at reducing internalization of media ideals. Girls had significantly lower scores on the Internalization-General subscale while boys had lower scores on all of measures except the Pressures subscale. Though limited in length and in lacking a control group, this study shows some potential and acknowledges the importance of including boys in media literacy and body image discussions.

Harmful Outcomes

A few researchers question not only the effectiveness, but the paradoxical presence of eating disorder prevention programs (Carter, Stewart, Dunn, & Fairburn, 1997; Franko, 1998; Mann, Nolen-Hoeksema, Huang, Burgard, Wright, & Hanson, 1997). Though conducted in a college setting, at Stanford University, the first empirical study of a prevention program in women found that students attending the presentation reported slightly higher incidences of eating disorder pathologies (Mann et al., 1997). Researchers surmise that the combination of a secondary and primary approach is partially culpable, and others assert that eating disorder prevention, indeed, sometimes has the opposite effect, teaching pathological behavior through discussions (see Chally, 1998) and increasing risk factors for eating pathology (Carter et al., 1997). The potential for some eating disorder prevention programs to cause more harm than good has led researchers to shift the focus from disordered behaviors to health promotion; still others

note students want information and more discussion to better support friends and to acquire a thorough understanding of eating disorders (Rosenvigne & Westjordet, 2004).

An unusual harm that may result from prevention programs is the condoning of obesity (Heinberg, Thompson, & Matzon, 2001). An emphasis on sociocultural factors has been linked to an inverse relationship with body mass—intimating that programs promoting size acceptance and countering sociocultural messages might unwittingly condone obesity (Stice & Shaw, 2004). While perhaps not as prominent as AN or BN, obesity is considerably more prevalent and poses a significant health risk for individuals. Some research suggests prevention efforts for eating disorders and obesity may be combined, rendering the implementation of both prevention efforts as more cost-effective (Newmark-Sztainer, 2005). Like eating disorder prevention research, reported obesity prevention efforts are minimal (Baranoswki, Cullen, Nicklas, Thompson, & Baranowski, 2002). Effective programs typically employ professionals external to the school setting and target middle and high school students, again suggesting the need for leader expertise and a level of cognitive maturity for participants (Baransowski et al., 2002).

School Populations

Schools obviously provide the greatest access to the greatest number of youth. Most prevention programs in the schools are primary, secondary, or combination approaches. Primary or *universal* prevention involves an intervention designed to enhance the development of all students. The activities anticipate developmental needs and challenges of students well before they arise. Early eating disorder prevention research was primarily of this nature and honed in on media influences as a social factor

(Piran, 2002). Prevention programs of this type typically include information about eating disorder consequences, beliefs, and dangers of dieting (Carter et al., 1997). Secondary prevention, also known as *selective* intervention, focuses on students who may be at a higher risk for developing an eating disorder or aims to keep a problem like disordered eating from becoming more serious. Tertiary prevention, somewhat of a misnomer in being labeled prevention at all, is also called *indicated* prevention and implies that efforts are remedial to help reduce the impairment an individual is experiencing (see Piran, 2002). Tertiary interventions have the most empirical support, but are the least likely to be employed in the school setting (Weinstein, 2000). Too often students already in the throes of an eating disorder require a therapist with more specialized expertise than what a school counselor can provide (Capuzzi, 1996).

The general belief is that school-based eating disorder preventions are strongly recommended, and schools are considered optimal venues for access to at-risk students (Stewart, Carter, Drinkwater, Hainsworth, & Fairburn, 2001; Weinstein, 2000), yet shockingly little research exists about the efficacy of school-based interventions and about primary versus secondary interventions specifically. The research that does exist is also somewhat mixed. Some researchers (Abascal, Brown, Winzelberg, Dev, & Taylor, 2004) call for schools to adopt primary prevention programs into the curricula, while others (Littleton & Ollendick, 2003) claim that curriculum-based interventions produce small if any positive effects. Because of varied positive and even some negative results in asymptomatic subjects (Franko, 1998; see Stice et al., 2001), some experts advocate

abandoning primary groups in favor of secondary efforts, concluding that primary prevention efforts may be ineffective and inappropriate (Killen et al., 1993).

In terms of general prevention groups, not just ones specific to eating disorder prevention, Hoag and Burlingame (1997) found school-based prevention groups (which are generally more universal) to be less effective than groups in clinical settings (historically selective groups). This finding may speak to effect sizes' being larger for selective versus universal prevention or to less expertise by group leaders in the schools (Kulic, Horne, & Dagley, 2004). Some researchers also believe that selective groups with eating-disordered individuals fare better because they are composed of more motivated participants (Stice, Trost, et al., 2003). Again, research about this assertion is mixed; others studies suggest that interventions aimed at low-risk individuals are more effective because of the obdurate, ostensibly irreversible, eating disordered thinking (Neumark-Sztainer, Butler, & Palti, 1995). Regardless, nearly 80% of the programs in the Hoag and Burlingame review (1997) were conducted in the schools and found an aggregate .61 effect size, suggesting that for a variety of problems, notably including eating disorder and substance abuse prevention, students in prevention groups fared better than 73% of students in control groups. Thus, it appears that at least for some types of interventions, schools can serve as an excellent place of prevention (Kulic et al., 2004).

Elementary and middle school. In determining which interventions work best with which subjects, it is important to look at school settings. As increasingly younger children present with eating disordered behaviors (Weinstein, 2000), researchers understandably hope to intervene earlier. Two studies with a selective focus on middle

school students revealed positive effects for reducing dieting, and one of the studies revealed a spillover effect with the control group (Baranowski & Hetherington, 2001; McVey, Lieberman, Voorberg, Wardrope, & Blackmore, 2003; see Stice & Shaw, 2004). Most of the other interventions in controlled designs have been didactic and did not show positive effects or produced positive effects for knowledge only. The interactive ones and one aimed at teaching media literacy produced more positive outcomes in body dissatisfaction and reducing thin-ideal internalization. In a prevention program aimed at youth ages 11-15, the researchers determined that very few of the girls engaged in dieting or disordered eating behavior, thereby seriously limiting the ability for the intervention to achieve statistical significance in reducing dysfunctional behaviors (Phelps, Sapia, Nathanson, & Nelson, 2000). It seems that primary prevention for younger students may not be efficacious, or will at least need long-term follow-ups to determine efficacious prevention results.

College. Many of the published prevention programs target college students; in fact, this is true for nearly half of the reviewed programs (18 of 38) in the meta-analysis (Stice & Shaw, 2004). Five were primary interventions and 13 were secondary ones. Only one of the primary prevention programs produced any effects and it was a psychoeducational and interactive one that showed some effect for reduction in bulimic symptoms. However, recently, an interactive CD-Rom (Franko et al., 2005) for reducing eating disorder risk in college women has produced encouraging results as a primary prevention. Women in the treatment condition showed positive effects on all measures compared with the control group, and no iatrogenic effects appeared, although long-term

follow-ups are still needed to compare the program with other interventions (Franko et al., 2005). The private form of interaction afforded by the CD-Rom may be particularly important for encouraging honest engagement.

As an aggregate, the selective interventions with college women are more interactive and consist of more than one session. The debate over psychoeducational/sociocultural groups versus dissonance-provoking groups also pervades the literature, with some researchers touting the latter as more effective (Stice et al., 2001; Stice et al., 2000) and more responsible. The didactic interventions have been less effective (Stice & Shaw, 2004), consonant with the idea that knowledge alone is not enough to effect change in at-risk eating disorder populations. Prevention research in the fields of suicide and substance abuse confirms that didactic programs, emulating the KAP (Knowledge-Attitude-Practice) model, are generally not effective (Rosenvinge & Borresen, 1999). In fact, Friedman (1998) conjectures that didactic prevention programs are actually disempowering for young women, who need to be actively engaged in or facilitating conversations.

High school. The aforementioned paucity of research that specifically targets high school students renders it difficult to evaluate the effectiveness of intervention types. In general, didactic groups show fewer positive effects than interactive groups (see Stice & Shaw, 2004); however, one didactic, psychoeducational program with 341 high school girls (Neumark-Sztainer et al., 1995) emerges as the only known high school primary intervention to have a positive effect on eating pathology. It presented information on causes of eating disorders, healthy weight management, body images, and social

pressures and held an effect for binge-eating reduction at a 24 month follow-up. The five other universal programs in controlled studies showed effects for knowledge only. The fact that a psychoeducational, didactic program was one of the more successful of the universal high school interventions counters the results of college and grade school studies and the results of the programs as a whole. Interactive interventions produced much larger effects than didactic ones, and programs that had psychoeducational content produced smaller overall effects (Stice & Shaw, 2004). Noting the lack of success of psychoeducational prevention groups, Stice, Trost, et al. (2003) created two selective programs for high-risk high school and college students. Both the dissonance discussion groups and the healthy weight management groups reported promising gains in reducing eating pathology and reducing risk factors, confirming the belief that interactive, multi-session, selective interventions typically produce more positive outcomes.

Summative Considerations

Intervention efforts have been employed with a relatively broad range of children, adolescents, and young adults, implying that burgeoning research has not yet identified an ideal critical period nor a best practice approach. Moreover, the complexity and prevalence of eating disorders necessarily moderates any one theory's ability to account for the heterogeneity of the disorders. Most girls are repeatedly exposed to appearance pressures and societal ideals; yet, not all of these girls struggle with eating issues. To some degree, other genetic, trait, and/or familial dysfunctions likely precipitate the struggle. Recent medical advancements have yielded a greater, albeit nascent, understanding of genetic links to eating pathology. Twin studies of AN point to genetic

effects as do studies of BN, especially for the nosological criteria of self-induced vomiting and binge-eating (see Striegel-Moore & Bulik, 2007). Linkage genetic studies have also highlighted chromosomes of interest, namely chromosome 1 for the restricting sub-type of AN (Grice et al., 2002, as cited in Striegel-Moore & Bulik, 2007) and 1, 2, and 13 for drive for thinness and obsessionality (B. Devlin et al., 2002, as cited in Striegel-Moore & Bulik, 2007). Interestingly, one of the diagnostic criterion for BN—placing undue importance on weight and shape—does not show heritability, but rather suggests environmental effects; thus, a genes x environment interaction may provide the best future course of study for eating problems (Striegel-Moore & Bulik, 2007).

Obviously, sociocultural risk factors surface as most feasible in prevention efforts at the counseling level; thus, social cognitive theories provide invaluable guidance in eating disorder prevention design as they consider the multiple sociocultural, environmental, and personal factors contributing to eating pathology. The prevention program implemented and evaluated in this study deliberately incorporated lessons that analyzed multiple media and social contexts—magazines, advertisements, television, movies, music videos, and even fairy tales—in an attempt to encourage girls to evaluate critically the excess of persuasive messages they encounter daily. The program also explicitly utilized cognitive dissonance theory in an exercise designed to promote this incongruity, and the attempt to confront cognitive expectations and inconsistencies gently is further guided by cognitive-behaviorism and social comparison theory. The identity theories of psychosocial development as well as the feminist theories discussed provided

a conceptual framework for considering the crises and depth of pressures experienced by many young girls.

CHAPTER III

Method

Participants

The participants for this study consisted of 9th grade students enrolled during the 2006-2007 school year and 10th grade students enrolled during the 2007-2008 school year at an all-girls, independent boarding and day school in the Southeast. All of these students were required to participate in a life skills course that met weekly on Tuesdays, for 40 minutes. Before beginning the study, Institutional Review Board Approval was secured, and consent/assent forms were mailed to all potential participants and their parents (see Appendix A). Follow-up emails, phone calls, and dorm visits were made and consent and assent were eventually obtained from all potential participants. Students' participation in the media literacy intervention or substance education intervention was mandatory, but consent and assent for the use of their data were not. Consent and assent were also secured for new students in the 6 month follow-up study.

Instruments

Self-Perception Profile (SPPA)

The SPPA (Harter, 1988) is a self-report measure designed to assess perceived competence in nine domains: scholastic competence, social acceptance, athletic competence, physical appearance, job competence, romantic appeal, behavioral conduct, close friendships, and global self-worth. It is an upward extension of the children's version with additional domains added. Respondents are provided with a statement such as, "Some teenagers find it hard to make friends, BUT for other teenagers it's pretty

easy.” An alternative forced choice scale asks the adolescent to determine which part of the statement represents her best and then mark “really true for me,” or “sort of true for me.” Items receive scores from 1 to 4, with numerous items reversed-keyed and higher numbers reflecting the most adequate self-judgment. Subscale scores are averaged, with ranges from 1 to 4 as well.

Cronbach’s alphas are acceptable for each of the subscales. In a 9th grade sample, reliabilities ranged from .74 (job competence) to .92 (athletic competence). Interestingly, the instrument does detect systematic gender differences, with girls typically rating their athletic competence, physical appearance, and global self-worth lower than boys do and their close friendships modestly higher than boys do (Harter, 1988). Good factorability of the items (.80) supports the instrument’s construct validity (Harter, 1988), and the Global Self-Worth scale has shown small, but significant, inverse correlations with pro-smoking attitudes (-.25), pro-drinking attitudes (-.22), and pro-hard drug attitudes (-.20) in an African American sample (Thomson & Zand, 2002). This instrument was used primarily as a pre-test assessment of group comparability.

Eating Disorder Inventory (EDI-3)

The EDI-3 (Garner, 2004) is a 91 item, self-report measure assessing psychological constructs and behaviors with clinical or conceptual relevance to eating disorders. It is designed for use with female adults and adolescents, ages 13 years and older. Twelve subscales include three eating disorder specific scales and nine general psychological scales. Additionally, the instrument yields six composites, one specifically related to eating disorders and five that focus on psychological constructs germane to

eating disorder development. Participants respond to each item by circling A “always,” U “usually,” O “often,” S “sometimes,” R “rarely,” or N “never.” In scoring, each of these responses receives a value from 0 to 4, with the two lowest responses earning a 0. Some items are reversed keyed so that higher numbers indicate greater symptom manifestation. The instrument has shown expected convergent validity with a number of instruments such as the Eating Attitudes Test-26 (EAT-26; Garner, Olmsted, Bohr, & Garfinkel, 1982) and the Bulimia Test-Revised (BULIT-R; Thelen, Farmer, Wonderlich, & Smith, 1991). The instrument’s ability to discriminate between individuals with and without eating disorders further confirms its criterion validity (see Garner, 2004). In a study comparing Swedish patients with eating disorders, patients with psychiatric disorders, and normal participants, the EDI-2 instrument (Garner, 1991) was deemed valid with the ability to discriminate on all subscales (Nevonen, Clinton, & Norring, 2006). The EDI-3 version of Drive for Thinness and Body Dissatisfaction subscales correlates so highly with the EDI-2 scales that researchers can “assume equivalence” (Garner, 2004, p. 140). The developer surmises the Bulimia scale’s lower correlation (.73) may be attributed to a restricted range from a bimodal skew between participants with AN-R (restricting versus purging type of AN) and BN. The Eating Disorder Risk Composite of the EDI-3 is composed of the Drive for Thinness, Bulimia, and Body Dissatisfaction subscales and has also shown excellent test-retest reliability (.98) and moderate negative correlations (-.50) with the Rosenberg Self-Esteem Scale (1965; Garner, 2004).

Drive for Thinness scale. The 7 item Drive for Thinness scale assesses an individual’s preoccupation with thinness and parallel fear of gaining weight. The scale

range is from 0 to 28, with higher numbers reflecting a stronger drive for thinness. A sample item is, "I feel extremely guilty after overeating." This drive for thinness construct is a central diagnostic feature of both AN and BN. The EDI-3 Drive for Thinness scale is identical to the earlier EDI-2 subscale and has been found to be a good predictor of binge-eating, subsequent development of clinical eating disorders, and severity of eating disorders at follow-up assessment (see Garner, 2004). Internal consistency for adolescent samples is reported at .93, .87, and .88, and test-retest reliability is reported at .95 (Garner, 2004). This scale has shown strong concurrent validity with the BULIT-R ($r = .77$) and the EAT-26 ($r = .70$, adolescent sample).

Bulimia scale. This 8 item scale measures tendencies to engage in and think about binge-eating or eating when distressed. The scale range is from 0 to 32, with higher numbers reflecting more bulimic and binge-eating tendencies. A sample item is, "I eat moderately in front of others and stuff myself when they're gone." Overeating differentiates BN and AN-B/P (purging type) from AN-R, and severe bingeing has been associated with serious psychological distress. The scale has shown stability (.94) and is predictive of the development of eating problems (see Garner, 2004). Alpha coefficients are .93, .92, and .86, with an expected and appropriate much lower coefficient (.63) in an AN-R sample (Garner, 2004). Like the Drive for Thinness subscale, this subscale demonstrated convergent validity with BULIT-R ($r = .81$), and the EDI original Bulimia scale recently showed convergent and predictive validity with dietary restraint in White and African-American young women samples (Bardone-Cone & Boyd, 2007).

Body Dissatisfaction scale. This scale contains 10 items to measure displeasure with the size of certain body parts often of substantial concern to individuals with eating disorders (i.e., hips, thighs, buttocks, stomach). Scores on this scale range from 0 to 40. A sample item reads, “I think that my thighs are too large.” Reported alpha coefficients range from .91 to .96. Garner (2004) cautions that this scale alone is not uniquely predictive of eating problems, especially considering widespread body dissatisfaction among women; nonetheless, body dissatisfaction surfaces as a risk factor for engaging in weight-control and food restriction behaviors, which are predictive of eating problems. In evaluations of earlier versions of the instrument, body dissatisfaction has shown criterion-related validity in differentiating individuals with AN-B/P as more dissatisfied with their bodies than those with AN-R (Garner, Olmstead, & Polivy, 1983). In a convergent validity exploration with the EAT-26 subscales, the Body Dissatisfaction scale (from EDI-2) revealed significant correlations with dieting behavior ($r = .49$), food preoccupation ($r = .42$), purging behavior ($r = .32$), and drive for thinness ($r = .65$).

Sociocultural Attitudes Towards Appearance Questionnaire-3 (SATAQ-3)

The SATAQ-3 (see Appendix B) is an updated revision of two earlier scales (Heinberg & Thompson, 1995; Thompson et al., 1999; as cited in Reed, Thompson, Brannick, & Sacco, 1991) widely employed to measure societal appearance ideals. The 30 item instrument consists of four subscales. Cronbach’s alphas reported for these scales are high: Information (.96), Internalization-General (.96), Internalization-Athlete (.95), Pressures (.92) and a Total subscale (.96; Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004). The items represent a variety of media outlets that often communicate

appearance-related messages. Each item is rated on a 5-point Likert scale ranging from “1” representing *definitely disagree* to “5” representing *definitely agree*, while “3” indicates a neutral response. The SATAQ-3 has undergone thorough evaluation with normative samples and demonstrates strong convergent validity with measures of eating and body image disturbance as well as validity with eating-disordered samples (Thompson et al., 2004). Thompson and colleagues cite numerous studies suggesting that internalization is predictive of eating problems and can be responsive to interventions. This instrument is included in this study since it specifically focuses on media and social influences and has been explicitly indicated for evaluating prevention programs.

Internalization. The Internalization-General subscale assesses adoption of the cultural thin ideal. It is a nine item scale, and scores range from 9 to 45, with higher scales indicating greater embracing of the thin ideal. A statement from the scale reads, “I would like my body to look like the models who appear in fashion magazines.” A factor analysis bolstered this scale’s construct validity; the items loaded cleanly on one factor with no cross-loading (Thompson et al., 2004). Internal consistency reports for this scale are also high (.92; Irving et al., 1998), and it demonstrates convergent validity ($r = .53$) with Stice and colleagues’ Ideal Body Internalization Scale-Revised (IBIS-R; Stice, 2001; Stice & Agras, 1998; Stice & Bearmen, 2001; see Thompson et al., 2004). Using both the SATAQ and the IBIS-R, thin-ideal internalization has been identified as being a causal risk factor for eating disturbances (see Thompson & Stice, 2001).

Information. The Information scale also contains nine items, with scores ranging from 9 to 45. Higher scores indicate more investment in the media as a valuable resource for appearance standards. One item reads, “Famous people are an important source of information about fashion and being attractive.” This scale has shown very good internal consistency (.94) and appropriate convergent validity with scales such as the IBIS-R (.44) In factor analysis, items appeared to load cleanly, with very little cross-loading (Thompson et al., 2004). This scale may provide insight into the ability of prevention work to impact values conferred by the media.

Rosenberg Self-Esteem Scale (RSES; see Appendix C)

This measure is undoubtedly one of the most popular self-esteem instruments. A PsychINFO search returned over 1100 articles citing this elegantly simple measure. As such, the cumulative research has documented well its reliability and validity, and Rosenberg (1965) demonstrated the instrument’s construct validity in comparisons made to numerous other mental health assessments (see Walters & Simoni, 1993). Internal consistency has been reported at .77, and test-retest reliability reports generally range from .85 to .88 (see Shisslak et al., 1999). The 10 item self-report scale aims to assess self-esteem in children, adolescents, and adults. A 4-point Likert scale seeks responses from SA, *strongly agree*, to SD, *strongly disagree*, to statements such as, “I take a positive attitude towards myself.” Values are assigned a number from 0 to 3 with some items reversed. Higher scores indicate greater levels of self-esteem, and scores range from 0 to 30. The scale is modestly, inversely correlated with the Eating Disorder Risk Composite scale, but shows divergent validity via strong inverse correlations (-.82) with

both the Low Self-Esteem and the Ineffectiveness Composite scales of the EDI-3 (Garner, 2004).

Physical Appearance State and Trait Anxiety Scale (PASTAS—state version)

This instrument is designed to measure appearance-related anxiety (Reed et al., 1991; see Appendix D). The 16 item instrument asks respondents to indicate their immediate level of anxiety about various body parts (i.e., thighs, hips, ears, feet) as well as “the extent to which I look overweight.” Respondents circle a number using a 5-point scale with “0” representing *not at all* and “4” indicating *exceptionally so*. Higher scores reflect greater body image anxiety, and scores range from 0 to 32. Eight of the items comprise the Weight subscale with body parts that tend to be associated with weight concerns. In the validation study (Reed et al., 1991), test-retest coefficients for the entire scale were noted at .87. Coefficient alphas for the subscale revealed internal consistency ranging from .82 to .93; (see also Irving et al., 1998), and convergent validity was demonstrated with significant correlations to the Drive for Thinness ($r = .62$) and the Body Dissatisfaction ($r = .74$) scales of the EDI. This measurement is chosen because body image anxiety has been associated with eating pathology, and state anxiety may be responsive to experimental interventions (see Reed et al., 1991).

Media Attitudes Questionnaire (MAQ)

Irving and colleagues (1998) created the MAQ (instrument obtained from S. Berel, personal communication, December 6, 2006, see Appendix E) based on Austin and Meili’s (1994) model for comprehending children’s perceptions of alcohol advertisements and their intentions to consume alcohol. The MAQ is a 22 item

questionnaire with subscales assessing realism, similarity, desirability, expectancies, identification, and behavioral intentions. Like the SATAQ-3, responses are scored on a 5-point scale ranging from “1” *definitely disagree* to “5” *definitely agree*, with “3” representing a neutral response. The present study concentrates on the Realism and Similarity scales.

Realism. The Realism scale is composed of three items. One item states, “Typically women look like models in ads.” Scores range from 3 to 15, with higher scores indicating more belief in the realism of appearance-related media images. In a previous study, internal consistency was reported at .73. Validity studies have not been conducted.

Similarity. The Similarity scale also contains three items, with scores ranging from 3 to 15. One of the items reads, “Most women could be as thin as the models in ads.” No consistency reports or validity studies have examined the use of this subscale. Since one of the goals of the intervention is to encourage critical analysis of the media, the MAQ provides items which at least have face validity in attending to this phenomenon.

Substance Use and Resistance Questionnaire (see Appendix F)

Because the control condition engaged in a substance education curriculum, the primary investigator created a self-report, 10 item questionnaire designed to measure behavioral frequencies associated with alcohol, tobacco, and marijuana use and resistance during the 3 months preceding completing the measure. Four of the items concern consumption behaviors (e.g., “In the last 3 months, I drank beer or wine”), and four of the

items address resistance behaviors (e.g., “In the last 3 months, I was offered marijuana and turned it down”). Two of the items reflect the sharing of knowledge learned from the intervention (e.g., “In the last 3 months, I shared with a parent what I have learned about the dangers of using substances”). Participants respond with “0” for *not at all*, “1” for *one time per month*, “2” for *more than one time per month*, and “3” for *once a week or more*. Measures of reliability and validity have not been conducted. This short report was preferred to more intricate batteries due to time constraints.

To further enhance confidentiality and anonymity of participants, demographic information was not obtained directly from the respondents. Group profile information concerning age, race, and boarding status were assembled from the school database.

Design

The design of this study is essentially a between groups, modified pre-test, posttest experimental design. Only one pre-test assessment is given, mainly to reinforce the assumption of group similarity achieved through random assignment. The experiment consists of this pre-test data collection, the media literacy interventions (eight sessions), and post-intervention data collection at 2 days, 6 weeks, and 6 months following session eight.

Using a random numbers generator, students were assigned to either the media literacy intervention (experimental condition) or the substance education intervention (control condition). Students were subsequently randomly assigned to three small groups within each condition. The six adult group facilitators of the small groups were matched as closely possible and then assigned to either the media literacy or substance education

interventions. Considerable efforts were taken to ensure that group procedures were as identical as possible. The experimental condition facilitators included a doctoral student in counselor education (primary investigator), a master's level counselor, and a foreign language classroom teacher. The control condition was similarly comprised of another doctoral student in counselor education, a master's level counselor, and a foreign language classroom teacher. The doctoral student in the substance education condition was completing her practicum at the intervention site. All six groups also met simultaneously in the same building, in virtually identical classrooms, with wireless access, VCR/DVD players, LCD projectors, and chalkboards.

Procedure

Facilitator Training

Prior to the commencement of the first session, the primary investigator met with the other two facilitators of the media literacy intervention to review the materials, prepare for possible questions, outline appropriate protocol for concerns, and ensure a level of comfort with the subject matter and technology being employed. The leaders were supplied with a notebook, lesson plans, and scripts for suggested responses to be used as needed. Each week, the primary investigator contacted the other facilitators to solicit feedback, provide materials, and further prepare them for the upcoming sessions if necessary. Similarly, the master's level counselor for the control condition served as the team leader, preparing her colleagues for the substance education intervention.

Program Description

The interventions consisted of eight, 40 minute sessions that occurred weekly with the exception of school breaks. Session goals and activities were created, amassed, and adapted from a variety of sources. Multiple copies of GO GIRLS!TM (EDAP, 1998) were purchased and incorporated in addressing the role of facilitators and in structuring many of the early sessions. The language created for discussing some of the sensitive issues was directly borrowed from those lessons in efforts to prevent iatrogenesis, and students were encouraged to be critical (not cynical) thinkers and consumers of media. The primary investigator included YouTube, online music videos, and a number of other media sources aimed to make the material particularly interesting and engaging for the participants, and lessons analyzed as many media modes as possible: magazines, music videos and lyrics, television shows, movies, and even fairy tales. An overview of the goals, topics, and lessons as well as resources are provided in Appendix G.

While full details and a review of substance prevention literature are beyond the scope of this current investigation, an outline of the substance education curriculum is provided in Appendix H. Substance prevention videos served as the framework for the curriculum, and interactive exercises supplemented the information presented.

The sessions for both the media literacy and substance education curriculum were considered non-credit, but required, courses for students. Brief, supplemental homework activities aimed to reinforce the lessons, but these were submitted anonymously and not graded.

Data Collection

Pre-intervention. At the beginning of the first session in January, the group leaders administered the SPPA in their classrooms, as a pre-test to ascertain group differences in a number of areas; however, it was anticipated that random assignment would ensure comparable group composition. Random assignment also should have eliminated the need for other additional pre-test measures that could have sensitized students to the surveys. Students submitted this data anonymously to their group leaders.

Posttest. Two days after the eighth and final session, posttest measures were collected. All students completed a battery of paper and pencil instruments that included scales from the EDI-3, SATAQ-3, MAQ, PASTAS, RSES, and SURQ. The sequence of instruments in each packet was varied to reduce the likelihood of ordering effects. This data collection took place in a large group setting and lasted approximately 30 minutes.

Six week follow-up. Six weeks after the eighth session, follow-up measures were taken again using the same instruments. A brief evaluation/questionnaire (see Appendix I) and an unstructured discussion were also used to gather feedback about the experience of the participants. A couple of questions that had been previously deleted from the MAQ were added in possibly to be considered in a subsequent secondary data analysis. Students met in the same small auditorium and completed the instruments in a large group setting.

Six month follow-up. Six months after the intervention, returning and new students completed a final battery using the same instruments. The entire EDI-3 as well as the SPPA were added to the administration to be considered in later analyses. An oral

explanation and PowerPoint demonstration of the SPPA served as instructions for that instrument. Participants met in the same small auditorium and completed the instruments in 45 minutes. At each administration, students were reminded that support staff members were available to assist them with any concerns that may have arisen from completing the instruments.

Data Analysis

In addition to measuring intervention effects for each of the hypotheses that follows, internal consistency scores for the subscales as well as correlation coefficients of the dependent measures were calculated.

Preliminary analysis. The investigator postulated that results from the SPPA would further support the assumption that random assignment created equivalent groups. To test this assumption, multiple analysis of variance (MANOVA) was conducted comparing the media literacy group and substance education group on each of the SPPA's nine domains of self-perceived competence.

Hypothesis one. It was hypothesized that participants in the media literacy intervention would report lower levels of drive for thinness, bulimia, and body dissatisfaction—general risk factors associated with eating disorder development— than girls who did not experience the media literacy intervention.

In order to test this hypothesis, comparisons were made between the experimental and control groups. The independent variable was receiving the media literacy intervention, and the dependent variables were scores on the Drive for Thinness, Bulimia, and Body Dissatisfaction scales of the EDI-3. One-way analysis of variance (ANOVA)

was conducted to determine if statistically significant group differences emerged. A Bonferroni adjustment set significance levels at $p < .017$. Given the moderate overlap of these three variables in the EDI-3, ANOVA rather than MANOVA was chosen, and these constructs were evaluated separately from ones specifically related to media literacy.

Hypothesis two. The investigator hypothesized that participants in the media literacy intervention would display greater critical analyses of media messages through reporting less internalization of societal standards of beauty, less investment in the media as an important source of information about appearance, less belief in the realism of media images, and less belief in one's and others' similarity to images in the media compared with girls who did not experience the media literacy intervention.

Greater critical analysis of media messages was determined by between groups comparisons in four domains. The independent variable was exposure to the media literacy intervention and the dependent variables were less internalization of societal standards of beauty, as measured by the Internalization-General subscale of the SATAQ-3; less investment in the media as an important source of appearance-related information, as measured by the Information scale of the SATAQ-3; less belief in the realism of images in the media, as measured by the Realism scale of the MAQ, and less belief in the accessibility of media ideals as measured by the Similarity scale of the MAQ. A multiple analysis of variance (MANOVA) was conducted to determine the existence of any significant differences between the experimental and control groups. Significance level for the MANOVA was set at $p < .05$.

In a post hoc analysis on posttest data, the investigator conducted a MANOVA and compared means of the three experimental groups on each of the constructs related to media literacy. This analysis aimed to address the possibility of experimenter bias.

Hypothesis three. A third hypothesis claimed that participants in the media literacy intervention would report greater self-esteem and less weight-related anxiety than girls who did not experience the media literacy intervention.

The independent variable was, again, exposure to the media literacy intervention, and the dependent variables were greater self-esteem, as measured by the RSES and less appearance-related anxiety, as measured by the PASTAS (Weight scale). While the PASTAS Weight scale is similar to the Body Dissatisfaction scale of the EDI-3, it was chosen to measure immediate anxiety and to serve as another assessment of body discontent. A one-way ANOVA ($p < .05$) was employed to determine any group differences.

Hypothesis four. With the addition 25 students forming a second, non-equivalent, non-intervention control group in the 6 month follow-up, it was further hypothesized that this non-intervention group would report higher scores on the scales related to eating disorder risk constructs: drive for thinness, bulimia, body dissatisfaction, internalization, information, realism, similarity, and weight-related anxiety. Conversely, it was projected that the non-intervention group would score lower on the measure of self-esteem. A MANOVA was conducted to compare all three groups at the 6 month follow-up study. Scheffe' analyses also helped determine specific group contrasts.

Hypothesis five. In the lateral experiment, the investigator proposed that participants in the substance education control intervention would report less engagement in substance use behaviors and greater resistance behaviors than girls who did not experience the substance education intervention.

The substance education intervention served as the independent variable, and the dependent variables were scores on the Use and Resistance scales of the SURQ. The investigator conducted a one-way ANOVA at posttest and 6 weeks and a MANOVA at 6 months ($p < .05$). In a post hoc analysis, another MANOVA was conducted on posttest and 6 weeks' data to determine differences in specific substance use: alcohol, cigarettes, and marijuana.

Summary

This chapter explains the method of the investigation and describes the participants, apparatus, and design of the research. The procedure addresses the design of the program, data collection, and data analysis of each of the hypotheses. Some of the measures (e.g., SPPA and EDI-3) are protected under copyright and, therefore, are not included in appendices. Permission has been granted from publishers to include limited sample items as presented in the instrument descriptions. Similarly some session activities are copyrighted and are not provided in full. Outlines, measures, and samples have been included as possible.

CHAPTER IV

Results

This chapter includes results of data analyses before the intervention, at posttest, at 6 weeks, and at 6 months following the intervention. Descriptive statistics of demographic data are presented first, followed by results of the preliminary analysis, an explanation of data and item elimination, the internal consistency reports of each of the scales employed, and the Pearson Product-Moment correlation coefficients between all of the dependent measures. Next, intervention effects are organized by hypothesis, with descriptive data of means and standard deviations as well as group comparisons of variance and effect sizes presented at each data collection. Unless otherwise noted, SAS software was employed to conduct analyses (SAS Institute, 2005; Version 9.1).

Description of Sample

The school database was used to determine participants' age, race, and boarding or day student status. Students in the original investigation ranged in age from 14-15 at the beginning of the intervention, with a mean age of 14.61. These students' races were predominantly White (90%), followed by African American (7%), Indian American (1.5%), and Asian (non-American, 1.5%). Approximately 42% of these students were boarders from different parts of North Carolina, South Carolina, Virginia, Georgia, and Mississippi. The international students in the sample were from South Korea and the United Arab Emirates. Random assignment appeared to have distributed demographic characteristics consistently between groups, with African American and international students represented equally in both conditions. It is also assumed that most, but not all,

participants' socio-economic statuses were classified as middle or upper middle-class, indicative of the school-wide population.

At the 6 month follow-up, a new school year had begun and both of the groups suffered comparable attrition. Five students from the experimental group and seven students from the control group withdrew from the study because they were no longer enrolled as students at the intervention site. A second, non-equivalent control group was added for the final data collection when 25 new students enrolled at the school. The average age of the second control group (15.26) was almost identical to the rest of the class at 6 months, and the group's racial composition was also somewhat similar to the overall class: 84% (White), 12% Asian (South Korean and Chinese), and 4% African American. Notably, the new group differed demonstrably from the previous groups in having 76% of students boarding as opposed to 42%.

Preliminary Analysis

Pre-test data were collected from the 62 original participants. A preliminary MANOVA confirmed that there were no significant differences between experimental and control groups in terms of perceived scholastic competence, social acceptance, athletic competence, physical appearance, job competence, romantic appeal, behavioral conduct, close friendships, and global self-worth on the SPPA. One student's response on the romantic appeal subscale was omitted due to missing data. Though these subscales did not represent specific dependent variables later measured in the experiment, this pattern suggests that random assignment created equivalent groups (see Table 1).

Table 1

Means and Standard Deviations of Pre-Intervention Measures

Measure	Control		Experimental	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Scholastic Competence	2.88	0.38	2.82	0.28
Social Acceptance	2.80	0.53	3.04	0.47
Athletic Competence	2.49	0.24	2.50	0.35
Physical Appearance	2.49	0.41	2.59	0.39
Job Competence	2.72	0.55	2.69	0.60
Behavioral Conduct	3.0	0.33	3.0	0.42
Close Friendships	2.48	0.37	2.38	0.27
Romantic Appeal	2.42	0.39	2.48	0.40
Global Self-Worth	2.72	0.51	2.77	0.32

Note. All scales from the Self-Perception Profile for Adolescents (Harter, 1988). ^a *n* = 30 in experimental group. Wilks' lambda, $F(9, 0.57) = 1.28, p = .8151$.

Elimination of Data and Items

Session absences were fairly minimal (13 total), and no participant in the experimental group missed more than one of the eight intervention lessons. Two participants in the control group missed two sessions, but students were not screened from completing the surveys. Students who were absent during any one of the data collection sessions completed the instruments as soon as possible (usually within 1 day) following administration. During the 6 week follow-up in May, one student who was absent subsequently withdrew her participation from the study by not wanting to devote the extra time needed to complete the surveys.

Missing data for items on all measures at all data collections were also minimal. If only one item were missing from a subscale, the experimenter supplanted the missing data with the participant's subscale average which was rounded as necessary. If more than one item were missing from any one scale, the participant's entire scale was omitted. At posttest, a total of 10 items from all of the scales had been skipped by participants. Two participants' entire responses on the EDI-3 were also deleted from analysis due to the appearance of disingenuous responses.

At the 6 week data collection, six items were missing and replaced. Additionally, one EDI-3 survey was omitted due to the appearance of inconsistent responses, one RSES was deleted because two items were missing, and one MAQ instrument was completely omitted by a participant. At 6 months, again, missing data were limited. Six items were replaced and two EDI-3 subscales for BN as well as one Resistance subscale from SURQ were deleted because of skipped items.

Some inconsistencies and errors emerged that necessitated the elimination of specific items from two of the subscales of an instrument that has not undergone extensive empirical validation. First, at posttest, one of the items from the Similarity subscale of the MAQ was misprinted. Instead of reading, “I could look like the models in the ads,” it read, “I wish I could look like the model in the ads.” This changed the item from measuring similarity to desirability, so it was omitted in the posttest data collection and returned after correction in the second and third administrations. Next, when conducting Cronbach’s alphas for all of the subscales, the Realism scale of the MAQ did not meet minimum internal consistency standards. When one item was omitted, the scale’s consistency improved to acceptable standards, despite the much smaller scale size. This item was subsequently removed and data were reanalyzed, using the reduced subscale. Reliability estimates were conducted for all of the scales used at each data collection. As Table 2 indicates, except for one administration of the Resistance scale of the experimenter created SURQ, all of the scales met minimum standards for internal consistency.

Table 2

Cronbach's Alpha for Scales Used at Each Data Collection

	<u>Termination</u>	<u>6 Weeks</u>	<u>6 Months</u>
EDI-Body Dissatisfaction	.89	.92	.92
EDI-Bulimia	.82	.78	.85
EDI-Drive for Thinness	.89	.92	.88
SATAQ-Information	.85	.89	.92
SATAQ-Internalization ^a	.90	.91	.92
MAQ-Realism	.76 (.62) ^b	.81 (.44)	.77 (.56)
MAQ-Similarity	.72 ^c	.88	.87
PASTAS-Weight	.91	.94	.94
RSES	.89	.88	.91
SURQ-Substance Use	.83	.78	.74
SURQ-Substance Resistance	.80	.64	.80

Note. EDI = Eating Disorders Inventory-3 (Garner, 2004); SATAQ = Sociocultural Attitudes Towards Appearance Questionnaire-3 (Thompson et al., 2004); MAQ = Media Attitudes Questionnaire (Irving, DuPen, & Berel, 1998); PASTAS = Physical Appearance State and Trait Anxiety (Reed, Thompson, Brannick, & Sacco, 1991); RSES = Rosenberg Self-Esteem Scale (Rosenberg, 1965); SURQ = Substance Use and Resistance Questionnaire (investigator created). ^a Internalization refers to Internalization-General subscale. ^b Parentheses indicate alphas before deletion of one item from scale. ^c Similarity scale used only two of three items at this measurement.

An unfortunate error on the first administration of the Drive for Thinness subscale of the EDI-3 is notable but did not ultimately result in the elimination of data. One of the items read, “I feel extremely guilty after eating” when it should have read, “I feel extremely guilty after overeating.” Data was analyzed with and without the inclusion of this item. Between group differences were significant in both analyses and the item was deemed to measure a drive for thinness, though inarguably it underestimates the construct as participants without eating disturbances were less likely to score on the incorrect item. In the second administration, the incorrect and the corrected items were both used to serve as a comparison of differences as well as to provide insight about possible changes over time. Internal consistency correlations as well as Pearson-Product Moment correlations were within reported and expected ranges using the misprinted item, further supporting the decision not to eliminate it from consideration in the posttest analysis.

Additional data also had to be eliminated only for determining interscale correlations. If any participant’s subscale had been eliminated during data analysis for intervention effects, her entire survey response was omitted to equalize numbers in the calculation of correlations. This process left 59 surveys at posttest and at 6 weeks and 70 surveys at 6 months for use in calculating correlation coefficients.

Correlations of Dependent Measures

Though each hypothesis was analyzed separately, a combined analysis of correlations was conducted to determine relationships between all of the dependent

measures in the study. While correlations varied to some degree between each data collection, results revealed that numerous variables showed relationships to one another.

At each measurement, body dissatisfaction displayed an association with drive for thinness, bulimia, internalization, information, and weight anxiety, though the strength of the relationships ranged from .84 (weight anxiety, $p < .0001$) to .28 (information, $p = .0306$). Body dissatisfaction's strong correlation with weight anxiety ensured that weight anxiety yielded comparable correlations with other variables as well. Bulimia consistently correlated in varying degrees with the other EDI-3 variables, but in regards to other measures, it showed small to moderate associations with internalization at two data collections and revealed an association on at least one occasion with information, realism, similarity, and substance use.

Thin-ideal internalization demonstrated significant relationships with a number of other constructs that spanned from information ($r = .80, p < .0001$), to weight anxiety ($r = .63, p < .0001$), to similarity ($r = .30, p = .0203$). Realism and similarity displayed few associations with other variables, although similarity was linked to internalization in significant ways at each data collection and showed associations with drive for thinness at two measurements. Self-esteem held moderate inverse correlations with body dissatisfaction and weight anxiety at 6 weeks and 6 months.

In both follow-up studies, self-esteem was also linked to substance use, revealing small but significant inverse correlations ($r = -.35, p = .0073$; $r = -.36, p = .0029$ respectively). Additionally, the use of substances showed small but significant relationships with body dissatisfaction in two measurements ($r = .38, p < .05$; $r = .36, p$

<.05), and substance use and resistance consistently revealed significant positive correlations throughout the study. Given the well known connection between cigarette smoking and weight control coupled with links of bulimia to substance abuse (e.g., Luce, Engler, & Crowther, 2007), a post hoc correlation analysis at posttest comparing drinking and cigarette use with eating disorder variables seemed warranted. Some small correlations emerged. Drinking was associated with body dissatisfaction ($r = .40$, $p = .0015$) and weight anxiety ($r = .38$, $p = .0026$), but not with bulimia. Cigarette smoking was not associated with any eating disorder risk variables, but did correlate with drinking ($r = .56$; $p < .0001$) and smoking marijuana ($r = .73$; $p < .0001$). The full results for the primary subscale correlations at each data collection are provided in Table 3.

Table 3

Correlations of Dependent Measures

Measure	<u>Posttest</u>										
	DT	BD	BN	IG	I	R	S	SE	PW	SU	SR
1. EDI-Drive for thinness	----	.68**	.55**	.56**	.36*	.20	.43*	.08	.60**	.12	.17
2. EDI-Body Dissatisfaction		----	.35*	.56**	.28*	.24	.48*	-.03	.76**	.38*	.26*
3. EDI-Bulimia			----	.38*	.39*	.24	.28*	.12	.29*	.08	.09
4. SATAQ-Internalization General				----	.64**	.23	.55**	.15	.63**	.03	-.04
5. SATAQ-Information					----	.33*	.30*	.12	.28*	-.20	-.19
6. MAQ- Realism						----	.30*	.00	.08	.03	-.05
7. MAQ-Similarity							----	.16	.51**	.02	.06
8. RSES-Self-Esteem								----	.14	.21	.14
9. PASTAS-Weight Anxiety									----	.29*	.20
10. SURQ-Substance Use										----	.77**
11. SURQ-Resistance											----

Table 3 continued

Measure	6 Weeks										
	DT	BD	BN	IG	I	R	S	SE	PW	SU	SR
1. EDI-Drive for thinness	----	.76**	.37*	.54**	.44*	.27*	.31*	-.49**	.74**	.37*	-.01
2. EDI-Body Dissatisfaction		----	.36*	.56**	.38*	.24	.22	-.57**	.84**	.36*	-.02
3. EDI-Bulimia			----	.21	.23	.29*	-.09	-.23	.42*	.27*	.05
4. SATAQ-Internalization General				----	.80**	.09	.30*	-.24	.42*	-.04	-.05
5. SATAQ-Information					----	.20	.28*	-.26	.24	-.03	-.10
6. MAQ- Realism						----	.17	-.20	.18	.26*	-.08
7. MAQ-Similarity							----	-.23	.11	.04	-.06
8. RSES-Self-Esteem								----	-.50**	-.35*	-.11
9. PASTAS-Weight Anxiety									----	.44*	.04
10. SURQ-Substance Use										----	.50**
11. SURQ-Resistance											----

Table 3 continued

Measure	6 Months										
	DT	BD	BN	IG	I	R	S	SE	PW	SU	SR
1. EDI-DT Drive for thinness	----	.73**	.60**	.67**	.46**	.20	.14	-.31*	.60**	.10	-.09
2. EDI-BD Body Dissatisfaction		----	.63**	.61**	.36*	.20	.19	-.43*	.70**	-.15	.06
3. EDI-Bulimia			----	.45**	.31*	.14	.23	-.40*	.50**	.16	.05
4. SATAQ-Internalization General				----	.75**	.18	.38*	-.22	.44**	.05	-.12
5. SATAQ-Information					----	.27*	.40*	-.04	.27*	-.05	-.11
6. MAQ- Realism						----	.25*	.04	.16	.15	.04
7. MAQ-Similarity							----	-.15	.19	.12	-.07
8. RSES-Self-Esteem								----	-.49**	-.36*	-.13
9. PASTAS-Weight Anxiety									----	.27*	.06
10. SURQ-Substance Use										----	.53**
11. SURQ-Resistance											----

Table 3 continued

Note. EDI = Eating Disorders Inventory-3; SATAQ = Sociocultural Attitudes Towards Appearance Questionnaire-3; MAQ = Media Attitudes Questionnaire; RSES = Rosenberg Self-Esteem Scale; PASTAS = Physical Appearance State and Trait Anxiety Scale; SURQ = Substance Use and Resistance Questionnaire. DT = Drive for Thinness; BD = Body Dissatisfaction; BN = Bulimia; IG = Internalization-general; I = Information; R = Realism; S = Similarity; SE = Self-esteem; PW = Weight Anxiety; SU = Substance Use; SR = Substance Resistance; * $p < .05$, ** $p < .0001$.

Intervention Effects

Hypothesis One

It was hypothesized that participants in the media literacy intervention would report lower levels of body dissatisfaction, bulimia, and drive for thinness than girls who did not experience the media literacy intervention. The investigator conducted a one-way ANOVA between groups, using a Bonferroni correction to set significance at $p < .017$. The results at posttest and at 6 weeks are presented in Table 4.

Immediately after the intervention, the effect of the media literacy program was not significant for either body dissatisfaction or bulimia, although a very slight trend towards significance emerged for body dissatisfaction $F(1, 59) = 3.09, p = .08$. There was, however, a statistically significant difference between experimental and control groups on drive for thinness, $F(1, 59) = 7.35, p = .008$, that accounted for approximately 11% of the variance between the two groups.

Contrary to original expectations, in an ANOVA of data collected after 6 weeks, none of the dependent variables revealed statistically significant group differences. A trend towards statistically significant differences between groups on drive for thinness emerged, $F(1, 59) = 4.06, p = .046$, but this did not meet the necessary levels set at $p < .017$ to support the hypothesis.

Also, in the 6 week administration, the corrected drive for thinness item was returned. Compared to the misprinted item at posttest, the corrected item yielded a higher average of .23 in the control group and .24 in the experimental group on the overall 28 point drive for thinness scale. Interestingly, the corrected 6 week Drive for Thinness scale

did not increase notably from the more conservative earlier administration. In fact, the experimental group average increased by only .01 while the control group's average regressed.

Table 4

Means, Standard Deviations, and Group Comparisons on Measures of General Eating Disorder Risk Factors at Posttest and 6 Weeks

Dependent									
Variable	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>d</i>	%	<i>p</i>	
	Posttest								
	Control		Experimental						
	(<i>n</i> = 30)		(<i>n</i> = 30)						
Body dissatisfaction	19.60	9.8	15.07	10.2	3.09	.46	5	.084	
Bulimia	7.60	8.0	5.50	5.3	1.43	.32	2	.237	
Drive for thinness ^a	12.53	8.7	7.23	6.3	7.35*	.71	11	.008	
	6 Weeks								
	Control		Experimental						
	(<i>n</i> = 31)		(<i>n</i> = 29)						
Body dissatisfaction	18.81	10.7	15.79	10.8	1.18	.29	2	.281	
Bulimia	5.74	6.2	3.66	3.8	2.43	.39	4	.124	
Drive for thinness	11.42	8.3	7.24	7.5	4.06	.56	7	.046	

Note. *d* = effect size calculated using adjustment for Cohen's *d* for F-tests (Thalheimer & Cook, 2002). .2, .5, .8 typically correspond to small, medium, and large effect sizes (Cohen, 1988). % = percentage of variance explained, calculated from η^2 . ^a = Drive for Thinness subscale included one misprinted item that may have underestimated drive for thinness in both groups. *df* = 1. Significance set at *p* < .017. **p* < .01.

At the 6 month follow-up, the second control group was added and a MANOVA was performed to compare all three groups with significance set at $p < .05$. No statistically significant group differences emerged, Wilks' lambda, $F(6, 136) = 1.28, p = .2701$. However, body dissatisfaction reflected a trend towards significance $F(2, 72) = 3.39, p = .0391$. Despite the MANOVA indication that groups did not differ significantly on the three dependent variables, a Scheffe' test was conducted and detected that statistically significant group differences existed between the original control group and the experimental group at $p < .05$. This difference had been confirmed by a contrast in the original MANOVA, $t(60) = 5.44, p = .012$. None of the other dependent variables revealed significant differences between any of the group combinations as indicated in Table 5. Thus, the hypothesis that the media literacy intervention would reduce general eating disorder risk factors was partially supported for the construct of drive for thinness, but these gains did not hold. The hypothesis was not supported for body dissatisfaction or for bulimia. Table 5 further summarizes the results of the 6 month follow-up study.

Table 5

Means, Standard Deviations, and Group Comparisons on Measures of General Eating Disorder Risk Factors at 6 Months

	Control <i>n</i> = 24 ^a	Non-Intervention <i>n</i> = 25	Experimental <i>n</i> = 26				
DV	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>F</i>	<i>f</i> ²	%	<i>p</i>
BD	19.73 _b (12.0)	15.21 _{b,c} (10.4)	11.54 _c (10.3)	3.39	.10	9	.04
BN	7.05 (8.4)	5.58 (6.0)	3.92 (4.3)	1.38	.04	4	.26
DT	11.32 (9.0)	10.38 (8.2)	8.54 (6.9)	0.76	.02	2	.47

Note. DV = dependent variable. BD = body dissatisfaction, BN = bulimia, DT = drive for thinness. f^2 = Cohen's effect size for multivariate analysis using the formula $r^2/1-r^2$; .02, .15, .35 typically correspond to small, medium, and large effect sizes (Cohen, 1988). % = percentage of variance explained, calculated from η^2 . ^a For the control group on the bulimia measure, *n* = 22. Means on the same row that do not share subscripts differ at $p < .05$. MANOVA Wilks' lambda, $F(6, 136) = 1.28, p = .2709$.

Hypothesis Two

The second hypothesis focused specifically on media literacy and eating disorder risks associated with internalizing cultural ideals. It was hypothesized that participants in the media literacy intervention would display greater critical analyses through reporting less internalization of societal standards of beauty, less investment in the media as an important source of information about appearance, less belief in the realism of media

images, and less belief in the similarity to or personal attainability of images in the media, as compared with girls who did not experience the media literacy intervention.

The investigator performed a MANOVA measuring group differences on information, internalization, realism, and similarity (see Table 6). At posttest, results supported the hypothesis that statistical significance between groups existed, $F(4, 57) = 2.96, p = .027$. A consideration of the specific variables showed that three of the four dependent measures yielded significant group differences. Less belief in the media as an important source of information, $F(1, 61) = 4.28, p = .043$, as well as less internalization of the thin ideal, $F(1, 61) = 4.43, p = .0396$, showed medium effect sizes and each accounted for approximately 7% of the variance between groups. Less belief in the similarity and attainability of ideal media images, $F(1, 61) = 9.17, p = .004$, revealed a large effect size (.80) that accounted for approximately 13% of the variance. Differences on perceived realism did not reach significance $F(1, 61) = 2.64, p = .110$.

The 6 week follow-up similarly supported the hypothesis with comparable results on the dependent measures. The Wilks' lambda statistic again suggested significant group differences, $F(4, 55) 2.75 p = .037$. Measures of information, $F(1, 58) = 7.78, p = .01$, and internalization, $F(1, 58) = 6.54, p = .013$, reflected strengthened effect sizes, accounting for approximately 12% and 10% of the variance respectively. Statistically significant differences remained on the measure of similarity, $F(1, 58) = 5.65, p = .021$; however, the effect size weakened to account for approximately 9% of the variance between groups. No effect size was detected for the realism measure.

Table 6

Means, Standard Deviations, and Group Comparisons on Measures of Critical Analysis of Appearance-Related Media Images at Posttest and 6 Weeks

Dependent									
Variable	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>d</i>	%	<i>p</i>	
<u>Posttest^a</u>									
	Control		Experimental						
	<i>(n = 31)</i>		<i>(n = 31)</i>						
Information	28.00	8.0	23.79	8.0	4.28*	.53	7	.043	
Internalization	30.06	8.2	25.4	9.1	4.43*	.54	7	.040	
Realism	5.00	2.6	3.9	2.6	2.64	.43	4	.110	
Similarity	6.55	2.3	4.8	2.1	9.17**	.80	13	.004	
<u>6 Weeks^b</u>									
	Control		Experimental						
	<i>(n = 31)</i>		<i>(n = 30^c)</i>						
Information	28.60	7.6	22.70	8.9	7.78**	.73	12	.007	
Internalization	29.52	8.9	23.70	8.5	6.82*	.68	10	.011	
Realism	3.97	2.0	4.00	2.5	0.00	.00	0	.955	
Similarity	9.03	3.7	6.93	3.1	5.64*	.63	9	.021	

Note. *d* = effect size calculated using adjustment for Cohen's *d* for F-tests (Thalheimer & Cook, 2002). .2, .5, .8 typically correspond to small, medium, and large effect sizes (Cohen, 1988). % = percentage of variance explained, calculated from η^2 . ^a Wilks' lambda, $F(4, 57) = 2.96, p = .0273$.

Table 6 continued

^b Wilks' lambda, $F(4, 55) = 2.75, p = .0371$. ^c For Realism and Similarity scales in 6 week follow-up, experimental group $n = 29$. * $p < .05$, ** $p < .01$.

The hypothesis was further supported in the final 6 month follow-up study. In a MANOVA of the three groups $F(8, 138) = 2.39, p = .019$, thin-ideal internalization showed the greatest effect size, followed by information, and then similarity. A post hoc Scheffe' test was employed to specify which groups expressed statistically significant differences at $p < .05$. As Table 7 summarizes, the experimental group differed in the hypothesized direction from both control groups on reluctance to view the media as an important source of information. On thin-ideal internalization, the experimental group reported significantly lower levels in comparison with the original control group only. On the belief of similarity, the greatest difference surfaced between the experimental and the non-intervention group. The Scheffe' test is recognized as less likely than the Tukey comparison test to commit a Type I error, but more likely to commit a Type II error (SAS, 2005). Accordingly, it did not detect statistically significant differences between experimental and original control groups on measures of similarity, though a statistically significant difference between these groups materialized in the original MANOVA contrast, $t(72) = 2.15, p = .035$. Thus, at each data collection, substantial support existed for the hypothesis that the media literacy intervention led to decreases in thin-ideal internalization, in viewing the media as an important source of information about appearance, and in seeing oneself and others as capable of emulating the media's

portrayal of the thin ideal. Again, there was no support for differences in doubting the realism of media images.

Table 7

Means, Standard Deviations, and Group Comparisons on Measures of Critical Analysis of Appearance-Related Media Images at 6 Months

DV	Control <i>n</i> = 24		Non-Intervention <i>n</i> = 25		Experimental <i>n</i> = 26		<i>F</i>	<i>f</i> ²	%	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
I	29.25 _a	(7.6)	28.8 _a	(9.7)	22.19 _b	(9.5)	4.89*	.14	12	.010
IG	31.66 _a	(7.8)	28.66 _{a,b}	(9.2)	22.85 _b	(8.8)	6.80**	.19	16	.002
R	3.83	(2.0)	4.44	(2.3)	3.62	(2.2)	0.97	.03	3	.385
S	9.13 _a	(3.6)	9.76 _a	(3.6)	6.96 _b	(3.5)	4.34*	.11	11	.017

Note: DV = Dependent variable. I = Information, IG = Internalization, R = Realism, S = Similarity. *f*² = Cohen's effect size for multivariate analysis using the formula $r^2/1-r^2$; .02, .15, .35 typically correspond to small, medium, and large effect sizes (Cohen, 1988). % = percentage of variance explained, calculated from η^2 . Means on the same row that do not share subscripts differ at $p < .05$. Wilks' lambda, $F(8, 138) = 2.39, p = .0191$. * $p < .05$, ** $p < .01$.

Since the primary investigator also led a media literacy group, a post hoc analysis was conducted on the posttest data in an effort to detect possible facilitator bias and to determine if significant group differences between the experimental groups existed. A

MANOVA confirmed that no significant differences emerged between groups in the experimental condition, Wilks' lambda, $F(8, 44) = .69, p = .7005$. Group means further revealed that the primary investigator's group (Group A) did not present as the most well-adjusted on any of the media literacy variables (See Table 8). Similar additional analyses were not conducted at 6 weeks or 6 months given the consistency of findings for this hypothesis.

Table 8

Means and Standard Deviations at Posttest on Measures of Critical Analysis of Appearance-Related Media Images for Groups in Experimental Condition Only

DV	Group A <i>n</i> = 10 ^a		Group B <i>n</i> = 8 ^b		Group C <i>n</i> = 10 ^a	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Information	25.56	(7.8)	21.62	(7.1)	24.60	(9.4)
Internalization	26.05	(9.8)	22.75	(7.5)	27.90	(10.9)
Realism	4.55	(3.0)	3.78	(2.1)	3.45	(2.5)
Similarity	7.78	(3.5)	7.44	(3.5)	8.45	(3.1)

Note: DV = dependent variable. Group A = primary investigator's group; Group B = masters' level counselor's group; Group C = foreign language teacher's group. ^a*n* = 11 for measures of realism and similarity. ^b*n* = 9 for measures of realism and similarity.

Hypothesis Three

It was hypothesized that participants in the media literacy intervention would report less weight-related anxiety and greater self-esteem than girls who did not experience the media literacy intervention. At both posttest as well as at 6 weeks, a one-way ANOVA was conducted to detect significant group differences at $p < .05$. In terms of weight-related anxiety, girls in the experimental group reported less anxiety, but results did not reach statistical significance at either data analysis. The hypothesis that self-esteem would be improved was also not supported. In fact, control group participants reported slightly higher self-esteem than the experimental participants at posttest but not at 6 weeks, though again differences were non-significant (see Table 9).

Table 9

Means, Standard Deviations, and Group Comparisons on Measures of General Self-

Esteem and Weight-Related Anxiety at Posttest and 6 Weeks

Dependent									
Variable	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>d</i>	%	<i>p</i>	
	<u>Posttest</u>								
	Control		Experimental						
	<i>(n = 31)</i>		<i>(n = 31)</i>						
Self-Esteem	16.84	2.6	15.89	2.0	2.56	.41	4	.11	
Weight Anxiety	14.19	8.0	10.97	8.9	2.25	.39	4	.14	
	<u>6 Weeks</u>								
	Control		Experimental						
	<i>(n = 31)</i>		<i>(n = 30^a)</i>						
Self-Esteem	18.39	4.6	19.62	5.9	0.82	.24	1	.37	
Weight Anxiety	13.39	8.8	11.13	9.7	1.08	.24	2	.34	

Note. *d* = effect size calculated using adjustment for Cohen's *d* for *F*-tests (Cook & Thalheimer, 2002). .2, .5, .8 typically correspond to small, medium, and large effect sizes (Cohen, 1988). % = percentage of variance explained, calculated from η^2 . *df* = 1. ^a For Weight Anxiety scale in 6 week follow-up, experimental group *n* = 29.

Similarly, a MANOVA test at the 6 month follow-up to compare all three groups did not yield any significant differences, $F(4, 142) = 0.92, p = .4537$. Means were in the hypothesized direction for both variables, with the experimental group reporting slightly

more self-esteem and slightly less weight anxiety than the two control groups.

Consequently, results did not support either facet of the hypothesis that the intervention would reduce weight-related anxiety and enhance self-esteem (see Table 10).

Table 10

Means, Standard Deviations, and Group Comparisons on Measures of General Self-Esteem and Weight-Related Anxiety at 6 Months

DV	Control <i>n</i> = 24		Non-Intervention <i>n</i> = 25		Experimental <i>n</i> = 26		<i>F</i>	<i>f</i> ²	%	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
SE	19.06 (5.6)		19.00 (5.1)		21.17 (6.7)		1.14	.03	3	.33
WA	14.46 (10.5)		13.36 (9.3)		9.98 (8.8)		1.52	.04	4	.23

Note. *f*² = Cohen's effect size for multivariate analysis using the formula $r^2/1-r^2$; .02, .15, .35 typically correspond to small, medium, and large effect sizes (Cohen, 1988). % = percentage of variance explained, calculated from η^2 . Wilks' lambda, $F(4 / 142) = 0.92, p = .4537$.

Hypothesis Four

It was further hypothesized that the original control group would report reduced eating disorder risk factors and media investment on all measures and increased self-esteem in comparison with the second control group who had not been at the intervention site and, thus, had not received any life skills programming. As Figure 1 illustrates, mean

results contradicted this hypothesis. For all of the eating and media related measures except realism and similarity, the experimental group mean was the lowest, followed by the non-intervention group mean, and finally by the original control group mean. On the Realism and Similarity scales, the order changed with the non-intervention group reporting beliefs associated as less well-adjusted. The direction was reversed, as hypothesized, for the measure of self-esteem, with the experimental group representing the highest mean and the non-intervention group representing the lowest. Again, over half of these differences did not reach statistical significance, and the overall hypothesis was further not supported.

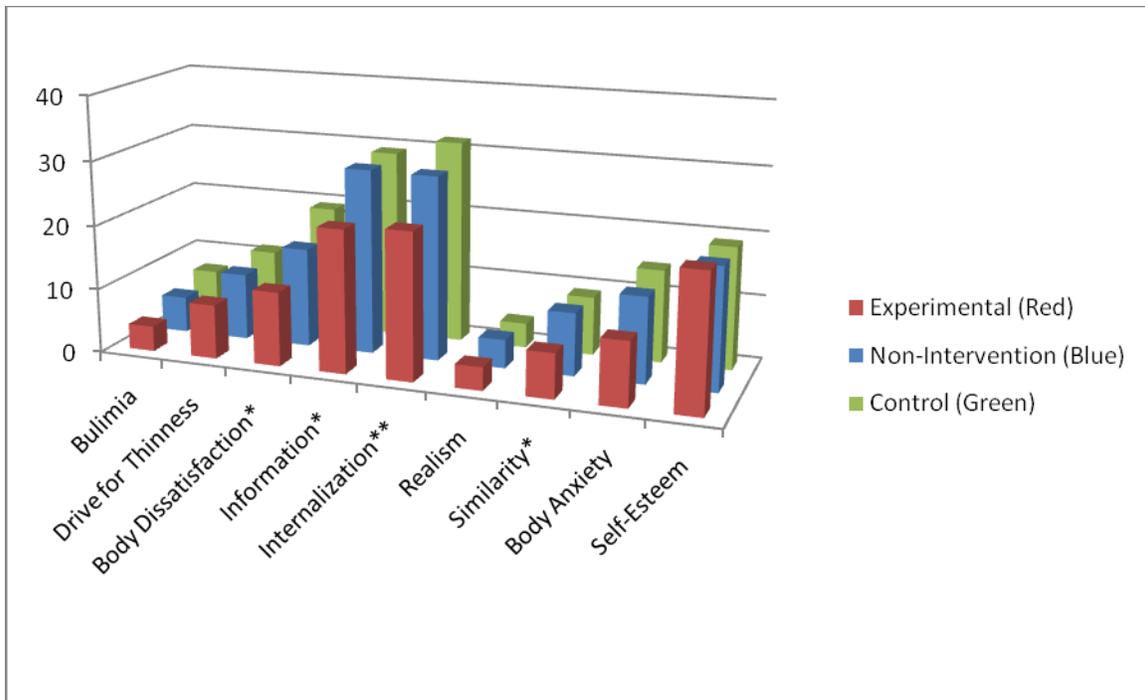


Figure 1. Means from 6 month follow-up study for each group on dependent variables in the media literacy investigation. Asterisks reveal significance between at least two of the groups. * $p < .05$, ** $p < .01$.

Hypothesis Five

In a lateral experiment, it was predicted that participants in the substance education intervention would report less engagement in substance use behaviors and greater resistance behaviors than girls who did not experience the substance education intervention. A one-way ANOVA was conducted at posttest as well as at 6 weeks to determine group differences, with $p < .05$. Immediately following the intervention, results for substance use behaviors firmly supported the hypothesis, $F(1, 60) = 9.65, p =$

.0029, indicating that the intervention accounted for approximately 14% of the variance between groups. The magnitude of this finding corresponds with a .80 effect size, considered large (Cohen, 1988). Because of the large effect size, a post hoc MANOVA was conducted to specify the use behaviors as associated with alcohol, cigarettes, or marijuana, Wilks' lambda $F(3/58) = 4.71, p = .0052$. The primary difference between groups seemed to lie with alcohol use $F(1, 60) = 12.69, p = .0007$, followed by cigarette smoking $F(1, 60) = 4.15, p = .046$. Differences in marijuana use were non-significant $F(1, 60) = 1.89, p = .174$. Contrary to the hypothesis for resistance behaviors, the control group reported significantly greater incidences of substance resistance $F(1, 60) = 4.18, p = .045$.

At 6 weeks, group differences diminished to non-significant levels. The difference of substance use approached significance $F(1/59) = 3.96, p = .051$, but resistance behaviors did not $F(1/59) = 1.31, p = .26$. Another post hoc MANOVA showed virtually no changes in cigarette smoking behaviors, but noticeable changes in reports of drinking behaviors. Table 11 highlights findings at both posttest and 6 weeks.

Table 11

Means, Standard Deviations, and Group Comparisons on Measures of Substance Use and Resistance at Posttest and 6 Weeks

Dependent Variable	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>d</i>	%	<i>p</i>
	<u>Posttest</u>							
	Control		Experimental					
	(<i>n</i> = 31)		(<i>n</i> = 31)					
Use	1.90	2.6	0.42	0.70	9.65**	.80	14	.003
Alcohol	1.45	1.5	0.39	0.72	12.69***	.92	17	.001
Cigarettes	0.23	0.6	0.00	0.00	4.15*	.54	6	.046
Marijuana	0.22	0.8	0.03	0.18	1.89	.34	3	.174
Resistance	1.58	2.3	.60	1.14	4.18*	.55	7	.045
	<u>6 Weeks</u>							
	Control		Experimental					
	(<i>n</i> = 31)		(<i>n</i> = 30)					
Use	0.52	1.0	1.47	2.5	3.96	.52	6	.051
Alcohol	1.00	1.6	0.48	0.9	2.87	.42	4	.096
Cigarettes	0.17	0.5	0.00	0.0	4.05	.53	6	.049
Marijuana	0.27	0.8	0.03	0.2	2.62	.43	4	.111
Resistance	0.93	1.6	0.55	0.9	1.31	.29	1	.257

Table 11 Continued

Note. Control group is the group that received the media literacy intervention; experimental group received substance education intervention. d = effect size calculated using adjustment for Cohen's d for F -tests (Cook & Thalheimer, 2002). .2, .5, .8 typically correspond to small, medium, and large effect sizes (Cohen, 1988). % = percentage of variance explained, calculated from η^2 . $df = 1$. * $p < .05$, ** $p < .01$, *** $p < .001$.

A MANOVA comparing both control groups and the experimental group revealed that these differences did not return in the 6 month follow-up study, Wilks' lambda $F = .78 (4/140)$, $p = .5417$. Table 12 presents these results. Thus, the hypothesis that the substance education intervention would reduce substance use was supported initially, but was not sustained. The second postulation that the intervention would increase resistance behaviors was refuted at each data collection as well.

Table 12

Means, Standard Deviations, and Group Comparisons on Measures of Substance Use and Resistance at 6 Months

	Control <i>n</i> = 24,23 ^a	Non-Intervention <i>n</i> = 24	Experimental <i>n</i> = 26				
DV	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>F</i>	<i>f</i> ²	%	<i>p</i>
U	2.12 (2.5)	2.04 (2.7)	1.21 (1.2)	1.20	.03	3	.31
RE	1.81 (2.9)	1.29 (1.9)	1.04 (1.4)	0.59	.02	2	.55

Note. U = Use scale; RE = Resistance scale. f^2 = Cohen's effect size for multivariate analysis using the formula $r^2/1-r^2$; .02, .15, .35 typically correspond to small, medium, and large effect sizes (Cohen, 1988). % = percentage of variance explained, calculated from η^2 . ^a Control group *n* = 24 for Use scale and *n* = 23 for Resistance scale. Wilks' lambda $F = .78 (4, 140)$, $p = .5417$.

Summary

This chapter delineated the results of findings for each hypothesis. At posttest, significant differences in the hypothesized direction were observed on measures of drive for thinness, thin-ideal internalization, information, and similarity. Differences on body dissatisfaction approached significance, and all other constructs reflected non-significant differences. At the 6 week follow-up, observed differences from posttest held for all of the constructs except for drive for thinness, and effect sizes strengthened for thin-ideal internalization and information. At 6 months, differences remained for thin-ideal

internalization, information, and similarity, while body dissatisfaction differences approached significance and may reflect some significant differences if the non-intervention group is eliminated from analysis.

For the substance education intervention, substance use and resistance showed significant differences at posttest, though resistance behaviors opposed the hypothesized direction. At all other measurements, no significant differences emerged. The importance and implications of these findings and a number of interesting correlations as well as the study's limitations and directions for future research are discussed in the final chapter.

CHAPTER V

Discussion and Integration of Results

This chapter summarizes the results of the study by hypothesis, integrating results with extant literature and discussing some specific limitations with each finding. General limitations of the study, challenges of the program, implications, and directions for future research are provided.

Hypothesis One

Hypothesis one postulated that a media literacy intervention would reduce body dissatisfaction, bulimic behaviors, and drive for thinness in attempts to lower risks for eating disorder development. These variables constitute a composite of risk factors that are considered predictive of pathological eating behaviors (see Garner, 2004).

Body dissatisfaction. No consistent, significant group differences on body dissatisfaction emerged in the study. There was a trend toward significance at posttest ($p = .084$) that disappeared at the 6 week follow-up study. At the 6 month follow-up, the MANOVA further confirmed that group differences were non-significant, though a Scheffe' comparison detected significant differences ($p < .05$) between the treatment and original control group. In many ways, a univariate comparison may be appropriate. The control and treatment groups had undergone random assignment and their differences in a comparison alone may be less contaminated than with the addition of a non-equivalent third group. Likewise, given the consistent and moderately strong correlations between all of the measures on the EDI-3, a MANOVA would likely have difficulty detecting differences. However, while it is tempting to see a glimmer of hope in the 6 month result,

the univariate analysis is admittedly much more likely to yield an experimentwise error. Moreover, the reduction in experimental group mean from posttest to 6 month follow-up—though ostensibly promising—was not analyzed for significance, and the study’s attrition may explain the differences. In other words, it cannot be ruled out that the students who left the school and the study actually accounted for the change in group differences.

While disappointing, the lack of impact on body dissatisfaction is hardly surprising given the ubiquity of body discontent in young women. Many universal prevention programs have struggled to achieve significant results in improving body satisfaction. In a meta-analysis of the best designed interventions (Stice & Shaw, 2004), a total of five universal (primary) studies uniquely targeted body dissatisfaction in high school girls. None of these had a significant effect on body dissatisfaction at posttest, while one (Weiss, 2000; as cited in Stice & Shaw, 2004) did see positive effects for body dissatisfaction at follow-up. That study—not unlike the present one—included 14-year-old participants and suggests that body dissatisfaction could be a construct that is slow to change or may become more meaningful as participants age. Some middle school studies with non-significant posttest differences have also seen significant differences in 6 and 12 month follow-ups (McVey & Davis, 2002; Stewart et al., 2001).

In a selected prevention program that employed cognitive-dissonance provoking activities with high school and college women, Stice, Trost, et al. (2003) did see significant effects on body dissatisfaction. The current media literacy study similarly attempted to invoke cognitive dissonance by asking participants to write letters to

younger students about ways to combat the thin ideal and about what they had learned from the intervention. It may be that the small drift towards reducing body dissatisfaction stems from this type of activity, though this mechanism cannot be isolated.

Irving and colleagues' (1998) media literacy program with high school girls also failed to achieve significant differences in body dissatisfaction. The authors explain their initial skepticism about achieving effects for this construct and reason: "adolescent females are already engaged in the process of evaluating and berating their own body in comparison to media images. It is doubtful that a brief intervention could change beliefs that have evolved as a result of years of messages provided by the media, family, and peers" (p. 129). Furthermore, in a media literacy intervention, girls are invariably and inevitably exposed briefly to *more* appearance-related media ideals. Given that such exposure has been linked to increased body dissatisfaction (e.g., Munro & Huon, 2005), using media images in interventions may have a subtle paradoxical effect. Since the experimental group mean for body dissatisfaction was regularly lower than the control group mean and actually diminished at the 6 month follow-up, iatrogenic effects in this regard seem unlikely. Nonetheless, fewer differences closer to the interventions may be the result of immediacy and proximity to media images. Thus, it appears that years of cultivating body dissatisfaction may take more time, more engaging interventions, and more dissonance-provoking experiences to effect any significant changes. It may also require more deliberate longitudinal studies to understand fully the course of body dissatisfaction.

Bulimia. At no time in the study did groups differ significantly on the bulimia subscale. Like body dissatisfaction, pathological eating behaviors have proven somewhat difficult to reduce, and researchers have met with mixed success. It appears that selected or targeted interventions produce the greatest effects in reducing eating pathology (see Stice & Shaw, 2004) and most of these have been with college-age participants. Stice and colleagues (2000) presented what appears to be the first controlled experiment to have reduced bulimic pathology successfully. This preliminary program was a three session intervention in which college students voluntarily argued against the thin ideal, presumably creating cognitive dissonance. This program has a number of features in common with other ones that have been successful: It is more than a one-shot intervention (i.e., it is comprehensive), it is interactive as opposed to didactic, and it is a targeted rather than universal program. The current study meets at least the first two of these criteria.

The lack of significant findings for bulimia in the current study may simply be due to floor effects. It is surmised that floor effects hinder some prevention programs, especially universal or primary ones, from statistically impacting eating pathology. If the overwhelming majority of participants are not engaging in bulimic thoughts or behaviors, then reducing those behaviors in a statistically significant way will be improbable. This feature may apply to the current study as well. It is also plausible that individuals who score rather high on the Bulimia scale may have already developed an eating disorder, making the prevention of something that has already developed considerably more difficult.

Drive for Thinness. An internal drive for thinness is a diagnostic criterion of both AN and BN and the Drive for Thinness scale of the EDI-2 (identical to EDI-3), as aforementioned, has been found to be predictive of binge-eating, of clinical eating disorder development, and of disorder severity (Garner, 2004). In the current study, at posttest, the between groups differences on drive for thinness was highly significant ($p < .008$). While the experimental group's mean changed by only 1/100th of a point at the 6 week follow-up, the control group's mean regressed, making the differences ($p < .046$) non-significant at the alpha level set. At 6 months, non-significant lower mean differences were observed.

Coughlin's (2002) dissertation examining A.R.M.E.D. (Acknowledging and Rejecting the Media's Influence on Eating and Body Image Disturbances) highlights the differences between asymptomatic, symptomatic, and individuals with clinical eating disorders and further supports the difficulty in seeing change in asymptomatic participants' drive for thinness. When responses of symptomatic individuals were isolated for examination, significant group differences were manifest. However, when symptomatic and non-symptomatic were consolidated, these group differences did not exist. Like bulimia, drive for thinness may be most salient to individuals already struggling with eating issues.

Likewise, cognitive dissonance may be more easily provoked in individuals who have struggled, even if in a minor way. In a comparison of a yoga intervention, a cognitive dissonance intervention, and a control condition (Mitchell et al., 2007), only the cognitive dissonance condition yielded significant differences in drive for thinness. Thus,

it appears that minimizing this drive for thinness may require some cognitive shifts that mindfulness and meditation exercises alone are not able to induce. If cognitive dissonance is a key factor, finding a way to continue promoting enough dissonance to create sustained attitudinal change may take more concerted efforts. In sum, though some variables hinted at promising results, overall the media literacy intervention was unsuccessful at supporting the hypotheses that general risk factors for eating disorders would be impacted by participation in the media literacy curriculum.

Hypothesis Two

Thin-ideal internalization is an often studied construct in eating disorder prevention, and the second hypothesis considered this risk factor along with other expressions of resisting sociocultural pressures for thinness. It was hypothesized that participants in the media literacy intervention would display less internalization of societal standards of beauty, less investment in the media as an important source of information about appearance, less belief in the realism of idealized images, and less belief in the attainability of (and one's similarity to) the idealized images compared with girls who did not experience the media literacy intervention. Unlike the general risk factors from hypothesis one, these four variables are related specifically to media literacy. Overall, results supported the hypothesis that the media literacy intervention would be associated with greater critical analyses of appearance-related images.

Thin-ideal internalization. The media literacy participants dependably reported significantly less internalization of the sociocultural standard of beauty. This finding was expected and is consistent with many other media literacy programs. For instance,

evaluations of the GO GIRLS!TM program (Levine et al., 1999; Piran et al., 2000; as cited in Levine & Smolak, 2006) both used the SATAQ instrument and found reduced internalization of the slender ideal in high school-age girls. Since the first part of the current study's intervention modifies several early sessions of GO GIRLS!TM, this finding was anticipated and bolsters support for using this type of intervention with this population.

The current finding was furthermore expected in light of the fact that Irving and colleague's (1998) media literacy evaluation with high school girls reported significant differences on internalization with just a single session of programming. Irving and Berel's (2001) similar study with college students, however, did not report group differences on internalization, and a review of controlled universal studies with college students yielded no successful reductions on this construct (see Stice & Shaw, 2004). Numerous college studies have been successful in this aim, but many if not most of these incorporated cognitive dissonance or nutritional activities and were targeted interventions. In fact, the results of the present study, coupled with the success of some other media literacy programs with high school students, intimates that thin-ideal internalization may be a construct optimally suited for high school and younger populations who have not completely solidified an ideology of thinness.

Information. Critical analysis of the media was also measured by discerning the importance participants placed on various media modes as valuable sources of information about being attractive. As with internalization, results on the information construct produced significant differences at each data collection. It is noteworthy,

however, that the moderate to strong correlations with internalization ($r = .64, p < .0001$; $r = .80, p < .0001$) may indicate that in this study the two subscales measured analogous, if not identical, constructs. For instance, an Internalization scale item reads, “I compare my body to the bodies of people who are on TV,” and an Information scale item reads, “TV programs are an important source of information about fashion and being attractive.” The nuances of these items may be overlooked by young adolescents. Nonetheless, the Information items do deal with *beliefs* about the importance of media whereas Internalization specifically addresses more internalizing *behaviors*, such as the tendency to compare oneself to media images. Intuitively, these Information and Internalization subscales should correlate. An individual would first need to recognize the media as important prior to internalizing fully and acting on the belief.

Furthermore, as cognitive dissonance theory postulates, general beliefs and personal actions do not always coincide. This distinction may explain the experimental groups’ clear propensity to discount the media as important, but still maintain body discontent and a drive for thinness. This finding of significant differences on information as well as on internalization in contrast with other eating disorder risk variables lends credence to the notion—and serves as a reminder—that body discontent, drive for thinness, and of course eating disorders are multidimensional and not simply attributable to media. Peers, parents, siblings, and a host of other sources impart pertinent messages that contribute to eating disorder development, and more prevention work needs to explicitly include these components. Through analyzing messages in fairy tales as an

additional medium, the current study did expand the definition of media and discuss a variety of informational sources as well as ways to combat messages that are negative.

The effect size between the treatment and control groups strengthened considerably on both information and internalization constructs between posttest and the 6 week follow-up. And, if the non-intervention group is excluded from the 6 month evaluation, the differences on the information construct widen a little further. Throughout the intervention, the control group's information raw scores slightly increased, while the experimental group's scores slightly decreased. Perhaps, to some degree, the lessons from the intervention resonated with participants as they encountered more media messages over time. Additional follow-up studies could detect if gains improve, stabilize, or decrease over more time.

Realism. The Realism scale of the MAQ has only been used in a couple of other known studies (Irving et al., 1998; Irving & Berel, 2001), and in the known high school investigation (1998), realism was one of only two variables to reflect significant differences. In the current study, realism differences were non-significant. A number of reasons are offered as possible explanations. First, one of the items from the subscale had to be removed to improve internal consistency. Notably, before the item's removal, differences on this construct did reach statistical significance at posttest, $F(1, 60) = 5.96$, $p = .0176$. Minimizing the subscale in addition to incorporating one that has not undergone empirical validation may have influenced this result. Indeed, Stice and Shaw (2004) suggest that un-validated measures typically underestimate effects in prevention investigations.

Another underestimation could be attributed to a confounding variable. When watching a video of a recent Dove™ commercial that highlights the superficiality of advertising images, some of the participants said their English teacher had shown the clip and led a similar discussion in class in the previous semester. Since participants were randomly assigned, a number of members from the control group inevitably had been exposed to the same material. In fact, the culture of the single-sex school, regularly engaging in dialogues about gender issues, could produce other confounding variables that increase the possibility of underestimating effects of this type of intervention.

Similarity. Like internalization and information, the construct of similarity reflected significant differences at each measurement. The fact that statistically significant differences were not observed for realism but did emerge for similarity is somewhat interesting. The Similarity scale in many ways has face validity as an extension of the Realism scale. One of the items says, “I could be as thin as models in the ads” and another extends this to include “most women.” Nonetheless, realism and similarity only displayed small but significant correlations at two measurements ($r = .30$, $p = .0231$; $r = .25$, $p = .0388$). In two of the studies, similarity did correlate with drive for thinness ($r = .43$, $p = .0008$; $r = .31$, $p = .0153$) and in another with body-related anxiety ($r = .51$, $p < .0001$). These correlations seem fitting. If a girl believes she and others can emulate models, she may experience an increased drive for thinness and face more anxiety around body size. On the other hand, increased similarity scores for the control group could simply indicate participants’ seeing themselves as more attractive, but this

assertion may have been discounted in the pre-test's failure to detect significant differences in appearance competence.

One previously unconsidered iatrogenic effect of the program could be if participants become more aware of the ideal, realize they are not similar to the ideal, and ultimately do not learn from the intervention to reject this ideal, does this knowledge ultimately increase negative affect or depression? Not including this variable for investigation may be a limitation of this study. Many eating disorder prevention studies do include negative affect for examination in an effort to understand the mechanisms of BN, and a few have even revealed significant reductions of this characteristic (e.g., McVey & Davis, 2002; Stice, Trost, et al., 2003). It is believed that since body dissatisfaction did not increase throughout the study and the direction of mean differences was in the hypothesized direction on all of the variables that the intervention did not have this negative effect on the participants. Moreover, the content of the program intends to be empowering for participants, and some similar studies have revealed this impact (e.g., Piran et al., 2000).

Overall, the success at seeing significant differences on this very small similarity scale is encouraging. One item avers: "Most women could be as thin as models in the ads by exercising and/or dieting." A post hoc singular analysis of this individual item revealed tremendous between group differences, $F(1, 59) = 15.08$ $p < .0003$. A goal of the program was to reduce body-size prejudices, and this item symbolizes a first step to the achievement of this objective. Most importantly, the results from this investigation support the second hypothesis that media literacy can improve critical analysis skills of

appearance-related images, and this ability may strengthen defenses against eating disorder development.

Hypothesis Three

It was originally predicted that participants in the media literacy intervention would report less appearance-related anxiety and greater self-esteem than girls who did not experience the media literacy intervention. Self-esteem and body anxiety constituted a supplemental hypothesis for a couple of reasons. First, the control group was receiving an intervention also designed to enhance general life skills, so it was envisioned that significant differences between groups on this construct might be small. Nonetheless, it was hypothesized that a significant difference would be observed. Second, the construct of weight or body anxiety was included as an additional measure of body dissatisfaction. Certainly, how one thinks about one's body in general may be different from immediate anxiety about it, but it was projected that measuring this variable might provide improved sensitivity and convey additional understanding of body dissatisfaction.

Self-esteem. Contrary to expectations, no significant differences in self-esteem emerged throughout the study. Self-esteem has been indicated as a protective factor in eating disorder research (e.g., O'Dea & Abraham, 2000), and the RSES has shown correlations with diet-related concerns (Griffiths et al., 1999) that were replicated in the current investigation as well. Findings, however, for self-esteem gains in prevention research have been mixed at best. In a study of differing symptomatic levels of high school girls, no significant effects for self-esteem were noted even when controlling for symptomatic status (Weiss & Wertheim, 2005). In a prevention study with targeted

college students, self-esteem reports also did not differ between dissonance, healthy body, and control groups (Matusek et al., 2004). A media literacy intervention with 8th grade boys and girls included a comparison with a program specifically designed to enhance self-esteem, and no significant differences emerged between the control group, the self-esteem group, and the media literacy group (Wade, Davidson, & O’Dea, 2003). A non-randomized, non-pretest study did, however, see self-esteem gains when measuring physical self-esteem specifically (Phelps et al., 2000). Thus, it appears that changing general self-esteem as the result of a specific, often psychoeducational, intervention proves challenging.

In light of the existing literature and the design of the investigation, it may have been naïve to conjecture that the intervention would discernibly impact self-esteem. The control group experience in the substance education program included skill-building lessons, such as brief assertiveness exercises, which hopefully boosted self-esteem as well. The inclusion of a non-treatment control group in the randomized portion of the experiment would have shed greater insight into the stability or malleability of this construct. Regardless, self-esteem does seem to be associated with body discontent. In the follow-up studies, it revealed negative correlations with weight anxiety, drive for thinness, and body dissatisfaction. Clearly for some girls a portion of their self worth is intertwined with how they generally think and feel about their bodies.

Weight anxiety. The construct of weight-related anxiety was added as a second measure of body dissatisfaction. Findings revealed even less differentiation than measures of body dissatisfaction did. Differences were noted in the hypothesized

direction at each data collection; however, none of these approached statistical significance, and the large standard deviations on this measure suggest fairly large within group differences. The immediacy of the measure may also be better suited for more anxiety-provoking situations. For instance, the participants were asked to rate their levels of anxiety “right now,” and these reports may have been underestimated in a classroom setting versus if participants had been asked to rate anxiety when imagining their bodies in a beach or romantic setting. Moreover, if body dissatisfaction questions tend to exemplify predominantly cognitive based items and weight anxiety items tap into the general feelings of nervousness surrounding the body, the trend toward significance for body dissatisfaction and not for weight anxiety suggests that thoughts may be easier to change than feelings in this domain. From results on both self-esteem and weight-anxiety measures, hypothesis three failed to generate support.

Hypothesis Four

It was originally predicted that the 6 month follow-up study would produce results showing the experimental group with the least eating disorder risk, followed by the control group, and finally by the non-intervention group. The first part of this hypothesis was supported. The media literacy group did indeed score lower on all measures related to eating disorder risk and scored higher on self-esteem than the other two groups. Many of the observed differences did not reach statistical significance and may allude to the necessity of a lengthier or more comprehensive program, but the constellation of factors all moving in the predicted direction intimates some promise. But, contrary to the hypothesis, the non-intervention group—new students to the school—scored lower than

the control group on most measures. Though most of these differences also did not reach significance levels, this finding was still surprising. The investigator presumed that having some intervention and being at a single-sex school would be empowering for the students. In hindsight, that hypothesis may have been hasty. The previously discussed research noted that private school students (Lesar et al., 2000) and girls at a single-sex institution (Mensinger, 2001a) may be at a heightened risk for eating disorders, so it is plausible that the control group scored higher than the non-intervention group because it had been in an environment that exacerbates eating disorder risk. Interestingly enough, the trend was in the direction and order hypothesized for self-esteem, with both of the original school groups scoring higher than the group that had not attended the school the previous year.

One of the identified limitations of at the outset of the research design was the threat of a spillover effect. If such an effect were in operation, an expected artifact might have been the control group's scoring higher than the non-intervention group on the pertinent measures. While the possibility of spillover effects cannot be discounted, the results here suggest otherwise. Still, pre-existing group variation could equally account for any of the differences.

Hypothesis Five

It was hypothesized that as a result of an eight week intervention, the substance education group (the previous control group, the current experimental group) would report less frequent use of substances and greater resistance to substance use than the media literacy group. The program appeared to have an impact on substance use at

posttest that declined to non-significant levels at the 6 month follow-up study. The program did not appear to influence resistance behaviors.

Substance use. At posttest, the difference between groups was statistically significant. In fact, the greatest effect size reported from the entire study resulted from the differences in alcohol use and accounted for approximately 17% of the variance between groups. This impact quickly diminished, though there was a trend towards significance in overall substance use at 6 weeks that no longer existed in the 6 month follow-up. It is difficult to determine what accounts for the attenuation, though the degrading of findings is certainly not uncommon in substance use programs (see Bacon & Hilderbrand, 2001).

The truly psychoeducational nature of the substance education intervention may also have added to the temporality of the results, and correspondingly, strictly psychoeducational eating disorder prevention programs have met with little success. Unlike the current media literacy program which sustained some of its positive results over time, there were no cognitive dissonance provoking exercises included in the substance education program. One session typically provided a thorough account of substance use via a video and ensuing discussion, and the succeeding session was devoted to learning various life skills (i.e., assertiveness skills, conflict resolution, etc.). This type of knowledge may simply not be sustainable and transferrable without regular “booster” sessions.

Another plausible explanation for the findings is that gradually more students could have encountered substances in the natural developmental process. As the sample of students who reported behaviors grew, the results would probably become more

reflective of the population. Further analysis of the data could also indicate if the behaviors are the results of a few students' major behavioral changes in the spring and summer or if many students made very minor changes in substance use behaviors.

It is noteworthy that both the treatment and control groups participated in an alcohol online education program during the last week of February. This program likely reiterated or replicated the intervention session on alcohol use and would have theoretically produced a serious confounding variable, diminishing differences between groups. The first posttest was well *after* this online simulation for all participants, so it is perplexing and remarkable that group differences were still so pronounced at posttest. Some questions inevitably arise: Would the effects have been even greater if the Internet substance education module had not been completed by the media literacy group? Does the finding support the need for enhanced engagement in a "live" classroom setting as opposed to an online modality? Or, did the online simulation help solidify the classroom learning even further? The observed findings warrant considerable future exploration and analysis as substance use has major implications for an array of difficulties such as poor physical health, depression, and destructive behaviors (see Ott & Doyle, 2005).

Previous research has connected cigarette and alcohol use with body dissatisfaction (e.g., Granner, Black, & Abood, 2002) and bulimia with substance use behaviors (e.g., Luce, Engler, & Crowder, 2007). Since the experimental group admitted significantly greater substance use at posttest, the investigator deemed it prudent to assess if cigarette use and eating disorder risk variables were associated. A connection could allude to iatrogenic effects of the media literacy intervention as easily as it could suggest

positive effects from the substance education intervention. Likewise, the investigator was curious about any relationship in this study between drinking and eating disorder variables and decided to conduct a post hoc correlational analysis on the posttest data as it exemplified the greatest differences. As aforementioned, drinking was mildly associated with body dissatisfaction and weight anxiety. Cigarette smoking did correlate with drinking and smoking marijuana, but smoking cigarettes was not significantly associated with any eating disorder risk variables, even when the correlations were conducted using only the media literacy group. Thus, the media literacy intervention did not appear to have the negative effect of increasing smoking behaviors. The relationship between body dissatisfaction and drinking behaviors is, however, interesting. One possibility is that drinking serves as some form of coping mechanism for anxiety, often referred to as negative affect reduction (Granner et al., 2002), but further analyses and consideration are required to understand better the relationship between these variables.

Resistance. Results for resistance behaviors diverged considerably from expectations. At posttest, significant differences materialized in the opposite direction of the hypothesis, indicating that the control group actually resisted substance use significantly more than the experimental group. While the differences did not preserve, resistance and substance use correlated significantly at each data collection. It was imagined that an inverse relationship between use and resistance would emerge--students who resisted behaviors most frequently would be the ones using substances less frequently. This was simply not the case. It may be that being in an environment in which substances are present makes it more likely that an individual will resist as well as

partake. Perhaps, then, the substance education group's real resistance came in avoiding whole situations rather than merely abstaining from specific offers. Another possible account for the counterintuitive findings may be the lack of validation for the scales. Scales that have undergone more evaluation may be more sensitive and yield more consistent results. Regardless, the results at posttest support the rationale for substance education, and the follow-up results support the need for ongoing intervention.

Limitations of the Study

Many of the study's limitations have been alluded to in the context of discussing the results. Nonetheless, numerous other limitations emerge and the most critical ones are delineated and discussed further.

Though the controlled experiment typically ensures internal validity, a couple of threats exist in this area. Effect sizes were calculated by comparing mean differences at posttest and follow-up investigations without accounting for possible pre-test differences. Therefore, even though random assignment should have controlled for group differences, any of the effects reported cannot exclude the possibility that groups were unequal in some pertinent way. This remote possibility becomes probable in the 6 month study. The non-intervention control group presumably differs in a substantial manner from the other two groups. Students who change high schools and especially those who become boarding students as 10th graders may be very different from students who change school or leave home before the 9th grade. Also the non-intervention sample included more boarding students and more international students than the other groups in the original investigation. Compared to day students, boarding students could be more independent,

more troubled, or a host of other unidentified differences. Similarly, the non-intervention group included more students from Asia. This status variable was not controlled, and it is possible that these students approach substance and body image issues differently from the majority of the sample. The incorporation of a survey to identify demographic characteristics and perhaps even body mass index could be helpful and was considered, but given the small percentage of minority students at the school, the investigator believed gathering this data would compromise confidentiality.

As previously discussed, the possibility of differential attrition at the 6 month follow-up study cannot be eliminated. While groups appeared to change in overtly comparable ways, it is possible that group attrition accounts for the differences observed. The results, however, do not indicate that this threat was likely. In the eating disorder research, differences at 6 months generally reflected previous findings, with the exception of a greater difference seen in body dissatisfaction. In the substance education research, increased behaviors could be accounted for by group attrition, but it is equally likely that maturation effects and statistical regression may have been operating.

Certain demand characteristics could also serve as study limitations. Students signed consent forms indicating that the research aimed to determine the effectiveness of media literacy education. Participants enrolled in the media literacy intervention may have intentionally or unintentionally adopted the good or bad participant role and acted accordingly. Likewise students in the control group could have engaged in compensatory rivalry, though again their scoring higher on all measures and lower than the

non-intervention group suggests otherwise. In an attempt to deliver a non-specific prevention program, the consent forms deliberately did not mention eating disorders in any part. Furthermore, the substance education intervention contained a number of media elements as well, so it is possible that all participants viewed their program as part of the study. Indeed, the efficacy of both interventions was important, facilitators knew both conditions would be measured, and instruments at posttest included measures specific to each group's curriculum.

Evaluation apprehension and a social desirability effect could have been operating as additional threats to construct validity. While students were assured of the anonymity and the confidentiality of their reports, the fact that the primary investigator was internal to the school site could have induced both of these situations. The seeming overemphasis of alcohol education with the substance education group may have also encouraged them to underreport their use behaviors, although this may be most relevant in the posttest examination. Feasibly, they could have given desirable answers in an effort to avoid additional future programming on that subject.

Another limitation lies in the fact that the primary investigator served as one of the three experimental group leaders. Ideally, another facilitator would have been chosen in efforts to reduce experimenter expectancy, but school resources and a desire to keep group size under 12 participants made this inevitable. The investigator could have been assigned to the substance education condition, but the school's psychologist and onsite supervisor wanted her to serve as the team leader for the media literacy groups while an educator with experience teaching the substance education curriculum served as that

group's team leader. Normally, facilitators would move between experimental and control groups to ensure further equality of treatment. This control would be of paramount importance if two different interventions sought to achieve the same goals. Since the media literacy and substance education group had separate goals with the exception of enhancing self-esteem, the confounding effects of different facilitators may be of marginally less importance. Movement between groups was not a possibility given the school parameters and practice that teachers remain with groups for the whole semester's worth of life skills programming, but neither facilitator bias nor experimenter expectancy appear to be at work in this study. The post hoc comparison of the experimental groups showed no significant group differences, and the primary investigator's group did not report the strongest findings on the media literacy variables.

As aforementioned, the use of two measures that have not been subjected to validation investigation poses a threat to statistical conclusion validity. Both the MAQ and the investigator created SURQ have not undergone empirical validation and both have a small number of items dedicated to each scale. The small scale sizes alone increase the possibility of random response error which would automatically make them less reliable than an instrument with a greater number of items. With the limited items, the instruments also lack items asking the same question in more than a one way, further undermining statistical validity. The number of subscales dedicated to understanding the goals of the media literacy intervention help reduce this threat to some degree, and the questions on the SURQ appear fairly straightforward. In fact, the lack of item reversal and limited multiple questions may have actually made this instrument more

understandable to younger adolescents. Another instrument choice further limits the understanding of this study's contribution to eating disorder research. Prevention work includes changing attitudes and behaviors, and though both of these were targeted in the program, the majority of the instruments employed in this portion of the study assessed attitudinal differences. More measures of behavioral intentions are essential in the future.

Finally, both setting and sample selection function as limitations to the external validity of the study. A fairly homogeneous sample comprised of 9th grade girls at a single-sex, independent boarding and day school minimizes the potential for extrapolation or generalization of findings. This population is narrow in scope and does not reflect the diversity of young girls and boys who wrestle with body image issues or substance use.

Limitations of the Program

Inherent in the limitations of the study are a few notable limitations to the programs implemented. Watson and Vaughn (2006) found that while brief media literacy interventions effectively reduced some of the sociocultural risk factors, longer interventions (in their experiment 6 hours) were better able to impact results in the hypothesized direction. While the current intervention gives the allusion of being very long and comprehensive, in actuality, it was quite brief. Eight sessions were allowed a total of 40 minutes each (5.3 hours total). This time was reduced after classes settled, homework was collected, and attendance was taken. Plus, though homework was theoretically compulsory, students quickly learned that since they were turning in their small homework assignments anonymously, they would not be penalized for failing to

complete the exercises. Thus, the engagement in the material was less than hoped. These challenges did not differ between the media literacy and substance education groups.

Additionally, the limited time often left class sessions feeling rushed. More time was needed to promote discussion and to devote to making acquired beliefs public, giving girls a voice, and possibly producing more dissonance. In accordance, advocacy is often viewed as a major component of media literacy, and many programs (e.g., GO GIRLS!TM) allow time for advocacy activities. Due to time constraints and the fact that the current program was required for students, the curriculum did not include this often critical element. It was feared that requiring advocacy might actually create some resistance, but follow-up volunteer opportunities through the school's community service program may provide some continuity to what participants learned in the intervention. Advocacy seems to be an ideal way to engage participants further and may serve as another form of creating cognitive dissonance. If students publicly commit to advocacy efforts, they may be more likely to align their beliefs and behaviors to reduce tension.

Implications and Future Research

Two of the ways this study attempted to build on earlier media literacy research was by using random assignment and including a 6 month follow-up study. If participants consent again, it may be possible to conduct another follow-up at 10 months, before the control group receives a comparable intervention. Also, some specific data analyses of the current investigation create immediate opportunities for future research. A secondary data analysis using repeated measures ANOVA in the form of time x condition could help show if the changes in some of the outcomes over time bear any significance.

Second, the EDI-3 and the SURQ are similar instruments in the sense that they seek frequency responses to items. A secondary chi square analysis could possibly help determine if a few symptomatic students are varying the results of the groups. Third, some potentially meaningful data was collected from participants in their cognitive dissonance exercise, their evaluations of the intervention, and some of their brief homework assignments. These data are deserving of attention and may represent the voices of the participants in important ways. The results of this study further suggest a number of important implications for researchers as well as practitioners:

- Media literacy alone may not be enough to excite significant change in eating behaviors, drive for thinness, and body dissatisfaction. In terms of prevention program development, media literacy may be best as one, but not the sole, component of a more comprehensive approach.
- Acquiring a better understanding of the exact risk factors of eating disorder development is imperative. Body dissatisfaction relates to eating issues, but since the preponderance of women in Western cultures experience body dissatisfaction and do not develop eating disturbances, more insight about the specific mechanisms of eating disorder development is needed.
- Continual advancements in prevention research highlight the critical need for long-term evaluations. Ethically, follow-ups of meaningful length in controlled studies are scarce because it is difficult to deprive participants of programming that might be beneficial even in a small ways. Researchers will want to design

quasi-experimental studies or search for ex post facto control groups to make longitudinal deductions about the benefits of media literacy.

- In an effort to create “best practices” for prevention research, investigations evaluating intervention effectiveness with participants of varying symptom levels could help isolate risk factors to target. More studies comparing media literacy’s effectiveness in primary, secondary, or tertiary interventions are warranted.
- Prevention efforts have been conducted with participants of varying ages: children, young adolescents, and older adolescents. Still, the best practice and developmental timing have not been established. Further research to specify these dimensions is needed.
- Programs need to target an array of individuals. In order to enact real systemic change, boys, parents, and teachers need to be engaged as well, and parallel prevention effort with these groups could determine if greater gains are subsequently realized. Boys especially may be well-suited for media literacy and reducing their perception of women’s need to meet a thin ideal as well as their own need to meet a physical ideal.
- Professional counselors in schools can be instrumental in leading prevention efforts. School counselor accountability is on the forefront (Webb, Brigman, & Campbell, 2005; Whiston, 2002; Whiston & Sexton, 1998), and this intervention reflects that school counselors, with the help of classroom teachers, can produce some substantial results and potentially impact students’ lives with deliberate programming. This process need not be a lengthy endeavor. Since this

intervention, Stice and Presnell (2007) have published *The Body Project* with specific lessons and guidelines for the implementation of empirically validated programs (primarily with college students). GO GIRLS!TM (EDAP, 1998) also provided the inspiration for the current intervention and offers a ready-made curriculum for younger adolescents. Even without considerable program development, counselors can work with other mental health professionals to create prevention opportunities for students.

- Continuing education in the eating disorder field, collaboration with professionals, and reliance on previous empirical research are important for those initiating the implementation of programs in schools. The health consequences inherent in eating disturbances and the possibility of iatrogenic effects make it crucial that program developers are informed enough to evaluate risks.
- Counselors and mental health professionals need to advocate for increased resources in personnel to allow for more deliberate programming efforts. Eating disturbances are on the rise in schools, and the demand for counseling services in this field is increasing.
- Educators will want to familiarize themselves regularly with contemporary media trends and employ recent media images. In the current research, the Internet served as an invaluable tool. A number of online commercials, YouTube clips, and music videos were used to give students opportunities to engage with media—that was fresh and relevant to them—in a number of ways. Future research can also consider more media-creation activities. For instance, movie-

making software can help students create their own advertisements arguing against the thin ideal. Keeping girls engaged in these novel ways may increase interest and help reduce resistance.

Conclusion

Eating disorder prevention research is relatively new. Prevention efforts have only achieved real interest in the last 15-20 years, and the research since 2000 has produced almost all of the positive results (Stice & Shaw, 2004). Clearly the rise in disordered eating behaviors, the seriousness of the disorders, the pervasiveness of body dissatisfaction, and the finding that over 33% of adolescents report using extreme weight loss tactics (Phelps, Andrea, & Rizzo, 1994) suggests that more must be done. Many adolescents are struggling during the precise time in their lives when identity formation occurs, and educators and mental health providers must join forces not only to implement prevention efforts but to document and evaluate these results.

In the process of documentation and evaluation, the current intervention, overall, was deemed successful. Despite the program's having little effect on a number of dependent measures, the fact that thin-ideal internalization showed immediate and sustained gains is particularly promising: Evidence reveals that internalization has predicted eating disorder onset (Levine & Harrison, 2004; see Thompson & Stice, 2001), and it correlates with a host of other factors such as body dissatisfaction, drive for thinness, and bulimia. Thin-ideal internalization also theoretically leads to body dissatisfaction (Thompson & Heinberg, 1999) and reducing it may be an essential first

step towards reductions in eating disorder risks. Moreover, in this intervention, some students learned to question the media as an important source of information about appearance and possibly became more critical consumers and thinkers. While a few educators and critics may argue that life skills programming, preventing eating disorders, or even reducing body dissatisfaction are beyond the scope and responsibilities of schools; irrefutably, creating critical thinkers is not. Developing critical thinking skills is a superordinate goal of most high schools, and these skills can extend beyond eating issues, classroom walls, or the pages of a book.

One of the participants created a particularly poignant analogy that exemplifies some critical reflection. In her letter to a middle school student, she wrote, “Think of the media the same way your parents tell you to look at bullies. They’re insecure . . . trying to get people to be harsh with themselves just so that they can make a few bucks.” Of course, media benefits society in numerous ways, but this participant is astute in realizing that advertisers, especially, often do bully via subtle manipulation, coercion, harassment, and an unrelenting presence. Contemporary youth are bombarded with images and are undeniably maturing in a media-saturated age, replete with sexualization, violence, and materialism. Eating disorder prevention is one important goal of media literacy, but more simply, media literacy aims to help young people learn ways to recognize, avoid, combat, and resist contributing to—or becoming victims of—any media bullying behavior.

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APPENDICES

Appendix A

North Carolina State University INFORMED CONSENT FORM for RESEARCH

Title of Study: The Effectiveness of Media Literacy Education

Principal Investigator: Millie Maxwell, LPC, NCC
Gerler, Ph.D.

Faculty Sponsor: Edwin

Dear Ninth Grade Students:

This semester, all students will participate again in the compass program. I am, however, asking for permission to use the information that we gain from your participation in the program as part of my dissertation research at North Carolina State University. The purpose of my research is to gain a better understanding about the concerns of ninth grade female adolescents, to measure the impact of the compass educational opportunities, and to determine the effects that the media and other social pressures may have on students.

INFORMATION

In agreeing to participate, you will not be asked to do anything that exceeds the normal expectations of the compass program. The only differences are:

1. Unlike last semester, you will not put your name on any of the brief homework assignments that you turn in. All work will be anonymous.
2. You will only have 8 regular compass sessions instead of 10. On two other occasions, you will complete an anonymous questionnaire instead of having a compass class. These questionnaires will be completed during the weeks of March 22nd and May 1st. You will also complete a really brief anonymous survey during your first compass class. The total amount of time students will devote to the compass program is identical to last semester. Students will be involved in 10, 40 minute sessions from January 23rd until May 1st and will complete 7 very brief (approximately 15 minutes in length) homework responses.
3. We will also conduct a follow-up assessment during the compass period of orientation next year in August. This will be part of the orientation period and will take approximately 40 minutes.

All students will have the same time commitment and requirements regardless of whether or not they allow the use of their data.

RISKS

There are no anticipated risks to allowing my use of the data collected. All data are completely anonymous and untraceable to you. Certainly some of the questions asked may be personal or sensitive, but you will have the opportunity to omit any items you choose on the questionnaire. Similarly, there are no anticipated risks to participation in the compass program. In each of the life skills groups, we will be talking about some sensitive subjects, such as alcohol and drug use as well as body image and media pressures. Many of these lessons have been used successfully with Saint Mary's groups in the past. We recognize, though, that some of these issues may heighten anxiety in some students, and support staff will be on hand to help any students individually who may be struggling at any point. You are also free to withdraw your consent for data collection at anytime.

BENEFITS

There are many important potential benefits to this study. Primarily, I aim to assess the value of teaching about media literacy. Indirectly, what I learn can aid an understanding of the concerns facing adolescent young women and can even help us create future meaningful programs to benefit other young women.

CONFIDENTIALITY

Again, the information in the study and any records will be kept strictly confidential. Data will be stored securely in locked file cabinets off-campus. Your name or other identifying information will not be known to me, nor to anyone else. No reference will be made in oral or written reports which could link you to the study.

CONTACT

If you have questions at any time about the study or the procedures, you may contact the researcher, Millie Maxwell, at 900 Hillsborough Street, Raleigh, NC 27603, or 919.424.4036 (office) 919.624.1150 (cell). You may also contact her via email at *mmaxwell@saint-marys.edu*. If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Dr. David Kaber, Chair of the NCSU

IRB for the Use of Human Subjects in Research Committee, Box 7514, NCSU Campus (919/515-3086) or Mr. Matthew Ronning, Assistant Vice Chancellor, Research Administration, Box 7514, NCSU Campus (919/513-2148)

If you have any questions about your rights as a participant in this research project, you may contact the Institutional Review Board for the Protection of Human Subjects in Research (IRB): IRB Administrator, Ms. Debra Paxton, Mail Stop 7514, Raleigh, NC 27695, or via phone at (919) 515-4514, and via e-mail at *debra_paxton@ncsu.edu*.

PARTICIPATION

Your participation in the compass program is not voluntary, but your allowing me to use the information generated from it is voluntary. If you decide to participate by letting me use the data, you may withdraw your permission at any time. Your data is untraceable and there will be no way of identifying you once you submit your responses.

CONSENT

“I have read and understand the above information. I have received a copy of this form. I agree to participate in this study with the understanding that I may choose to withdraw the permission of the use of my data at anytime.”

Participant’s signature _____ Date _____

Parent or Guardian signature _____ Date _____

Investigator's signature _____ Date _____

THANK YOU for your consideration in allowing me this opportunity.

Sincerely,

Millie Maxwell, LPC, NCC
mmaxwell@saint-marys.ed

Appendix B

*The Sociocultural Attitudes Towards Appearance Questionnaire-3 (SATAQ-3—
Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004).*

Please read each of the following items carefully and indicate the number that best reflects your agreement with the statement.

Definitely Disagree = 1
Mostly Disagree = 2
Neither Agree Nor Disagree= 3
Mostly Agree =4
Definitely Agree = 5

1. TV programs are an important source of information about fashion and "being attractive." _____
2. I've felt pressure from TV or magazines to lose weight. _____
3. I do not care if my body looks like the body of people who are on TV. _____
4. I compare my body to the bodies of people who are on TV. _____
5. TV commercials are an important source of information about fashion and "being attractive." _____
6. I do not feel pressure from TV or magazines to look pretty. _____
7. I would like my body to look like the models who appear in magazines. _____
8. I compare my appearance to the appearance of TV and movie stars. _____
9. Music videos on TV are not an important source of information about fashion and "being attractive." _____
10. I've felt pressure from TV and magazines to be thin. _____
11. I would like my body to look like the people who are in movies. _____

12. I do not compare my body to the bodies of people who appear in magazines.
13. Magazine articles are not an important source of information about fashion and "being attractive." _____
14. I've felt pressure from TV or magazines to have a perfect body. _____
15. I wish I looked like the models in music videos. _____
16. I compare my appearance to the appearance of people in magazines. _____
17. Magazine advertisements are an important source of information about fashion and "being attractive." _____
18. I've felt pressure from TV or magazines to diet. _____
19. I do not wish to look as athletic as the people in magazines. _____
20. I compare my body to that of people in "good shape." _____
21. Pictures in magazines are an important source of information about fashion and "being attractive." _____
22. I've felt pressure from TV or magazines to exercise. _____
23. I wish I looked as athletic as sports stars. _____
24. I compare my body to that of people who are athletic. _____
25. Movies are an important source of information about fashion and "being attractive." _____
26. I've felt pressure from TV or magazines to change my appearance. _____
27. I do not try to look like the people on TV. _____
28. Movie stars are not an important source of information about fashion and "being attractive." _____

29. Famous people are an important source of information about fashion and "being attractive." _____

30. I try to look like sports athletes. _____

Appendix C

The Rosenberg Self-Esteem Scale (RSES—Rosenberg, 1965.)

Below is a list of statements dealing with your general feelings about yourself. If you strongly agree, circle SA. If you agree with the statement, circle A. If you disagree, circle D. If you strongly disagree, circle SD.

1. On the whole, I am satisfied with myself.
SA A D SD
2. At times, I think I'm no good at all.
SA A D SD
3. I feel that I have a number of good qualities.
SA A D SD
4. I am able to do things as well as most other people.
SA A D SD
5. I feel I do not have much to be proud of.
SA A D SD
6. I certainly feel useless at times.
SA A D SD
7. I feel that I am a person of worth, at least on an equal plane with others.
SA A D SD
8. I wish I could have more respect for myself.
SA A D SD
9. All in all, I am inclined to think that I am a failure.
SA A D SD
10. I take a positive attitude toward myself.
SA A D SD

Appendix D

The Physical Appearance State and Trait Anxiety Scale (PASTAS— Reed, Thompson, Brannick, & Sacco, 1991).

The statements listed below are used to describe how anxious, tense, or nervous you feel *Right Now* about your body. Use the following scale:

Not at All	Slightly	Moderately	Very Much So	Exceptionally So
0	1	2	3	4

Right now, I feel anxious, tense, or nervous about:

- | | | | | | | |
|-----|--|---|---|---|---|---|
| 1. | The extent to which I look overweight. | 0 | 1 | 2 | 3 | 4 |
| 2. | My thighs. | 0 | 1 | 2 | 3 | 4 |
| 3. | My buttocks. | 0 | 1 | 2 | 3 | 4 |
| 4. | My hips. | 0 | 1 | 2 | 3 | 4 |
| 5. | My stomach (abdomen). | 0 | 1 | 2 | 3 | 4 |
| 6. | My legs. | 0 | 1 | 2 | 3 | 4 |
| 7. | My waist. | 0 | 1 | 2 | 3 | 4 |
| 8. | My muscle tone. | 0 | 1 | 2 | 3 | 4 |
| 9. | My ears. | 0 | 1 | 2 | 3 | 4 |
| 10. | My lips. | 0 | 1 | 2 | 3 | 4 |
| 11. | My wrists. | 0 | 1 | 2 | 3 | 4 |
| 12. | My hands. | 0 | 1 | 2 | 3 | 4 |
| 13. | My forehead. | 0 | 1 | 2 | 3 | 4 |

14.	My neck.	0	1	2	3	4
15.	My chin.	0	1	2	3	4
16.	My feet.	0	1	2	3	4

Appendix E

Media Attitudes Questionnaire (MAQ—Irving, DuPen, & Berel, 1998).

Completely Disagree 1	Somewhat Disagree 2	Neither agree nor Disagree 3	Somewhat Agree 4	Completely Agree 5
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Instructions: Please indicate the extent to which you agree/disagree with the following statements:

1. Typically women look like models in ads.
2. Typically women are as thin as the models in ads.
3. The models in advertisements are real people.
4. I could look like the models in ads.
5. I could be as thin as the models in ads.
6. Most women could be as thin as the models in ads by exercising and/or dieting.
7. Models in ads are intelligent.
8. Models in ads are beautiful.
9. Models in ads have perfect bodies.
10. Models in ads have lots of fun.
11. I would like to live my life like the models in ads.
12. I would like to be like the models in ads.
13. I would like to be one of the models I see in ads.
14. I would like to have a body like the models in ads.
15. I would like to look like the models in ads.
16. Being thin makes you happier.
17. Being thin makes you have more fun.

18. Being thin helps you make more friends.
19. Being thin makes you more popular.
20. Being thin makes you more attractive.
21. I plan to go on a diet to lose weight in the next 6 months.
22. I want to lose some weight in the next 6 months.

Note: Items 11-22 not included in all assessments.

Appendix F

Substance Use and Resistance Questionnaire

Please use the following scale to report your behaviors for each of the items. Please be both honest and as accurate as possible in your report.

- 0 = Not at all**
1 = 1 time per month
2 = more than 1 time per month
3 = once a week or more

In the past 3 months...

1. _____ I drank beer or wine.
2. _____ I was offered beer or wine and turned it down.
3. _____ I drank hard liquor (vodka, rum, etc.).
4. _____ I was offered hard liquor and turned it down.
5. _____ I smoked marijuana.
6. _____ I was offered marijuana and turned it down.
7. _____ I smoked cigarettes
8. _____ I was offered a cigarette and turned it down.
9. _____ I have shared with a parent what I have learned about the dangers of using substances.
10. _____ I have shared with a friend or acquaintance what I have learned about dangerous substances.

Appendix G

Outline of Media Literacy Sessions

These sample exercises are compiled from or inspired by a variety of sources. Many of these are copyright protected, and multiple copies of them were purchased for program use and modification. Access to them is listed in the references that follow as part of this appendix.

Session 1

Topic: Introduction to Media Literacy

Objectives: To recognize the sheer number of media messages in daily life; to understand the concept of self-esteem and the host of factors that can contribute positively and negatively to it; to consider possible connections between the media and self-esteem.

Activities: Discussions of the course, self-esteem, mass media, media literacy, and mass media's impacts. Students flip through magazines, ripping out ads on based on a number of criteria.

Homework assignment: Students answer questions about the presence and influence of media in their lives.

Session 2

Topic: Analyzing Ads

Objectives: To learn to analyze messages in advertisements and recognize their artificiality; to examine the motives of a multi-billion dollar industry; to understand body image and how bodies are portrayed in the media.

Activities: Students learn about the multibillion dollar advertising industry. They practice analyzing ads on a PowerPoint and then in pairs or small groups. Students view an advertisement claiming to be from the 1890s encouraging women to find ways to gain weight. They compare the persuasion tactics used then with contemporary advertisements. Body image and negative body image are defined. Participants get handout about 20 ways to be a media activist and discuss as time allows.

Homework assignment: Students visit a website (www.google.com/videoplay?docid=-8529092460554257230) and watch several minutes of old commercials, comparing them with ones they see today.

Session
3

Topic: Killing Ourselves Softly

Objectives: To gain a wider perspective on the portrayal of men and women in advertising; to identify some of the stereotypes in the media; to consider roles to play encouraging diversification of the images seen in the media; to practice critical analysis skills.

Activity: Students watch appropriate clips from *Killing Us Softly III* and discuss prepared questions.

Homework assignment: Students respond to prompts about advertising and becoming better consumers.

Session
4

Topic: Advertising Tactics

Objectives: To identify a number of tactics marketers use to sell products and to sell the myth of perfection; to recognize that images in the media are often unreal; to consider the connection between tactics used and body-image, self-esteem, and health.

Activities: Facilitators present information about artificial images, physical tactics, and computer tactics in advertising. Students are able to visit a number of sites on their personal laptops that show before and after pictures of celebrities and models. On one site (<http://demo.fb.se/e/girlpower/retouch>) participants can scroll over a young model on a magazine cover and see that every aspect of the presentation has been retouched. Students are able to flip through magazines highlighting artificiality. Students watch a Dove™ commercial about artificiality and briefly learn about the eating disorder problem connection.

Homework assignment: Students bring in an advertisement that they have analyzed and note its positive and/or negative messages.

Session
5

Topic: Food, Fat, & Fit

Objectives: To note the specific techniques used to target different audiences in advertising; to detect some of the contradictory messages transmitted by the mass media; to learn that a variety of body sizes can be healthy.

Activities: Students easily recall food slogans from their childhood and watch a child-targeted marketing clip from the educational version of *Supersize Me* and discuss reactions to the segment. The dieting industry, what makes a health body, and the importance of moderate exercise are discussed. Students view a PowerPoint on size acceptance and are reminded of way to take care of their bodies.

Homework assignment: Students watch an online student-created documentary, "A Girl Like Me," and respond to questions. Students also identify three women in their lives that they admire. At the beginning of the next class, they discuss the attributes they admire in these women and how many if not most of these characteristics are unrelated to appearance.

Session
6

Topic: Consumers of Cool?

Objectives: To consider the ethics of stealth marketing practices; to recognize media conglomerates; to identify stereotypes and identities constructed by the media.

Activity: Students discuss homework from week before, watch a clip from *The Merchants of Cool* and respond to prepared questions. A connect the dots worksheet highlights the fact that a few big corporations control much of the media.

Homework Assignment: Students watch a favorite television show and list the women, men, ages, body types, races, etc. portrayed in the show. They also describe one advertisement from the show and their feelings in response to it.

Session
7

Topic: Behind the Music

Objectives: To interpret music videos objectively and subjectively; recognize the pressures that images from videos place on women and men; express personal beliefs about messages from music videos and lyrics.

Activities: Students are assigned a genre of music (i.e., country, rap, pop) and first watch a chosen video without sound and answer questions about the video. Students then read lyrics from a different video before watching it to determine if the lyrics have messages that are separate from the images. Students return to the large group and discuss findings and similarities/differences across groups.

Homework Assignment: Students choose a video to “deconstruct” for homework and respond to numerous questions about the messages conveyed to them as well as to girls who are younger than they.

Session
8

Topic: “Happy” Ever After

Objectives: To become competent at analyzing messages from other sources (e.g., fairy tales); to identify a couple of ways to make independent choices; to articulate knowledge learned from this course in the form of a message to a younger girl.

Activity: Students read fairy tales and analyze the messages they hear. They consider other sources of transmission of these messages. As a final cognitive dissonance exercise, students write a letter to an elementary or middle school girl describing what they learned in their course and what they want the younger girl to know about the media messages.

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Appendix H

Outline of Substance Education Curriculum

Session 1	Topic: Social Pressure <i>Homework Assignment: Reflection – The Power of Groups</i>
Session 2	Topic: Guilt Free Strategies for saying NO <i>Homework Assignment: Practice & Reflect</i>
Session 3	Topic: Just Say Know: Nicotine, Alcohol, & Marijuana... <i>Homework Assignment: What Kind of Angry Are You? Anger Style Survey</i>
Session 4	Topic: I...feel...when <i>Homework Assignment: I Letter</i>
Session 5	Topic: Just Say Know: Prescription Drugs <i>Homework Assignment: Are You Threatening Me?</i>
Session 6	Topic: Lines, Lies, & Limits <i>Homework Assignment: Assertive Rights and Assertion Diary</i>
Session 7	Topic: Just Say Know: Cocaine & Crack <i>Homework Assignment: One Person's Life</i>
Session 8	Topic: Discussion of Personal Impacts Review of homework.

Syndistar's *In the Know* Prevention videos used in sessions 3, 5, and 7 are available at http://www.syndistar.com/browse/drugs/drug_prevention/pbda101pckg.html

Appendix I

Program Evaluation

Thank you for taking the time to complete this form. Your feedback is very helpful to us in deciding which activities and lessons to revise for next year.

1. Who was your instructor? _____
2. Please describe your favorite activities or sessions from this semester.
3. Which activity was your least favorite or seemed least applicable to you?
4. Summarize in a few sentences what you learned about in your small group compass class this semester.
5. How will you apply what you learned to your life?
6. What one thing would have made your experience in your small group better?
7. Do you think this same material should be covered with 9th grade students next year? Why or why not?

Thank you for your thoughtful comments and mature responses. Have a great summer☺.