

Obesity Education as an Intervention to Reduce Weight Bias in Fashion Students

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Abstract

The purpose of this work was to explore the effectiveness of an educational intervention aimed at reducing weight bias. Senior fashion students ($n = 11$) enrolled in a 16 week special topics course, “plus-size swimwear design”, completed assignments of selected obesity related educational readings and guided critical reflection. Student assignments were analyzed for qualitative evidence regarding weight bias. The Beliefs About Obese Persons scale was administered before and after the intervention with mean scores tested for statistical significance. The intervention increased student perceptions that genetic and environmental factors play an important role in the cause of obesity and decreased students’ negative stereotypes regarding obese consumers. Educational reading and critical reflection was effective in improving fashion students’ beliefs and stereotypes regarding obese people. This widely accessible and easily replicable program can serve as a model and springboard for further development of educational interventions to reduce weight bias among fashion related students.

Keywords: obesity, weight bias, fashion, university, intervention, education

1. Introduction

American companies are faced with a growing number of obese consumers. A major challenge facing fashion educators today is to adequately train future designers and merchandisers to develop apparel for overweight and obese body shapes. Many apparel design and merchandising students harbor negative beliefs and stereotypes regarding obese people, which may lead to negative attitudes and behaviors and a potential lack of desire to serve the obese demographic (Christel, 2015; Rudd, Harmon, Heiss, & Buckworth, 2015). Despite evidence that obesity is caused by multiple complex factors (Puhl & Brownell, 2003), fashion designers and merchandisers often maintain negative stereotypes towards obese people, and characterize them as unattractive. Plus-size women continually report experiencing frustration when clothes shopping and often feel discriminated against by store clerks (Gruys, 2012; Neumark-Sztainer, Story, & Faibisch, 1998). This bias and limited selection in clothing primes obese women toward feeling ostracized and excluded from the fashion world (Gruys, 2012). Evidence of weight bias in the fashion industry include little representation of plus-sized mannequins, lack of appropriately sized dressing rooms, difficult to locate plus-sized merchandise, unsolicited clothing advice from clerks and higher retail prices for plus-size clothing compared to smaller clothing sizes. The author considers the experience of apparel design and merchandising students relevant because it is assumed that they will one day be the “gatekeepers of the fashion industry” (Christel, 2014, p. 2). Of further interest was how education and critical reflection had influence on changing weight bias. To inform this study, the author looked at weight bias and weight bias interventions with college students studying in various disciplines including medical, nursing, apparel design and merchandising.

Previous work in the area is limited to surveys that assess obesity bias among fashion students but no known studies examine intervention programs. Christel (2014) suggested that perhaps fashion related undergraduate students have greater levels of obesity bias because they believe obesity is a personal issue. Rudd, Harmon, Heiss and Buckworth (2015) found a partial correlation whereas student’s appearance orientation increases, their bias towards obese people also increases. The present study was designed to build on these earlier reports and test the feasibility of reducing obesity bias among fashion related undergraduate students. The author

hypothesizes that obesity bias can be reduced among fashion students through questioning cultural assumptions and myths about obesity. The key theory considered when designing the intervention program was the theory of Social responsibility (Weiner, 1995). In Christel's (2014) study, the qualitative comments suggested the root of obesity bias lays in a belief of personal and social responsibility. Therefore, this study was designed to challenge those deep seeded beliefs systems. The overarching Meta-objective of the study, is to improve the clothing options and shopping experience for obese consumers. The author proposes that quality apparel design and merchandising tasks cannot be achieved if there is bias towards the end user. Clothing is a necessity of life, just like needing shelter, eating, drinking and sleeping. Clothing also has the ability to make a person feel confident, smart and on the other hand can make a person feel inferior and out of place (Langer, 1959). The problem is that obese people have limited clothing options compared to thinner people. This controls the opportunity for obese people to use clothing as a means to influence their feelings. The purpose of this research is to reduce obesity bias among those who may one day provide clothing for the mass population, which at this time in history consists of many obese people.

1.1 Weight Bias

Evidence suggests that weight bias has intensified in the US (Latner & Stunkard, 2003) and is now reported to occur at higher rates than racism (Tomiyama, 2014). Discrimination has important implications for the well-being of overweight and obese individuals. The occurrence of weight bias has been documented across a range of life domains from education settings (Fowler-Brown, Ngo, Phillips, & Wee, 2010), health care environments (Gudzune, Bennet, Cooper, & Bleich, 2014), employment practices (Judge & Cable, 2011), and the fashion industry (Colls, 2006).

The author speculates that weight bias may underline numerous decisions in the fashion industry and may be the culprit for ill-fitting and limited selection in apparel for the obese. In essence, the results of weight bias are dismal and require immediate attention. In the curriculum found in fashion departments, there is a lack of content regarding the plus-size figure as well as interventions to decrease weight bias towards obese and plus-size consumers.

Weight bias, weight stigma and weight based discrimination are closely related concepts, and have often been used interchangeably in the growing literature on the topics. According to Washington (2011) "Weight bias can be defined as the inclination to form unreasonable judgments based on a person's weight and weight stigma is the social sign that is carried by a person who is a victim of prejudice and weight bias". Furthermore, *weight based discrimination* is defined as any restriction of individual rights, employment or academic opportunities, or biases against overweight persons. For the purpose of this article, the definitions of weight bias, weight stigma and weight based discrimination as defined by Washington are used (2011).

1.2 Reducing Weight Bias in Academia

Research on techniques to reduce weight bias in academic settings has been completed with dietetic students (Puhl et al., 2009), nursing students (Poon & Tarrant, 2009), medical students (Poustchi, Saks, Piasecki, Hah, & Ferrante, 2013), and fashion design and merchandising students (Christel, 2014; Rudd et al., 2014). These studies conclude a dire need to increase educational interventions and awareness about weight bias in existing curricula to ensure that negative assumptions about obese people do not adversely influence treatment practices (Puhl et al., 2009).

A brief intervention was conducted among third and fourth year medical students (n = 64) to test its effectiveness in reducing weight bias among the participants (Poustchi et al., 2013). The intervention consisted of students watching a 17 minute video about weight bias in health care, after which they participated in interactive discussion and shared personal experiences they've had with obese patients. Students were also administered several pre and post surveys to evaluate bias, stigma, attitudes and beliefs about obese people. The intervention successfully increased beliefs that environmental and genetic factors contribute to the cause of obesity as opposed to blaming the patient (evaluated via the Beliefs about obese people scale [BAOP], Allison et al., 1999).

A study of undergraduate psychology students (n = 85) was conducted to evaluate an anti-weight bias intervention. Diedrichs and Barlow (2011) assigned students to either an experimental group, comparison group or a control group. The experimental group was exposed to a lecture on obesity, weight bias, and other congruencies of weight stigma. The comparison group was exposed to a lecture on obesity and the behavioral determinants of weight while the control group received no lecture. Students were assessed via surveys, one week before, immediately after and three weeks after the intervention. Participants in the intervention group were less likely to believe that weight is exclusively within individual control and were less likely to hold

negative attitudes towards overweight and obese people. The experimental group maintained more positive beliefs about obese people three weeks post intervention. The comparison and control group reported no change in weight bias (Diedrich & Barlow, 2011).

Evidence suggests that education and awareness are successful avenues to reduce weight bias and stigma. A meta-analysis conducted by Lee, Ata, and Brannick (2014) examined 29 manuscripts that reported approximations for weight-biased attitudes. The aim of the analysis was to evaluate the effectiveness of weight bias interventions in reducing weight biased attitudes and beliefs. The authors determined that weight biased interventions have a small to medium effect on weight biased attitudes. Furthermore, they found that “the student population reported considerably large effect sizes than studies using samples of professionals” (p. 255). The study suggests that college students are a preferable group with which to conduct interventions as they are more open to adopting new attitudes. Several brief interventions to reducing weight bias were found to produce a small, yet positive impact on weight biased attitudes and beliefs (Lee, Ata, & Brannick, 2014). Therefore, it was hypothesized that a longer intervention would produce a larger impact on weight based attitudes.

No known educational intervention studies have been conducted with fashion design and merchandising students addressing reduction in stigma and weight bias with consumers who are overweight or obese. The purpose of this project was to test the feasibility and determine effect sizes of an easily replicable educational intervention with validated instruments in reducing weight bias among fashion design and merchandising students.

2. Method

2.1 Participants

This research study was conducted by an assistant professor as part of a 16 week special topics class in a University in the Western US during the Fall semester of 2014. A convenience sample of Senior level fashion design and merchandising students participated in this study ($n = 11$). All students enrolled in the special topic course were eligible to participate in the study. Students that were not enrolled in the course were excluded from enrollment in the study. There were no restrictions based on demographic characteristics.

2.2 Procedures

Using a mixed methods approach, the intervention consisted of approximately 20 hours of reading educational articles on obesity (Table 1) and submitting a critical reflection assignment (Table 2) about the reading and personal experiences with encountering obese people. This study was determined to be exempt from further review by the university Institutional Review Board.

In the course syllabus, the readings and critical reflection assignments (Table 1 and Table 2), were referred to as Sensitivity Trainings to aid in the education of understanding of the difficulties of weight loss, the causes of obesity and the emotional consequences of being stigmatized. The articles were related to weight bias, fat studies, the *Health At Every Size*® paradigm, experiences of stigma, portrayals of obese individuals in the media, thin privilege, discrimination and personal experiences of obese women. Articles were selected by the professor and administered throughout the semester. The educational readings challenged the students’ perceptions regarding common weight based stereotypes and cultural assumptions that are made about obese people. The required reading, references and timing of the assignments within the 16 week semester are provided in Table 1.

Students were assigned one week to read the article and submit a three page critical reflection about the reading. Reflection is an essential process for creating transformative experiences (Dewey, 2011) and thus implemented as a method to foster learning. Reflection is suggested to enhance a students’ critical understanding of a topic and their ability to assess their own values and goals. Critical reflection provides students with the opportunity to examine and question their beliefs, opinions, and values. It involves observation, asking questions, and putting facts, ideas, and experiences together to derive new meaning (Bringle & Hatcher, 1999). To facilitate reflection, assignment guidelines were provided for each student to complete in conjunction with the reading. The guideline that students were asked to follow and answer for each article is shown in Table 2. The process of reflection is defined as, “thinking for an extended period by linking recent experiences to earlier ones in order to promote a more complex and interrelated mental schema” (Dewey, 2011). Going one step further, students were asked to critically reflect on the reading. Critical reflection is, “The process of analyzing, reconsidering and questioning experiences within a broad context of issues” (Murray & Kujundic, 2005). Learning as a result of critical reflection has been effective when the reflection assignments occur regularly and feedback is provided from the instructor so students can improve analysis, practice reflection, and develop the capacity to engage in deeper and broader reflection (Rich & Parker, 1995). The professor provided individual comments for each of the assignment as occurred on a regular basis throughout the semester.

2.3 Data Categorization and Coding

First, the professor read students' reflections and used open coding to identify key concepts in the data (Corbin & Strauss, 2008). The professor identified categories including; themes related to recognition of thin privilege, personal experiences of weight bias, stories of weight bias experienced by friends and family and student experiences of learning through critical reflection. These categories formed the basis for the development of a coding guide that was applied to the data. To achieve intercoder reliability, a master document of all reflection assignments was created with a total of 165 pages of single spaced text. The unit of analysis was a paragraph ($n = 1057$) with an average of seven paragraphs per page. Three coders, the course professor and two graduate research assistants, independently analyzed 20% of the sample ($n = 33$ pages) to achieve intercoder reliability. The pages analyzed for intercoder reliability were chosen via an Excel random number generator. The content was first coded according to the concepts identified by the professor including; groups of text based on themes related to recognition of thin privilege, personal experiences of weight bias, stories of weight bias experienced by friends and family and student experiences of learning through critical reflection.

Each of the following code descriptions includes the Krippendorff's (2011) alpha reliability statistics of agreement, or intercoder reliability, between categorization of groups of text. Responses for recognition of thin privilege were coded with (1) ($\alpha = .858$), first person experiences of weight bias was coded as (2) ($\alpha = .887$) and, (3) was used to code stories of experiences of weight bias heard from friends and families ($\alpha = .878$). Lastly, learning experiences through critical reflection were coded as (4) ($\alpha = .870$). Of the four code descriptions, intercoder reliability resulted in ($\alpha = .858$) and higher, which is considered to be an accurate measure of reliability (Krippendorff's, 2004). Once coding was complete, the investigators met to discuss and reach consensus on the themes present under each code.

2.4 Measures

All participants completed the Beliefs About Obese People Scale (BAOP) which has been validated as a reliable survey to measure weight bias pre- and post-intervention (Preventing Weight Bias: Helping without Harming in Clinical Practice, 2016). This eight-item BAOP assesses the extent to which respondents believe that the outcomes of obesity are under an individual's control and that an obese person is to blame for their body e.g., "Most obese people eat more than non-obese people" and "obesity is rarely caused by a lack of willpower" (Allison et al., 1991, p. 602). Respondents indicate the extent to which they agree or disagree with each statement using a six-point Likert scale ($-3 = I$ strongly disagree; $+3 = I$ strongly agree). Lower scores indicate more negative beliefs about obese bodies and that a person is to blame for being obese and, according to Weiner (1995), that person is treated with anger, blame, stigmatization and social rejection. Higher scores indicate a stronger belief that obesity is not under personal control. In other words, the higher the score, the less the blame placed on the individual. If a person is not thought to be responsible for a condition, he or she is treated with sympathy, pity, little blame, relative social acceptance and judged to be worthy of help (Weiner, 1995). In a prior study, norms for the measure were reported for undergraduate students (mean = 19.4), graduate students (mean = 20.8) and for members of the National Association to Advance Fat Acceptance (mean = 31.7). The BAOP scale consists of eight items and has an alpha reliability range of 0.65 to 0.82 (Allison et al., 1991). Surveys were analyzed using Statistical Product Service Solutions software (SPSS 9.4). Change in survey scores from before to after the interventions was assessed for statistical significance using paired samples t tests. General bar graph models was used to visually observe differences with mean scores for the scale. Differences were significant at $p < .05$ unless otherwise states.

3. Results

3.1 BAOP Scores

Descriptive statistics are presented in Table 3. Higher mean impact scores indicate a greater belief that obesity is driven by genetic and environmental causes, whereas lower means indicate the belief a person is obese is due to lack of will power.

Week 1 scores indicate students had moderate to strong negative beliefs about obese people ($M = 20.18$, $SD = 8.81$). Post-intervention, week 16, scores are much higher ($M = 33.36$, $SD = 9.65$). The higher the score the lower the bias and more positive beliefs about obese bodies. The variables are not skewed and normally distributed. There is a significant difference in the mean scores ($p = 0.001167$). A paired two sample t -test revealed that overtime the beliefs about obese people changed ($t(2.228) = -4.48$, $p < .05$). Independently, each student score changed in that their beliefs about obese people were more positive at the end of the intervention. Individual student changes in BAOP scores from before and after 16 week intervention can be seen in Figure 1.

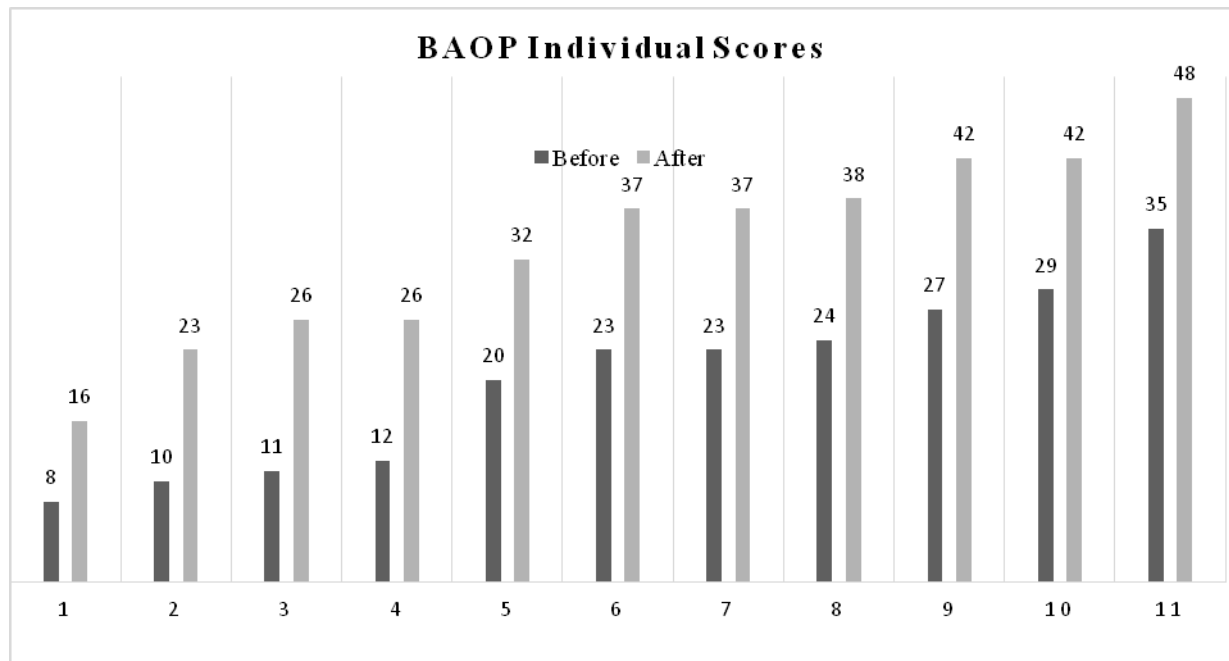


Figure 1. BAOP individual student scores

3.2 Critical Reflection

Students' critical reflections reveal that the stereotypical thinking about obese people moved towards more understanding and compassion during the 16 weeks. Students developed enlightening perspectives towards obese people. Throughout the student reflections were stories of how they came to recognize thin privilege and weight bias through personal experiences and experiences of friends and families. Reflections indicate students became aware of and understood internalized oppression. Students also express the enjoyment experienced in reflecting.

3.3 Thin Privilege

The following quotes illustrate critical thinking and awareness of weight bias and internalized oppression. In one reflection, a student wrote, "It would be so hard for me to accomplish anything in an environment that made me feel like a problem." This student expressed understanding of thin privilege by considering someone else's lived experience. Oppressed groups can't fight effectively for equality when they believe the problem is their own fault or that something is inherently wrong with them. The student expressed compassion and understanding of the challenges experienced by obese people:

"I had never really stopped to consider my own privilege as being naturally thin before. How I am easily able to find clothes in my size or approach new people and situations because I don't have to fear being judged for my weight. That I can play video games or work on the computer for long periods of time, which are huge hobbies of mine, and not be called lazy for doing so. I think it's important to make people more knowledgeable about the privileges they have, to make them more aware of the hardships others face on a day to day basis."

3.4 Weight Bias through Personal Experiences and Experiences with Family and Friends

Another student realized how rampant weight bias is and reflected on the impact of her interpersonal relationship with her mother. She stated:

"I heard about Southwest charging overweight people for two tickets as soon as it happened. My mom was outraged, and I don't blame her. She was so upset, and even though she isn't overweight to the extent she can't fit in one spot, knowing that if she gained another 20 pounds she wouldn't be able to just sit in one seat, was heart breaking. No one should have that type of pressure, or feel uncomfortable just because the size of their body. A lot of people blame the models for the pressure of being 'stick thin', or skinny, but in all reality, it is everywhere. Airplane seating happens to be one more area."

This student displays another reason that thin privilege is able to remain invisible. Her reflection exemplifies the theory of internalized oppression (Freire, 2007). Simply the thought of her Mom losing the sense of entitlement

and no longer being able to sit in one seat was “heart breaking”. The student displays an understanding of how weight bias negatively affects both the thin and the fat. The thin live in fear of becoming fat and the fat are in fear of further discrimination.

For another student, he shared his ignorance in not being able to see that his roommate was being discriminated against. He stated:

“Last year my roommate was plus-size, and all the time should would tell me things like, people don’t like her, and how it’s hard to make friends. When hearing these things, I never considered it was because of her weight. I thought it was just because people had different interest, stuff like that. Reading these articles, I realized that what she was saying was really true. The culture around us shapes the way we think so much so that we discriminate again plus-size people without even realizing it.”

3.5 Experience with Reflection

Concluding remarks illustrate how learning about the ways obese people are displayed in the media will help in future careers. One student states, “In conclusion, this article was helpful. It is good for us to walk into the industry with knowledge of how the obese demographic is currently represented and with the tools to change it!” Another student commented on the same article and stated:

“I think it’s important to reflect on the stereotypes that are ingrained in our subconscious and make sure there is fair media exposure to decrease the prevalence of the discrimination of people affected by obesity. It is also important in reshaping our standards of beauty.”

Further comments demonstrate the effectiveness of critical reflection in enhancing student thought about cultural issues. The following students contemplated:

“I know I am a completely different person when I am thinner. I am more outgoing and just happier. Why is that? Society has formed the way we think and what beauty is supposed to look like. I think the biggest problem is where do we fix this way of thinking... can we or is it too late? But my weight is not the problem. My attitude towards my weight is the problem. The number on the scale is no reflection of who I am as a person, the accomplishments I’ve made, the relationships I’ve built, or the choices I’ve made.”

4. Discussion

A 16 week intervention, as part of a case study involving a plus-size consumer, with reading and reflection was associated with a significant decrease in bias towards obese people. Our research presents some of the first studies to evaluate a 16-week intervention among college students to reduce weight bias. Although the statistical intervention effects were moderate in size, the results are promising in light of the relatively small sample size. This intervention, consisting of reading easily accessible articles and reflecting on the material, increased the beliefs that genetic and environmental factors play an important role in the cause of obesity and decreased negative stereotypes about obese people among fashion students. This study confirms prior research that changing attributions of causality and controllability of weight can improve beliefs and stereotypes towards obese people. Students were capable of understanding weight bias and complex concepts such as thin privilege and internalized oppression.

It is important for our society to understand privilege and oppression because it is pervasive, restricting, and hierarchical and the dominant group has the power to define reality (Bacon, 2010). Oppression is entwined throughout societal institutions and imbedded within individual consciousness, often termed internalized oppression. The restrictive aspects of oppression is that the structural limits significantly shape a person’s life changes and sense of possibility. By not having access to some privileges, lives of obese people are limited. Furthermore, the dominant or privileged groups benefit and often in unconscious ways at the expense of the subordinated groups. Awareness of the privileges is one approach to dismantling the oppression.

Internalized oppression is seen when a group of people are targeted, discriminated against, or oppressed over a period of time, they often internalize the myths and misinformation that society communicates about them and their group. When a person experiences internalized oppression they are said to believe the myths and make it part of their self-image. Internalized oppression can cause people to feel, usually unconsciously, that in some way they are inherently not as worthy, capable, beautiful, good or intelligent as others outside their group (Freire, 2014). Privilege and oppression can be difficult subjects to discuss and by allowing students to independently read and critically reflect, they demonstrated the ability to understand and change their previously negative opinions and perspective towards obese people.

Highly rated by students, in end of term evaluations, this intervention provides educators with tools to measure beliefs about obesity in students and to encourage critical thought in how to approach obese consumers with sensitivity. Incorporating this intervention into fashion related classes may be the best way to ensure that all students receive this training. Further research is needed to measure whether the intervention is more effective for certain sub-groups.

4.1 Applications

The author suggests universities add a component devoted to education of weight bias and stigma towards obese people. Past research has shown that weight bias is prevalent in a multitude of avenues and offering education provides the opportunity for growth. Professionals in the fashion field, both academia and industry, can employ a variety of strategies to help reduce weight stigma and improve attitudes. Fashion professionals can make a difference by becoming aware of their own biases, developing empathy, and working to address the needs and concerns of obese people.

4.2 Limitations

While limited in scope and size, this study's success in using a relatively simple and widely accessible intervention and validated survey makes this program conducive to replication and implementation by fashion educators. While these findings are promising, it is unknown if changes in beliefs are sustainable and if they represent actual changes in actual behavior. Many statisticians feel that a small sample size is not appropriate to test various statistical assumptions. Although our sample is small, our p-value achieved "statistical significance", $p < 0.05$. The generalizability of the study results are limited and further, larger scale research is needed.

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Appendix A

Table 1. Required student reading list

Sensitivity Training #	Week Assigned	Article/Book reference
1	1	Bacon, L. (2010). <i>Reflections on thin privilege and responsibility. Health at Every Size: The Surprising Truth About Your Weight</i> . Dallas, TX: BenBella.
2	2	Solovay, A., & Rothblum, E. (2009). Introduction. In E. Rothblum, & S. Solovay (Eds.), <i>The Fat Studies Reader</i> (pp. 1-7). New York, NY: New York University Press.
3	4	Bliss, K. Redefine the Problem So It Has a Solution. In <i>Don't Weight, Eat Healthy & Get Moving NOW!</i> (pp. 17-23). Carlsbad, CA: Gurze Books.
4	5	White, F. (2004). <i>Identifying and Treating Exercise Resistance from a Depth Perspective</i> (pp. 58-60). Health at Every Size.
5	6	Bernstein, B., & St. John, M. (2009). The Roseanne Benedict Arnolds. In E. Rothblum, & S. Solovay (Eds.), <i>The Fat Studies Reader</i> (pp. 263-269). New York, NY: New York University Press.
6	8	Williams, R. (2000). Conquering the fear of a fat body: The journey towards myself. In Ophira (Eds.), <i>Body Outlaw</i> . Seattle, WA: Seal Press.
7	9	Johnson, C. A. (2005). Personal Reflections on Bias, Stigma, Discrimination, and Obesity. In K. D. Brownell, R. M. Puhl, M. B. Schwartz, & L. Rudd (Eds.), <i>Weight Bias, Nature, Consequences, and Remedies</i> (pp. 175-190). New York, NY: The Guilford Press.
8	11	Huff, J. L. (2009). Access to the Sky. In E. Rothblum, & S. Solovay (Eds.), <i>The Fat Studies Reader</i> (pp. 176-185). New York, NY: New York University Press.
9	13	" Http://www.yaleruddcenter.org/resources/upload/docs/what/bias/media/MediaGuidelines_PortrayalObese.pdf ." <i>Yale Rudd Center</i> (2013): Web. 10 Aug. 2014.
10	15	Christel, D. (2014). It's your fault you're fat: Judgements of responsibility and social conduct in the fashion industry. <i>Clothing Cultures</i> . 1(3).

Table 2. Critical reflection document outline

Reflection Submission Outline
1. Article title and Author
2. State THREE main points of the reading
3. Identify a quote or passage that struck you the most and explain why:
4. Describe how this reading relates to you personally (e.g., applies to your own experience or that of people you know or events that you have observed) and/or relates to your professional aspirations or experiences (including how the material relates to information on the topic presented in other classes):
5. What personal assumptions of yours were challenged?
6. After reading this article, did you learn an alternative ways of thinking about the topic? What are they?
7. Any other comments or thoughts?

Table 3. Mean score before and after intervention

t-Test: Paired Two Sample	Mean Score	
	<i>Before</i>	<i>After</i>
Mean	20.18	33.36
SD	8.81	9.65
Variance	77.76	93.05
Observations (<i>n</i>)	11	11
P (T ≤ t) two-tail	0.001167	

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