

The Effects of Body Image on Self-Efficacy, Self Esteem, and Academic Achievement

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by

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Abstract

Poor body image may lower self assessments (self-efficacy and self esteem), in turn negatively affecting academic achievement in women. A correlational design examined this hypothesis using 92 first-year college students. Male and female subjects completed the Sociocultural Attitudes Towards Appearance Scale appropriate for their sex. All subjects completed the Body Esteem Scale, Objectified Body Consciousness Scale, Rosenberg Self-Esteem Scale, Self-Efficacy Scale, New General Self-Efficacy Scale, Academic Self-Regulation Questionnaire, and the Academic Achievement Scale. Results of structural equation modeling revealed that, in females, body image did affect self-assessments, but did not affect academic achievement. Males' body images did not affect their self-assessments. These results suggest the need for more research in this area and encourage the development of interventions aimed at females' body image in order to enhance self-assessments.

The Effects of Body Image on Self-Efficacy, Self Esteem, and Academic Achievement

Concern over body image is growing rapidly throughout the United States and various areas of the world. This trend will continue as marketers throughout the advertising industry use body image to sell their products (Thompson & Heinberg, 1999). Advertisers specifically target teenagers, which increases their awareness of body image. In turn, teenagers' body images influence their behaviors. Clearly, body image is a powerful construct; however, little is known about how body image affects the academic achievement of teenagers in high school. Therefore, this research was designed to examine how body image affects academic achievement. The following question was posed: "Does body image affect self-assessments, such that students with poor body image will have a lowered general self-efficacy and self esteem and as a result display lower academic achievement?" Prior literature and knowledge about body image, self esteem, general self-efficacy, and academic achievement provides a basis for understanding the relationships between the constructs.

Body image includes descriptive and evaluative beliefs about one's appearance (Slade, 1994). However, Slade (1994) argues that body image is influenced by more than perception. He articulates that assessments made about one's body are highly influenced by cognitive, affective, attitudinal, and other variables. Slade (1994) continues by explaining that body image is a loose mental representation that is easily influenced by many other factors such as history of weight change and social norms.

Sex differences

It is important to understand, however, that body image often depends on sex. The ideal body image for men is very different than the ideal body image for women (Brodie, Slade, & Riley, 1991). Men prefer to be broader and more muscular, whereas women prefer to be

slimmer (Brodie et al., 1991; Furnham, Badmin, & Sneade, 2002; Silberstein, Striegel-Moore, Timko, & Rodin, 1988; Feingold & Mazzella, 1998). Males with low body image often perceive themselves as too thin, whereas females with low body image perceive themselves as too heavy.

Vastly more women exhibit poor body image than men do, with the greatest difference seen at adolescence (Feingold & Mazzella, 1998). It is important to note that body image has been much more widely studied in women than in men (Feingold & Mazzella, 1998). Men are becoming more concerned with body image (Grogan & Richards, 2002). However, in the past several generations female body image has become progressively worse as compared to male body image (Feingold & Mazzella, 1998). This may be due, in part, to the stronger, more normative impact of media on body image for females than for males (Hargreaves & Tiggemann, 2004).

Body dissatisfaction

A general level of body dissatisfaction has long been recognized as a problem for women. Body dissatisfaction is an intense, negative distortion of one's body image. Body dissatisfaction is much greater in females than in males (Feingold & Mazzella, 1998; Hargreaves & Tiggemann, 2004; Mintz & Betz, 1986; Zellner, Harner, & Alder, 1989). Fallon and Rozin (1985) found that women instructed to choose a doll with the opposite body type of their own, chose thinner dolls indicating body dissatisfaction. Males, on the other hand, were inconsistent in determining which doll's body type was most opposite of their own. A single pathway, lack of muscularity, creates body dissatisfaction in men (Carlson, 2004). On the other hand, body dissatisfaction in females results from a variety of factors including body mass, social comparisons, and appearance conversations with friends (Carlson, 2004). The variability in

source of body satisfaction may create greater body dissatisfaction and lower body images in women.

The differences between men's and women's ratings of body image are often dependent on the type of questions asked (Feingold & Mazzella, 1998). For example, some research has used the same body image scale for both sexes and disregarded that the ideal body image depends on sex. Therefore, the validity of this information is questionable. The current study accounted for possible sex differences and evaluated these differences to determine if sex affected body image.

Self-objectification

Body image is also affected by self-objectification. Objectification theory asserts that pervasive external evaluation leads women to adopt a view of themselves as objects that are valued for use by others (Fredrickson & Roberts, 1997). Self-objectification causes decreased body image (Gapinski, Brownell, & LaFrance, 2003) and self-efficacy (Gapinski et al., 2003). Men, too, self-objectify, but at a much lower rate than women (Duggan & McCreary, 2004). Thus, higher levels of self-objectification in women are another reason for discrepancies in men's and women's body images.

Gapinski et al. (2003) have indicated that lower body image and higher self-objectification are also thought to be associated with increased anxiety. In turn, this leads to decreased motivation because productive and creative states of mind are less likely with constant body monitoring than without constant body monitoring. Self-objectifying women report feeling surprised, contemptuous, revolted, humiliated, and inattentive. To sum up, low body image and self-objectification are associated with more unpleasant emotional states; in turn, these unpleasant emotional states may have a negative effect on academic achievement. At the same

time, self-objectification may cause a decrease in body image and fewer feelings of capability and purposefulness that are important to self-efficacy and intrinsic motivation. Therefore, women who experience low body image and high self objectification may experience decreased feelings of capability and purpose relative to women who consider physical appearance less defining (Gapinski et al.).

Self-efficacy

Clearly body image is a powerful construct that affects self-assessment. For the purpose of this study, self-assessment is defined as a person's evaluation of their self as exemplified by both general self-efficacy and self esteem. Self-efficacy, a specific kind of self assessment, is affected by body image. Self-efficacy was defined by Bandura (1997) as "beliefs in one's capability to organize and execute the courses of action required to manage prospective situations" (p. 3). Self-efficacy is concerned with individuals' ability to accomplish designated types of performance (D'Amico & Cardaci, 2003).

According to Bandura (1977), a person gauges his or her self-efficacy through four major sources: enactive experiences, vicarious information, verbal persuasion, and physiological reactions. Self-efficacy is a robust and flexible construct that helps to explain complex as well as discrete behaviors (Lent, Brown, & Larkin, 1984). Although self-efficacy, according to Bandura (1977), is related to problem specific assessments of a person's ability to perform a task, it has also come to refer to more general assessments (Madux, Norton, & Stoltenberg, 1986; Schunk, 1989). These general assessments may encompass both a student's ability to learn in a specific course and the ability to learn in general.

Socialization experiences, such as exposure to advertising, also affect self-efficacy and body image. For the purpose of this study socialization experiences were not measured.

However, knowledge about the effects of socialization experiences on both body image and self-efficacy are important to explain why body image will predict self-efficacy. Bandura's (1977, 1986, 1995) explanation of self-efficacy emphasizes the impact of socialization experiences on the development of self-efficacy. Interestingly, socialization experiences also influence the development of body image (McAuley et al., 1995). Therefore, it is possible and likely that the same socialization experiences that influence a person's body image also influence his or her self-efficacy.

High self-efficacy is important because self-efficacious people are likely to have many advantages compared to people low in self-efficacy. Self-efficacious individuals are healthier, more successful, and more effective than individuals low in self-efficacy (Bandura, 1997). Self-efficacious people also tend to expend more energy toward a goal, and to be more persistent in the face of obstacles and aversive experiences than people low in self-efficacy (Lent et al., 1984; Bandura, 1977).

Researchers established that high self-efficacy is a strong predictor of high academic achievement (D'Amico & Cardaci, 2003; Lent et al., 1984; Mone, Baker, & Jefferies, 1995). In addition, increasing evidence suggests that personal cognitions exert important effects on achievement behavior (Weiner, 1979).

Furthermore, research explains that self-efficacious students set higher grade goals (Zimmerman & Bandura, 1994) and have more academic motivation (Skaalvik & Skaalvik, 2004) than students low in self-efficacy. Self-efficacy also determines performance accomplishments (Bandura, 1977; Connell & Welborn, 1991; Lent et al., 1984). Skaalvik and Skaalvik (2004) found that self-efficacy directly predicts grades. Relatedly, Hortacsu and Üner (1993) found that perception of control not only affects achievement, but that it specifically

affects students' grade point averages. Self-efficacy has also been shown to affect not only grades and grade point averages, but to impact academic achievement as a whole (Hampton & Mason, 2003; Luszczynska, Gutierrez-Doña, & Benicio, 2005). Self-efficacious beliefs may bolster academic achievement indirectly as well. Self-efficacy is related to choice of tasks, career selection, persistence, task value, intrinsic interest, and strategy use (Bong & Skaalvik, 2003). Each of these activities may have a significant effect on academic achievement. For example, the amount of task value and intrinsic interest a person has for a task could easily determine the outcome of the task.

Body image and self-assessment

Research has indicated that body image influences self-efficacy (McAuley, Bane, & Mihalko, 1995; Pikler & Winterowd, 2003; Williams & Cash, 2001). Overall, women with higher levels of body image also have higher levels of self-efficacy and more confidence (Pikler & Winterowd, 2003). It has been shown that body image does not only affect self-efficacy toward the body, but also affects self-efficacy in all areas (Pikler & Winterowd, 2003). McAuley et al. (1995) found that increased exercise improved subjects' body image, which in turn increased the individuals' general self-efficacy.

General self-efficacy is not the only self-assessment predicted by body image. Similar to the way in which body image effects self-efficacy, it also predicts self esteem. "Self esteem refers to an individual's sense of his or her value or worth, or the extent to which a person values, approves of, appreciates, prizes, or likes him or herself" (Blascovich & Tomaka, 1991, p. 22). The most broad and frequently cited definition of self-esteem is Rosenberg's (1965), who described it as a "favorable or unfavorable attitude toward the self" (p. 15). The concept implies a global sense of self worth and is not intended to be domain specific. The majority of research

on self esteem has linked it to other psychological constructs. Two of these constructs are body image and academic achievement.

Self esteem is closely related to body image (Lerner, Karabenick, Stuart, & Stuart, 1973). It appears that in women, self esteem incorporates both cognitive and affective responses and is heavily influenced by social comparison (Bong & Clark, 1999). Interestingly, social comparisons also affect body image. Therefore, comparisons women make between themselves and other women affect both their self esteem and body images.

In both men and women, body dissatisfaction is strongly related to low self esteem, a relationship that appears to be magnified at adolescence (Lennon, Lillethun, & Buckland, 1999; Lennon & Rudd, 1994; Mintz & Betz, 1986). As mentioned earlier, greater body dissatisfaction lowers body image. Therefore, as body dissatisfaction increases, body image will decrease, thus lowering self esteem. However, the relationship between body dissatisfaction and self esteem is much stronger in females (Lowery et al., 2005; Mintz & Betz, 1986). In the present study, this sex difference will likely make females' body image more closely related to their self esteem than that of males.

The impact of body image on self esteem is important because self esteem is related to academic achievement. Numerous studies show a positive correlation between self esteem and academic achievement (Lawrence, 1981; Piers & Harris, 1964; Primavera, Simon, & Primavera, 1974; Skaalvik, 1983; VanLaar, 2000). However, a correlation does not imply causation. There is considerable disagreement as to the direction of influence for these two variables. It does appear that the relationship between self esteem and academic performance is bidirectional (Lawrence, 1981). In other words, self esteem and academic achievement reciprocally influence one another. Several studies show that self esteem influences academic performance (Lamy,

1965; Purkey, Graves, & Zellner, 1970; Wattenberg & Clifford, 1964). This research suggests that low self esteem impairs academic achievement because feelings of worthlessness can be depressing (Hokanson, Rubert, Welker, Hollander, & Hedeem, 1989) and depression inhibits performance. Furthermore, fear of failure may cause students with low self esteem to hold back, whereas students with high self esteem may be more likely to take a risk. Regardless, the research clearly shows that body image affects self esteem and that self esteem affects academic achievement.

Literature on body image has shown its effect on both self assessments – self esteem and general self-efficacy. Further, both general self-efficacy and self esteem are related to achievement (Judge & Bono, 2001). Therefore, it is important to distinguish differences between the constructs. Although it is a relatively new construct, a large body of research examines self-efficacy. There are two distinct types of self efficacy. Bandura (1977) defined task specific self-efficacy as “the conviction that one can successfully execute the behavior required to produce the desired outcome” (p.193). Bandura claimed that assessments of task specific self-efficacy vary on three dimensions: level, which means that task specific self-efficacy may be limited to simple tasks or extended to difficult tasks; strength, which predicts whether the individual will persist despite obstacles; and generality, in which people judge themselves competent across a wide range of domains or situations. The second type of self-efficacy, general self-efficacy is based on Bandura’s dimension of generality. General self-efficacy was defined by Sherer et al. (1982) as a general set of expectations that a person possesses based on past experience, that affect his or her expectations of success in new situations. General self-efficacy is task specific self-efficacy that is generalized to other situations. Both general self-efficacy and self esteem are general self assessments and both contain cognitive, motivational, and affective components.

However, the important difference between the constructs is that general self-efficacy captures a motivational belief (or an assessment) about task capabilities, whereas self esteem captures an affective evaluation of (or a feeling regarding) the self (Chen et al., 2001). Thus, the constructs differ on their emphasis on motivational versus affective components. Differences between general self-efficacy and self esteem are important because factors affecting their relationships with body image are distinct.

Hypotheses

As demonstrated in the theoretical model, current literature shows that body image is a powerful construct that affects both general self-efficacy and self esteem. There are clearly major differences in males' and females' body images. Further, general self-efficacy and self esteem have both been shown to predict academic achievement. However, no research has linked body image to general self-efficacy, self esteem, and academic achievement. This study examines whether general self-efficacy and self esteem serve as mediators between body image and academic achievement. Based on the prior research it was hypothesized that:

- 1.) In women, increased body image will raise general self-efficacy, which will have a positive effect on academic achievement.
- 2.) In women, increased body image will raise self esteem, which will have a positive effect on academic achievement.
- 3.) Mens' body image will neither affect their self assessments (general self-efficacy and self esteem), nor their academic achievement.

The hypothesized model is informed by previous research on body image, general self-efficacy, self esteem, and academic achievement. Because of sex differences in body image, the model only represents relationships present in females. As seen in Figure 1 body image is

hypothesized to affect academic achievement because of the mediators -- general self-efficacy and self esteem.

Figure 1

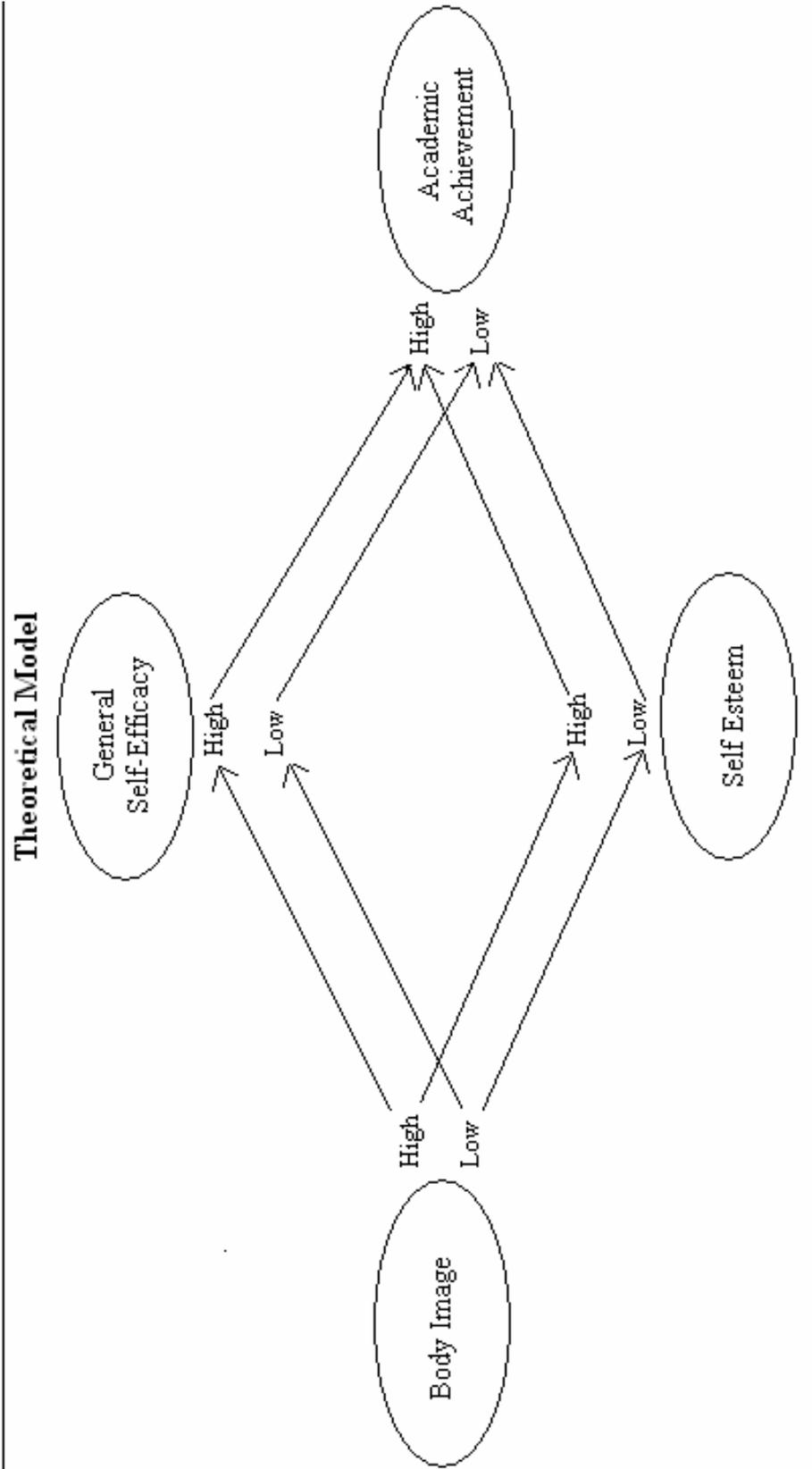


Figure 1: Theoretical Model - Hypothesized mediating relationship of general self-efficacy and self esteem between body image and academic achievement in women

Method

Participants

Participants included 92 first-year students, 37 males and 55 females, enrolled in Psychology 100 at The Ohio State University, Mansfield Campus, between November 22, 2005 and February 27, 2006. Participants were self-selected to participate, having chosen this study from among several studies that could be used to fulfill a Psychology 100 research education requirement. Students from The Ohio State University, Mansfield campus were chosen because the open enrollment policy of the campus allowed the researcher to show how body image affects both high and low levels of academic achievement. First-year college students were studied because concern over body image and the relationship between body image and achievement are strongest at adolescence. Subjects remained anonymous; however, they were asked to report their sex and year of high school graduation. Participants were asked about their academic achievement in high school; therefore, only using data from students in their first year after high school allowed the researcher to use high school academic achievement as a valid measure of students' academic achievement. All participants granted informed consent.

Measures

Because the predictability of self-efficacy in a general domain was important to this study, general scales were chosen. The Self-Efficacy Scale (Sherer et al., 1982) and the New General Self-Efficacy Scale (Chen et al., 2001) were used as measures of general self-efficacy. Both the Self-Efficacy Scale and the New General Self-Efficacy Scale used a 14-point Likert type response format, ranging from *strongly agree* to *strongly disagree*. The Self-Efficacy Scale made statements such as “Even when things are tough, I can perform quite well” and “I will be able to successfully overcome many challenges” in order to measure general self-efficacy.

Cronbach's Alpha (α) on this 23-item measure was .92. The New General Self-Efficacy Scale, an 8-item measure, $\alpha = .96$, also measured general self-efficacy. Responses were given based on comments such as "I am confident that I can perform effectively on many different tasks" and "Compared to other people, I can do most tasks very well."

The Rosenberg Self-Esteem Scale (Rosenberg, 1965) was used as a measure of global self esteem. Participants rated their self esteem on a 4-point Likert scale ranging from *strongly agree* to *strongly disagree*. The 10-item scale included statements such as "On the whole, I am satisfied with myself" and "I feel that I have a number of good qualities." The scale's internal consistency was high, $\alpha = .89$.

Body image was measured using the Objectified Body Consciousness Scale (McKinley & Hyde, 1996), The Body-Esteem Scale (Franzoi & Shields, 1984), and the sex appropriate version of the Sociocultural Attitudes Towards Appearance Scale (Smolak, Levine, & Thompson, 2001). The Objectified Body Consciousness Scale, a 24-item measure, $\alpha = .81$, asked participants to rate their level of body consciousness on a 7-point Likert type scale ranging from *strongly agree* to *strongly disagree*. Sample statements include "I often worry about whether the clothes I am wearing make me look good" and "I feel like I must be a bad person when I don't look as good as I could." The Body-Esteem Scale, $\alpha = .94$, asked participants to rate 35 different characteristics of their body (i.e. thighs, biceps, buttocks). Ratings ranged from 1 -- *have strong negative feelings*, to 5 -- *have strong positive feelings*. Men and women completed the Sociocultural Attitudes Toward Appearance Scale appropriate for their sex. Because the ideal body image is much different for men and women, a single questionnaire for both sexes could have been unreliable; thus, men completed a version designed for men and women completed the version designed for women. Both versions of the scale contained 14

items. Ratings were made on a 5-point Likert type scale ranging from *completely agree* to *completely disagree*. The women's scale made statements such as "I believe that clothes look better on thin models" and "Women who appear in TV shows and movies project the type of appearance that I see as my goal." Men responded to statements like "I believe that clothes look better on thin/muscular models" and "Men who appear in TV shows and movies project the type of appearance that I see as my goal." Internal consistency was high on both versions of the scale, $\alpha = .83$ in women and $\alpha = .81$ in men. Academic achievement was operationalized using the Academic Achievement Scale, a 10-item scale developed by the author and shown in the appendix, $\alpha = .63$, participants' high school grade point average, and the Academic Self-Regulation Questionnaire (Ryan & Connell, 1989). The 32-item Academic Self-Regulation Questionnaire asked participants to rate whether they *strongly agree* or *strongly disagree* about responses to academic regulation questions. For example, the questionnaire asked "Why do I try hard in school" and then asked participants to rate the extent to which they agreed with responses such as "Because that's what I'm supposed to do" and "So my teachers will think I'm a good student." Internal consistency was high, $\alpha = .88$.

Procedure

Upon receipt of internal review board approval, participants were invited to participate in one of fourteen data collection sessions. Attendance was taken in order to grant students Psychology 100 research participation credit. The researcher did not examine the names on the attendance sheet, so participants remained anonymous. Next, participants were informed of the risks of participation and asked to grant consent. Participants' questions were answered throughout the entire data collection session. Each participant was given a packet containing all nine questionnaires. Written instructions were provided for each of the nine questionnaires. All

participants received the same self-efficacy, self esteem, and high school academic achievement measures. When finished with the questionnaires, participants were thanked for their participation, debriefed in the form of a letter, and excused.

Design

Correlational results were analyzed using a structural equation model. Regression coefficients were drawn between the latent variables -- body image, general self-efficacy, self esteem, and academic achievement. The overall fit of the model was tested to determine the practical significance.

Results

Descriptive statistics were computed for all measured variables (see Table 1). Differences between sample means of measured variables in men and women were not significant. Subjects were relatively neutral to satisfied on body esteem, neutral on awareness and internalization of social attitudes towards appearance, had neutral self esteem, and did not objectify. Subjects displayed little academic self-regulation.

Correlational analysis

For the purpose of data exploration, correlations between measured variables were examined (see Table 2 and Table 3). Although these correlations are not as useful as structural equation modeling to show the direction of the relationships between body image, general self-efficacy, self esteem, and academic achievement, they do justify the results of structural modeling despite the relatively small number of women ($N = 55$) and men ($N = 37$) studied. In women, measured variables of body image were associated with measured variables of both self-assessments -- general self-efficacy and self esteem. The Body Esteem Scale and the New General Self-Efficacy Scale were moderately, yet significantly correlated, $r = .38, p < .01$. The

Body Esteem Scale and the Self-Efficacy Scale were also moderately correlated in women, $r = .31, p < .05$. Women's scores on the Objectified Body Consciousness Scale were moderately, yet significantly correlated with women's scores on the New General Self-Efficacy Scale and Self-Efficacy Scale, $r = .31, p < .05$ and $r = .27, p < .05$ respectively. The Rosenberg Self Esteem Scale was substantially correlated with the Body Esteem Scale, $r = .60, p < .01$, and the Objectified Body Consciousness Scale, $r = .53, p < .01$. These correlation coefficients show support for the hypothesis and estimates of the structural equation model that, in women, body image is strongly associated with both general self-efficacy and self esteem.

Measured variables of general self-efficacy were also significantly correlated with measured academic achievement scales in women (see Table 2). The New General Self-Efficacy Scale was significantly correlated with Academic Self regulation Questionnaire, $r = .27, p < .05$. The Self-Efficacy Scale was also correlated with the Academic Self Regulation Questionnaire, $r = .36, p < .01$.

As hypothesized and predicted by estimates of structural equation modeling, body image in men was neither associated with measures of self-assessments nor academic achievement measures (see Table 3).

Measurement model

Structural equation modeling uses a model to depict relationships among latent variables derived from observed variables, with the intent of providing a quantitative test of the theoretical model. Statistical analysis reflects the recommendations of Shumaker and Lomax (2004).

Observed variables are represented by a rectangular box. Ovals represent latent variables. The strength and direction of arrows connecting latent and observed variables is shown by the factor loading located on the arrow. Similarly, arrows between latent variables indicate directional

relationships; regression coefficients estimate the strength of these relationships and are provided on the arrow.

Structural equation modeling was used for several reasons. First, structural equation modeling allowed the researcher to use multiple observed variables to predict latent variables. This analysis also accounted for measurement error and increased the researcher's capability to analyze a sophisticated theoretical model.

The testable path model was derived through a multi-step process. First, previous literature was examined to create a theoretical path diagram (Figure 1). This diagram represents the relationships between body image, general self-efficacy, self esteem, and academic achievement among women. Although this model served as the basis of the study's hypotheses, it was not measurable or testable. Therefore, an empirical model was constructed (Figure 2). The empirical model uses observed variables to estimate latent variables. Using this approach, relationships between latent variables could then be estimated and tested. Finally, tests were conducted and regression coefficients, factor loadings, and error variances were added to the empirical model (Figure 3, Figure 4).

As noted earlier, sex differences in body image lead to a prediction that the relationships between women's body image, self-assessments, and academic achievement will be very different than the relationships between men's body image, self-assessments, and academic achievement. Therefore, the theoretical model was developed to estimate relationships between latent variables for women. Because the empirical path model was derived from the theoretical model, the empirical model also represents the directional relationships between latent variables for women (Figure 3). Relationships among latent variables in men were tested using the model

designed for women (Figure 4), but the relationships were predicted to show no fit with the model.

Strength of relationships and error variance scores can be seen in Table 4. Following the conventional practice, one factor loading of each dependent latent variable was set to the scale of 1.00 for unity of measurement. For the measured variables, error variance was determined by the LISREL software program. However, in several cases error variance was estimated to be negative. Because variance cannot be negative, error variance on these measurements was set to .01. All factor loadings of body image and general self-efficacy were fairly strong in women. In men, however, factor loadings of body image and general self-efficacy were much lower. On the whole, the measured constructs regarding body image and general self-efficacy were strong common factors and could be assumed to correctly estimate latent variables. Although it acted as a latent variable, self esteem was measured. Measured variables, intended to measure academic achievement, varied significantly in their relationship with the latent variable demonstrated by low factor loading.

The structural equation model for women supported the hypothesis that body image in women predicts self-assessments (see Figure 2). The regression coefficient between body image and general self-efficacy, .63, was significant at the .01 level. Thus, as hypothesized, high body image in women predicts high general self-efficacy. The regression coefficient estimating the relationship between body image and self esteem, .23, just missed the cut-off of significance at the .05 level. Structural equation modeling did not support the hypothesis that women's general self-efficacy and self esteem would affect their academic achievement.

In men, structural equation modeling supported the hypothesis. Body image in men had no effect on self-assessments or academic achievement. The regression coefficients (see Figure

3) represent a lack of relationship between body image, general self-efficacy, and self esteem. Interestingly, self esteem predicted academic achievement significantly at a level of .05. General self-efficacy on the other hand had no affect on academic achievement. This finding must be interpreted cautiously, however. As discussed earlier, measured variables loaded poorly on academic achievement. Therefore, it is uncertain whether self esteem in men significantly affects academic achievement, or whether academic achievement was not accurately measured.

Discussion

It was hypothesized that body image in women would affect self-assessments, which would in turn affect academic achievement. The hypothesis was partially supported. Body image in women did indeed affect both general self-efficacy and self esteem. This finding suggests that females with high body images will have positive attitudes about their capability and self worth, but females with low body image will have negative feelings about their capability and self worth.

The finding that body image affects general self-efficacy has specific implications. By definition, general self-efficacy affects one's belief in his or her capability in a general domain. This means that no matter what activity a person is engaged in, he or she will feel less capable if he or she has a lower general self-efficacy. Thus, lower general self-efficacy will likely result in poorer performance in all areas. The effects of body image on general self-efficacy cannot be overlooked.

Poor body image also results in lower self esteem in women. Women with lower self esteem, by definition, have greater depression and less feelings of self-worth. The importance of this finding is significant. Body image is a growing target for marketers. As a result of marketing and the media, a growing number of both women and men have distorted body

images. This study showed that distorted body image affects general self-efficacy and self esteem. These findings magnify the importance of body image and suggest that a greater knowledge of body image be taught as part of the middle and high school public school health curriculum. In middle schools, health teachers should focus on educating students on body image and create an awareness of media messages about body image. Public high school school curriculum must include techniques to minimize the effects of poor body image on general self-efficacy and self esteem. These interventions to improve body image could also improve students' feelings of self worth and capability, thus affecting many areas of life.

As hypothesized, one area affected by improved feelings of capability and self worth may be academic achievement. Findings, on the other hand, show that academic achievement was not affected by general self-efficacy and self esteem. The structural equation model contained large variances in the relationship between measured academic achievement variables and the latent academic achievement variable. This may suggest that results from the model do not correctly estimate the effect on academic achievement. Because the measured variables differed greatly in their assessment of academic achievement (factor loadings were low) then it is unclear from this study whether relationships between self-assessments and academic achievement exist. Because of poor factor loadings of academic achievement, correlational analysis of the relationship between women's self-assessments and academic achievement may be more useful. Correlational analysis suggested that women's general self-efficacy was related to academic achievement.

The discrepancy between the results of structural equation modeling and correlational analysis may be due to weaknesses in the Academic Achievement Scale (Appendix A). This scale, developed for the purpose of this study, was not tested prior to use. Although it appears to

have face validity its reliability was low. As a result, the latent variable, academic achievement may have been poorly measured. The moderate correlations between measures of self-assessments and academic achievement may suggest that a relationship between the two does exist in the population, but was not seen in the structural equation model because of the poor measure.

Sex differences in the relationship between body image and self-assessments were vast, as hypothesized. On the one hand, women's body image affected self-assessments. On the other hand, men's body image had no effect on self-assessments. This implies that high body images in males do not affect their self-assessments; consequently, males' body images may have less impact on their lives than women's body images have on their lives. For example, media images affecting men's body images may have less effect on their self-assessments than media images affecting women's body images. Therefore, advertising that lowers men's and women's body images will affect women's evaluation of their self-worth and capability. Men with lower body images will not have lower feelings of self-worth and capability. Based on these findings, interventions should be developed to focus on improving body image, especially in women.

Limitations

The results of this study should be interpreted cautiously for several reasons. Because of limitations on study length a longitudinal study was not possible. Therefore, body image, general self-efficacy, and self esteem were measured concurrently in participants, but academic achievement was based partially on high school academic achievement. Academic achievement in the first few quarters of college is often not representative of a student's, eventual overall academic achievement. Therefore, it was important to use established academic achievement in order to be confident that the effects of general self-efficacy and self esteem on achievement

could be seen. However, using concurrent body image, general self-efficacy, and self esteem, but past academic achievement does introduce the confound, time, to the results.

The relatively small sample size limits the effectiveness of the structural equation model. Based on a general rule, the number of participants should be six times greater than the number of measured variables. Therefore, the structural equation model for women is a reasonable estimate of the relationship between the latent variables. The model for men, however, does not quite reach the level of six participants to every one measured variable. This is important to recognize as a weakness of the study when examining the relationships for men. The data do not indicate any relationship between men's body images and self-assessments. A greater number of male subjects could have increased the strength of this finding. Another study limitation is that factor loadings of academic achievement were relatively low in both men and women. This may be problematic when trying to use measured variables as indicators of the latent variable, academic achievement.

Implications for Future Research

Present findings should spawn more research in this area. First, structural equation modeling estimates direction of effects between latent variables, but cannot show causality. The current estimates do suggest that relationships exist and based on prior literature their causal direction have been estimated. However, correlations do not imply causation. Therefore, further research must test this study's predicted directionality of the relationships between latent variables using longitudinal research and experiments to show causality. Similar findings from causal research should spawn interventions to improve body image in women in order to improve their self-assessments.

Low factor loadings predicting the latent variable of academic achievement make interpretation of results surrounding academic achievement difficult. For this reason, future research must aim to clearly address academic achievement and show how strongly it varies in correspondence with self-assessments.

Findings suggested that self-assessments were poor predictors of academic achievement. Therefore, other mitigating variables must be examined. Motivation for academic success may mitigate the relationship between body image and academic achievement. Future research should attempt to determine if motivation for academic success does function as a mediator between body image and academic achievement.

Finally, future research must address the affects of media messages on body image. This may show that body image is affected by media messages, but may also show how changes in body image affect both general self-efficacy and self esteem.

Conclusion

The hypotheses were partially supported by the structural equation model. Women's body image did, indeed, affect their self-assessments. However, women's self-assessments did not affect their academic achievement. Correlational analysis supported the hypotheses, however, suggesting that women's body images were related to their self-assessments and their self-assessments were related to their academic achievement despite estimates of structural equation modeling. As hypothesized, men's body images neither affected their self-assessments, nor did their self-assessments affect their academic achievement. These results contribute to the field of Psychology and may be important in the future examination of body image, general self-efficacy, self esteem, and body image.

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Figure 2

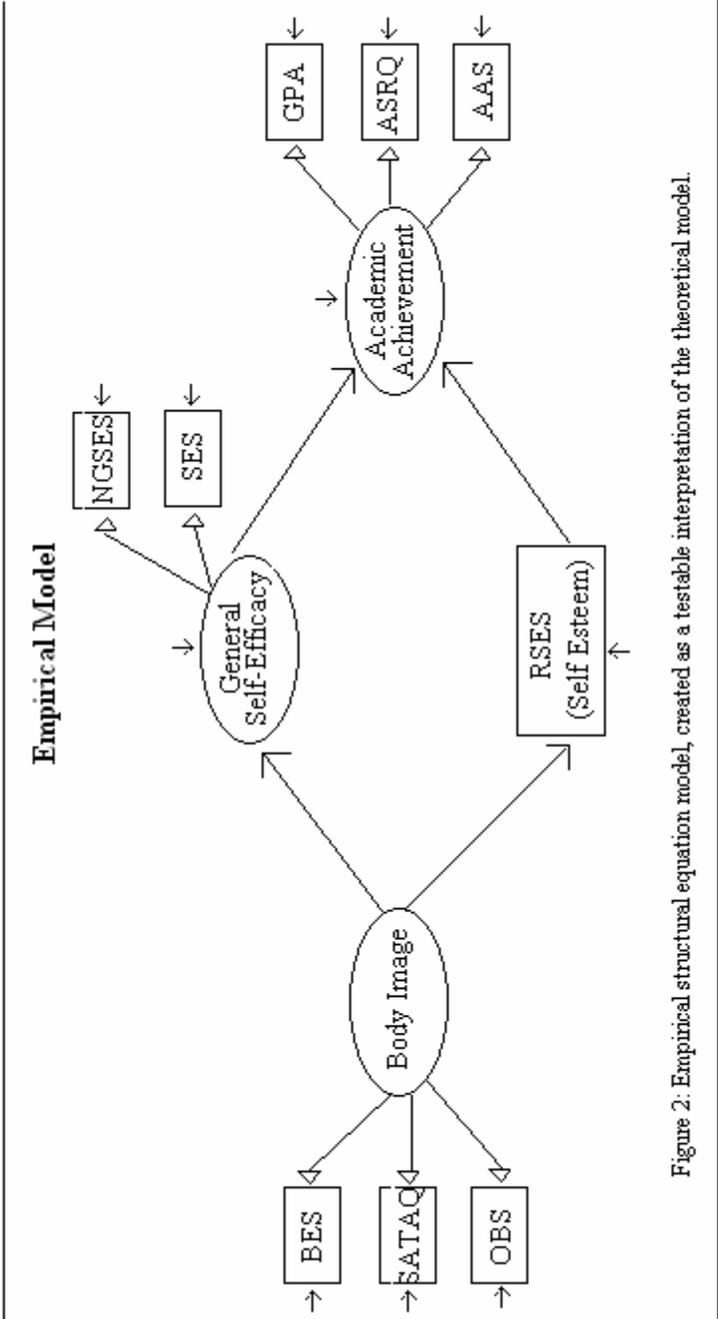


Figure 2: Empirical structural equation model, created as a testable interpretation of the theoretical model.

Figure 3

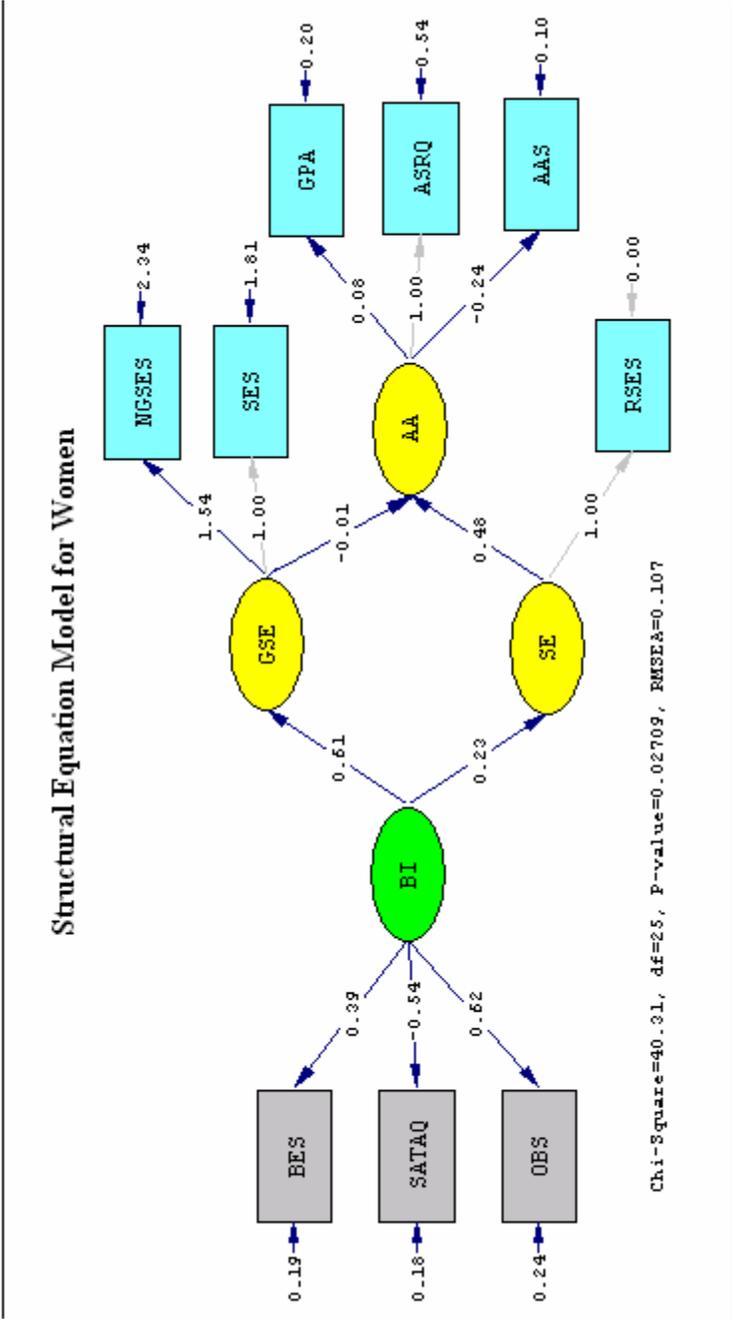


Figure 2: Structural Equation Model -- Estimating the mediating relationships of general self-efficacy and self esteem between body image and academic achievement in women.

Figure 4

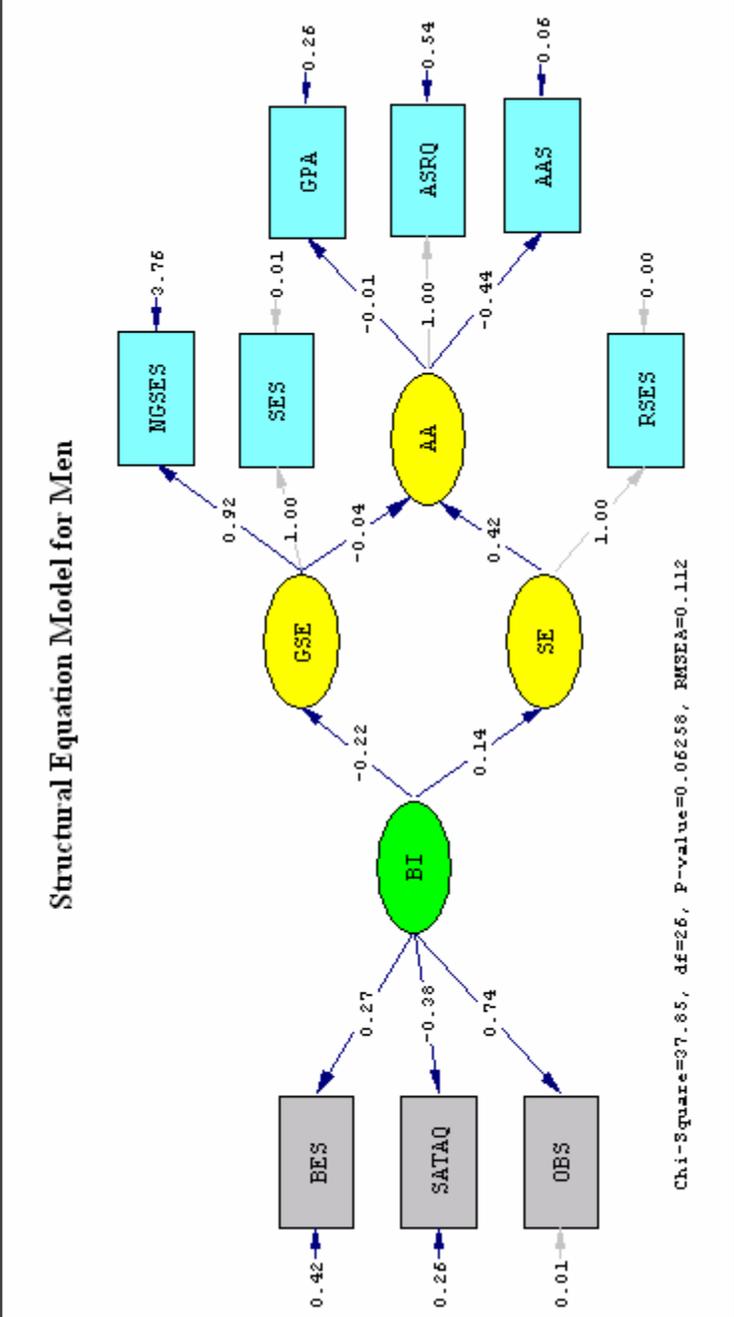


Figure 3: Structural Equation Model -- Estimating the mediating relationships of general self-efficacy and self-esteem between body image and academic achievement in men.

Table 1

Descriptive Statistics of Men's and Women's Scores on All Observed Variables

Observed Variable	Women N = 55		Men N = 37		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Body image measures					
BES	3.41	0.60	3.52	0.70	0.78
SATAQ	3.36	0.67	3.20	0.64	1.14
OBS	3.80	0.78	4.10	0.75	1.82
General self-efficacy measures					
NGSES	10.25	2.40	11.09	2.52	1.62
SES	9.37	1.86	9.78	2.12	0.98
Self-esteem measure					
RSES	3.00	0.55	3.19	0.51	1.67
Academic achievement measures					
GPA	3.30	0.46	3.14	0.52	1.53
ASRQ	-0.98	0.74	-0.89	0.71	0.58
AAS	0.57	0.31	0.55	0.27	0.28

Table 2

Correlation Coefficients of All Observed Variables in Women

Subscale	1	2	3	4	5	6	7	8	9
1. BES	--								
2. SATAQ	-.54**	--							
3. OBS	.45**	-.63**	--						
4. NGSES	.38**	-.13	.31*	--					
5. SES	.31*	-.22	.27*	.68**	--				
6. RSES	.60**	-.41**	.53**	.60**	.51**	--			
7. GPA	.07	.01	-.02	.16	.03	.22	--		
8. ASRQ	.03	-.12	.09	.27*	.36**	.19	-.09	--	
9. AAS	-.06	.20	-.12	.10	-.30	-.06	.11	.04	--

* $p < .05$, ** $p < .01$

Table 3

Correlation Coefficients of All Observed Variables in Men

Subscale	1	2	3	4	5	6	7	8	9
1. BES	--								
2. SATAQ	-.07	--							
3. OBS	.38*	-.59**	--						
4. NGSES	-.02	.12	-.21	--					
5. SES	.17	.07	-.11	.75**	--				
6. RSES	.52**	-.32*	.41**	.08	.46**	--			
7. GPA	.18	-.14	.27	-.01	.13	.54**	--		
8. ASRQ	-.05	.10	-.12	.09	.06	-.16	-.26	--	
9. AAS	.03	-.17	-.13	-.01	-.03	.01	-.04	.00	--

* $p < .05$, ** $p < .01$

Table 4

Factor Loading and Error Variance Scores of Observed Variables

Observed Variable	Women		Men	
	Factor Loading	Error Variance	Factor Loading	Error Variance
BES	.39	.20	.27	.42
SATAQ	.55	.18	-.38	.26
OBS	.62	.23	.74	.01
NGSES	1.45	2.55	.92	3.76
SES	1.00	1.70	1.00	.01 ^b
RSES	1.00	.00 ^a	1.00	.00 ^a
GPA	.08	.20	-.01	.26
ASRQ	1.00	.55	1.00	.54
AAS	-.24	.10	-.44	.06

^a Error variance estimated to be negative. Variance cannot be negative so error variance set to .01.

^b Error variance set at .00. RSES is a measured variable that predicts the relationship of self-esteem to latent variables; therefore, it serves as a latent variable in structural modeling, but has no error variance.

Table 5

Female Responses: Regression Coefficients

Body Image → General Self-Efficacy = 0.61*
Body Image → Self Esteem = 0.23
General Self-Efficacy → Academic Achievement = -0.01
Self Esteem → Academic Achievement = 0.48*

Note. The symbol → signifies that the first variable predicts the second variable.

* $p < .05$

Table 6

Male Responses: Regression Coefficients

Body Image → General Self-Efficacy = -0.22
Body Image → Self Esteem = 0.14
General Self-Efficacy → Academic Achievement = -0.04
Self Esteem → Academic Achievement = 0.42*

Note. The symbol → signifies that the first variable predicts the second variable.

* $p < .05$

Appendix A

Academic Achievement Scale

- 1.) What was your grade point average (GPA) in high school?
- 2.) *What was your class rank upon graduation from high school?
- 3.) Did you take honors or post-secondary enrollment classes in high school?

Yes / No (circle one)

- 4.) How many hours per week did you study in high school?
- 5.) *Were you retained in high school?

Yes / No (circle one)

- 6.) *While in high school, did you ever take summer school courses?

Yes / No (circle one)

- 7.) How difficult were your high school classes?

1	2	3	4	5
Very Difficult		Average	Very Easy	

- 8.) Was high school easy for you?

1	2	3	4	5
Very Difficult		Average	Very Easy	

- 9.) What is your college grade point average (GPA)?
- 10.) What was your first test grade in Psychology 100?

Note. Questions #2, #5, #6 were not included in data analysis. Questions #2 and #5 were unanswered or answered insufficiently (i.e. class rank only reported as position number and total number of students in the class not reported) by more than fifty percent of participants. Question #6 was eliminated because it was unclear whether “summer school courses” represented remedial education or additional education; therefore, it was unclear whether taking summer school courses represented high or low academic achievement.