

2007

## The relationships among implicit self-esteem, explicit self-esteem, appearance self-worth and awareness of physical attractiveness

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THE RELATIONSHIPS AMONG IMPLICIT SELF-ESTEEM, EXPLICIT SELF-  
ESTEEM, APPEARANCE SELF-WORTH AND AWARENESS OF PHYSICAL  
ATTRACTIVENESS

Thesis

Submitted to

The College of Arts and Sciences

UNIVERSITY OF DAYTON

In Partial Fulfillment of the Requirements for

The Degree

Master of Arts in Psychology

By

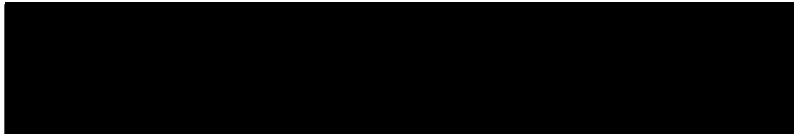
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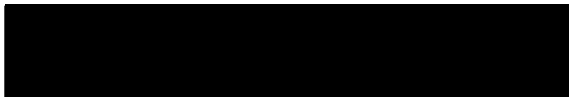
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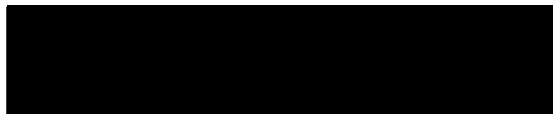
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## ABSTRACT

### THE RELATIONSHIPS AMONG IMPLICIT SELF-ESTEEM, EXPLICIT SELF-ESTEEM, APPEARANCE SELF-WORTH AND AWARENESS OF PHYSICAL ATTRACTIVENESS

Stacey Leigh Niehaus  
University of Dayton, 2007

Advisor: Dr. Charles Kimble

The main foci of this study are three areas of concern for social psychology: self-esteem, physical attractiveness awareness, and appearance self-worth. Participants ( $N = 94$ ) were recruited from introductory psychology courses at the University of Dayton. Participants first completed questionnaires concerning explicit self-esteem (ESE), self-esteem security (SES), and self-worth. Participants then completed a computer program used to measure implicit self-esteem (ISE) and then rated the physical attractiveness of photographs of same sex persons. The major questions of this study were: (1) What effect do upward or downward comparisons of physical attractiveness have on a person's implicit and explicit self-esteem? It was expected that participants would experience increases in implicit self-esteem after viewing photographs of less attractive people and decreases in implicit self-esteem after viewing photographs of more attractive people. Explicit self-esteem was not expected to change in either condition. (2) Does the basis of one's self-worth, specifically the contingency of self-worth, appearance, influence changes in self-esteem? Participants with high appearance-related self-worth were expected to have

greater changes in implicit self-esteem than those who did not base their self-worth on physical attractiveness. (3) What effect do comparisons of physical attractiveness have on a person's level of self-esteem security? Participants were expected to have greater changes in self-esteem security if they based their self-worth on physical attractiveness. It was also expected that females would have greater changes in self-esteem than males. There was some evidence to support the hypothesis that implicit self-esteem increases after downward comparisons and decreases after upward comparisons. Results show that males have higher explicit self-esteem, implicit self-esteem and explicit self-esteem security than females. Possible explanations for these results, limitations of the study, and suggestions for further research are discussed.

## ACKNOWLEDGEMENTS

My special thanks to Dr. Charles Kimble, my advisor, for his time, patience, and expertise in the completion of my thesis. I would also like to express my appreciation to Dr. Melissa Berry Cahoon and Dr. Catherine Zois, my committee members, for their guidance and advice. Finally I would like to thank my husband and family for their support and understanding throughout this time-consuming process.

## TABLE OF CONTENTS

ABSTRACT.....	iii
ACKNOWLEDGEMENTS.....	v
LIST OF FIGURES.....	ix
LIST OF TABLES.....	x
CHAPTER	
I. INTRODUCTION.....	1
Explicit Self-esteem.....	2
Explicit and Implicit Self-esteem.....	5
Implicit Self-esteem .....	6
Implicit Association Test and Implicit Self-esteem.....	7
Contingencies of Self-worth.....	9
Physical Attractiveness.....	12
Present Study.....	16
II. METHOD.....	18
Participants.....	18
Measures.....	18
Rosenberg Self-Esteem Scale.....	18
Self-Esteem Security.....	18
Contingencies of Self-Worth.....	19
Implicit Association Test.....	20
Stimulus Photographs.....	21
Procedure.....	23
Analyses.....	26
III. RESULTS.....	28
Preliminary Results.....	28

Analyses of Major Study Questions.....	29
Implicit Self-Esteem.....	29
Explicit Self-Esteem.....	31
Self-Esteem Security.....	36
Correlations and Descriptive Statistics.....	38
IV. DISCUSSION.....	41
Review of Major Findings.....	43
Relationship between self-esteem and self-worth.....	46
Relationship between self-worth and self-esteem security.....	47
Gender differences in self-worth, self-esteem, and self-esteem security.....	48
Limitations.....	49
Summary and future directions.....	51
REFERENCES.....	54
APENDICES.....	66
A. Implicit Association Task.....	66
B. Lists of words used in the Implicit Association Task .....	67
C. Rosenberg Self-Esteem Scale.....	68
D. Kimble Self-Esteem Security Scale.....	69
E. Contingencies of Self-Worth Scale.....	70
F. Informed Consent.....	72
G. Debriefing Form.....	73
H. Analysis of males' implicit self-esteem measure time, physical attractiveness condition, and appearance self-worth level on implicit self-esteem.....	75
I. Analysis of participants' self-esteem security measure, gender, physical attractiveness condition, and level of appearance related self-worth on explicit self-esteem security.....	76
J. Means and standard deviations for explicit self-esteem, implicit self-esteem, self-esteem security before and after photo condition and appearance related self-worth and physical attractiveness ratings for all participants as well as divided by gender.....	77



K. Analysis of attractiveness ratings depending on gender and photo attractiveness.....	78
L. Analysis of females' implicit self-esteem measure time, physical attractiveness condition, and appearance self-worth level on implicit self-esteem .....	79
M. Descriptive values of the contingencies of self-worth.....	80
N. Average attractiveness based on gender and photo condition.....	81
O. Descriptive statistics for explicit self-esteem and self-esteem security based on gender and level of self-worth.....	82
P. Means and standard error for implicit self-esteem before and after photo condition by gender, level of appearance self-worth, and attractiveness of photographs.....	83

## LIST OF FIGURES

### FIGURE

1.	Slide from block 3 "me" paired with "pleasant" and "not me" paired with "unpleasant" .....	22
2.	Slide from block 5 "me" paired with "unpleasant" and "not me" paired with "pleasant" .....	22
3.	Diagram of testing time sequence for participants.....	25
4.	Average implicit self-esteem before and after viewing photographs for males with high physical attractiveness related self-worth.....	33
5.	Average implicit self-esteem before and after viewing photographs for males with low physical attractiveness related self-worth.....	33
6.	Average implicit self-esteem before and after viewing photographs for females with high physical attractiveness related self-worth.....	34
7.	Average implicit self-esteem before and after viewing photographs for females' with low physical attractiveness related self-worth.....	34
8.	Changes in implicit self-esteem for all participants before and after photograph condition and separated by high and low appearance self-worth.....	35

## LIST OF TABLES

### TABLES

1. Analysis of participants' implicit self-esteem as a function of gender, physical attractiveness condition, implicit self-esteem times and level of appearance self-worth.....	32
2. Analysis of participants' explicit self-esteem measure, gender, physical attractiveness condition and level of appearance self-worth on explicit self-esteem.....	37
3. Correlations among contingencies of self-worth, explicit self-esteem, implicit self-esteem and explicit self-esteem security.....	40

## CHAPTER 1

### INTRODUCTION

The purpose of this study was to better understand changes in implicit and explicit self-esteem after comparisons of physical attractiveness. In this study, differences in the changes in implicit and explicit self-esteem were explored to determine if implicit self-esteem is more a sensitive measure than explicit self-esteem. Another function of this study was to explore the relationships among appearance self-worth, implicit self-esteem (ISE), and explicit self-esteem (ESE) and explicit self-esteem security (ESES). Changes in ISE, ESE and ESES as a function of comparisons of physical attractiveness and low or high appearance self-worth were examined.

For this study, ESE was defined as a person's overtly indicated global feelings about him or herself, and ISE is defined as a person's underlying feelings about him or herself that cannot readily be accessed. Implicit and explicit self-esteem are measured in different manners. Implicit self-esteem is measured by tools that decrease a person's control of the score; the measures do not have face validity. The tools, comparisons of response times to self-related and positivity-related words, are intended to reduce a person's awareness of what is being measured (Nosek, 2007). Explicit self-esteem is measured by instruments that have high face validity and the answers are in direct control of the participant.

Studies of self-esteem have shown that people with high ESE have greater overall satisfaction with life, whereas people with low ESE have more pessimistic views of life (Diener, 1984; Myers & Diener, 1995). There has been much attention in research to the development and stability of ESE. School-based programs have been implemented to raise the self-esteem of children; in turn, this was supposed to increase the children's drive and achievement (Crocker & Wolfe, 2001). However, these programs have not focused on the children's basis for their self-esteem.

Self-esteem can be based on many different facets, such as academic achievement, God's love, physical attractiveness, parental love, competence, virtue and competition. These different domains are known as contingencies of self-worth (Crocker & Wolfe, 2001). When a person is successful in the domain in which his or her self-worth is based, his or her self-esteem may be raised; and if a person is unsuccessful in the domain in which his or her self-worth is based, the person's self-esteem may be lowered.

#### *Explicit Self-esteem*

There have been hundreds of books and programs telling people how to increase their self-esteem. There have been more than 15,000 journal articles on self-esteem published over the past 30 years and interest in this topic has not decreased (Baumeister, Campbell, Krueger, & Vohs, 2003). Studies have demonstrated that high ESE is strongly related to the beliefs people hold about themselves. People with high ESE tend to believe that they are intelligent, attractive, and popular. People with high ESE also tend to be less anxious, more hopeful, and they have higher overall life satisfaction (Baumeister et al., 2003; Crocker, Luhtanen, Blaine, & Broadnax, 1994;

Diener, 1984; Myers & Diener, 1995; Pyszczynski & Greenberg, 1987). High ESE people tend to have more self-confidence than people with low ESE, especially after an initial failure (McFarlin & Blascovich, 1981). Self-esteem has been shown to be the greatest predictor of life satisfaction, over income, status, and marital satisfaction (Diener, 1984).

Low ESE is often seen as having negative consequences, whereas high ESE is often seen as having positive effects. Research has shown that even though people with high ESE have a positive outlook and feel confident, they do not perform better in school or job performance (Baumeister et al., 2003). Additionally, low ESE does not seem to contribute to violent behavior, drug use, or early sexual activity (Baumeister et al., 2003).

Even though high ESE is usually seen as having positive consequences (Baumeister, Smart, & Boden, 1996), researchers have argued that high ESE, when not grounded in actual accomplishments, can contribute to interpersonal violence and other undesirable consequences. Sometimes high ESE is seen as maladaptive and defensive. Some potential negative aspects of high ESE include people being seen as boastful, narcissistic, and conceited. People with high ESE tend to blame others when they fail, whereas people with low ESE blame themselves (Heatherton & Vohs, 2000). High ESE people respond to negative feedback by emphasizing their abilities or dismissing the feedback. This response leads to the maintenance of high ESE. High ESE people minimize the time they think about their own negative qualities or actions and selectively forget their failures and remember their successes (Baumeister & Cairns, 1992; Crary, 1966; Mischel, Ebbesen, & Zeiss, 1976). People with low ESE are

less trusting of positive feedback and feel that they are more likely to be rejected, and they are more likely to accept negative feedback (Josephs, Bosson, & Jacobs, 2003). Josephs, Bosson and Jacobs (2003) found that people with low and high ESE show an increase in ESE after they receive positive feedback from an evaluator. However, people with low ESE, but not high ESE, show an increase in ESE after positive and neutral self-generated feedback. The study by Josephs, Bosson and Jacobs (2003) shows that people experience changes in ESE after positive or negative situations.

Some studies have found that males consistently score higher on ESE measures than do females, but the difference is not great (Kling, Hyde, Showers, & Buswell, 1999). Others have found no difference or that females score higher on measures of ESE (Allgood-Merten & Stockard, 1991; Feather, 1991; Fertman & Chubb, 1992; Greene & Wheatley, 1992; Simpson, Gangestad, & Lerma, 1990). Kling, Hyde, Showers and Buswell (1999) found that males' ESE is consistently higher than females over time but the difference becomes smaller with age.

In recent years, some have questioned the importance of self-esteem (Crocker & Park, 2004). Crocker and Park (2004) believe it is the pursuit of self-esteem and the success or failure in these pursuits that are important to one's view of the self. Research on the stability of ESE has shown that some people have stable ESE, whereas others have unstable ESE (Meagher & Aidman, 2004).

Researchers have suggested that measures of ESE do not actually measure a person's self-esteem but may be a person's attempt to show a positive self-attitude (Hutton, 1989; Rosenberg, 1979). Even though this has been supported through some research, others believe that trying to portray a positive self-image is part of a person's

self-esteem (Linden, Paulhus, & Dobson, 1986). Self-deception is often seen as a healthy way of adjusting and helpful in raising one's self-esteem.

### *Explicit and Implicit Self-esteem*

Overall, people seem to have steady levels of ESE, but ISE can vary more and in different situations. A person cannot consciously access ISE, but a person can access ESE. Implicit self-esteem is quantified as a measure of positive or negative self-attitudes derived from response times to combinations of self-related words with positive or negative words. Implicit self-esteem can rise and fall dependent on different situations and achievements. For instance, if a person bases one's self-esteem on academic achievement, and that person fails a test, his or her ISE would likely be temporarily lowered. The fluctuations in a person's ISE can be related to a person's contingency of self-worth (Greenier et al., 1999; Levine, Wyer, & Schwarz, 1994).

Genuinely high self-esteem means a person has both high ESE and ISE. Having both low implicit and explicit self-esteem is seen as having genuinely low self-esteem (Aidman, 1999; Farnham et al., 1999; Meagher & Aidman, 2001). People with high ESE and low ISE have become known as having defensive self-esteem (Meagher & Aidman, 2004). Defensive self-esteem means that people with low ISE and high ESE try to cover their low ISE by showing high ESE scores. Self-deception can be recognized by measuring both implicit and explicit self-esteem. People with low implicit and high explicit self-esteem tend to have lower self-esteem stability and show higher levels of narcissism than people with genuinely high self-esteem and genuinely low self-esteem (Jordan, Spencer, Zanna, Hosino-Browne, & Correll, 2003). Kernis, Paradise, Whitaker, and Goldman (2000) found that perception of feedback from an evaluator depends on



the stability of a person's ESE. People with unstable ESE react more to both negative and positive feedback.

### *Implicit Self-esteem*

Measures of ISE are a relatively new way to measure a person's self-esteem. The need for an ISE measure is supported by research that shows some aspects of a person's self-esteem may be inaccessible (Aidman, 1999; Greenwald & Banaji, 1995; Kihlstrom, 1999). Baumeister, Heatherton and Tice (1993) hypothesized that people with high ESE should be able to accept negative feedback without negative consequences to their emotions and use the feedback more constructively. Overall, this seems to be true when looking at a person's ESE, but some people do have negative consequences to their emotions when they receive criticism even though they have high ESE (Baumeister, Heatherton, & Tice, 1993). Kernis (1997) found that people with unstable ESE have conflicting levels of ESE and ISE; they have high ESE and low ISE. Unstable ESE has been associated with more self-doubt and feelings of failure after receiving negative feedback than those with stable ESE (Kernis, 1997).

Researchers have suggested that ESE measures capture a positive attitude toward the self rather than a person's overall attitude (Rosenberg, 1979; Baumeister, Tice & Hutton, 1989). Meagher and Aidman (2004) studied participants' reactions to feedback from an evaluator through analysis of ISE and ESE. The researchers found that ISE was predictive of the level of the participant's emotional response to feedback and ESE was predictive of the participant's evaluation of a confederate who gave feedback about the task. Changes in ISE corresponded with affective changes, ESE tended to remain steady as if to maintain the participant's self-esteem (Bosson, Swann,

& Pennebaker, 2000). Affective and situational changes have often been connected to changes in ISE.

### *Implicit Association Test and Implicit Self-Esteem*

Dasgupta and Greenwald (2001) studied implicit biases toward African Americans and found that exposure to admirable people of the stigmatized categories reduced implicit negativity toward those categories. To measure changes in implicit attitudes the Implicit Association Test (IAT) is often used. The measure used by Dasgupta and Greenwald (2001) was the Implicit Association Test. The IAT measured the reaction times when positive and negative words were associated with the stigmatized categories. The IAT has been shown to be a sensitive measure of changes in attitude and mood. For this study the IAT will be used to measure participants' ISE.

The Implicit Association Test (IAT) developed by Greenwald, McGhee, and Schwartz in 1998 can be used to access a person's ISE. The IAT measures the strength of automatic associations between different concepts (Greenwald, McGhee, & Schwartz, 1998). The IAT is based on the assumption that implicit attitudes manifest themselves as actions or judgments influenced by automatic evaluations. The test is based on the assumption that it should be easier, and therefore faster for a person to make judgments about attitudes that align with his or her own beliefs than conflicting beliefs (Greenwald, McGhee, & Schwartz, 1998).

To measure ISE, the speed with which a person associates pairs of words, such as positive or negative words, to another set of words, such as "self" or "other" is measured. People make faster judgments of words for which they have well-developed self-schemas (Markus, 1977). A high ISE score on the IAT is determined by longer

response times for word combinations of negative words associated with words describing the self, such as “stupid” and “me,” and shorter response times to positive word combinations such as “me” and “nice.” Shorter response times to such combinations of “stupid” and “me,” and longer response times to word combinations such as “me” and “nice” would contribute to a lower implicit self-esteem score. The difference between the mean responses to the “me” words paired with positive words and “me” words paired with negative words establishes the strength of the implicit attitude (Greenwald, 1998).

The IAT was found to have acceptable test-retest reliability, but most other implicit measures have poor reliability. Low test-retest reliability may not be a problem for measures of ISE because it reflects a person’s emotional state in varying situations.

Although implicit measures are useful, they also have greater error than do explicit measures (Greenwald & Banaji, 1995). Implicit and explicit self-esteem measures have only been found to be moderately, if at all, correlated. Correlation scores range from near zero to more than .7 (Greenwald & Banaji, 1995; Nosek, 2004). Greenwald and Banaji (2004) and Yamaguchi et al. (2007) found that there might be a bias toward high ISE, just as Taylor and Brown (1988) found a bias toward high ESE. People who are under pressure from time or are busy show ESE levels more similar to their ISE levels (Koole, Dijksterhuis, & van Knippenberg, 2001). This effect could be found because people who are rushed do not have time to try to present themselves better or think about the questions they are being asked. Therefore, their ISE and ESE are more similar. It is also possible that completing the explicit measures first may increase participants’ awareness of the construct being measured, which may create

greater similarities between implicit and explicit self-esteem scores. Bosson, Swann, and Pennebaker (2000) found that when explicit measures were completed first the explicit and implicit measures correlated more strongly than when the implicit measures were completed first.

Studies have found ISE correlates more strongly with ESE for women than for men (Pelham, Koole, Hardin, Seah & DeHart, 2005). However, other studies have found no differences (Greenwald, 2000), and still others have found a stronger correlation for males (Riketta, 2005). These findings are very mixed and further research should be done in order to determine if there is a sex difference in the correlation of ISE and ESE.

#### *Contingencies of Self-worth*

Recent studies have focused on different elements of self-esteem, called contingencies of self-worth. A person's success in each domain can affect self-esteem. Crocker and Park (2004) propose that it is more important how people attempt to gain self-esteem rather than if self-esteem is high or low. People retain their self-esteem by making gains in the areas in which they base their self-worth and by protecting themselves from threats to their self-worth. It is believed that self-esteem is increased when a person is successful within the domain in which they base their self-worth, and decreased when a person experiences a failure within this domain (Crocker, Karpinski, Quinn, & Chase, 2003; Crocker, Sommers, & Luhtanen, 2002; Crocker & Wolfe, 2001).

There are different domains in which people measure their successes and failures, called contingencies (Crocker & Wolfe, 2001). A contingency of self-worth is a type of experience upon which people base their self-esteem (Crocker & Wolfe, 2001).

People develop their contingencies of self-worth through social interactions, learning (Bandura, 1986, 1991), and norms (e.g., Solomon, Greenberg, & Pyszczynski, 1991b).

The basis of a person's self-worth can influence a person's self-esteem depending on how successful a person is in the area on which self-worth is based. Crocker (2002) found seven different domains on which people base their self-worth. These include: approval from others, physical appearance, academic competence, family support, competition success, virtue and God's love. The domains of others' approval, success in competition with others, and physical appearance are defined as external contingencies of self-worth, meaning they are dependent upon others for reinforcement and therefore people basing their self-esteem in these facets will likely have less stable self-esteem. Love from family, virtue, and faith are defined as internal contingencies of self-worth, so people basing their self-esteem on these contingencies will likely have more stable self-esteem (Crocker, 2002). Crocker developed a scale to measure these seven domains called the Contingencies of Self-Worth Scale.

Crocker, Luhtanen, Cooper, & Bouvrette (2003) administered their scale to students upon entering college and then again eight and a half months later. They found that students who based their self-worth on appearance spent more time partying (Crocker, Luthanen, Cooper, & Bouvrette, 2003) and had more social problems during their first year of college (Crocker & Luthanen, 2003). Crocker's research supports the idea that people who base their self-worth on external factors, such as appearance and competition, will have a more difficult time adjusting to life in college and have greater fluctuations in self-esteem, as opposed to people who base their self worth on internal factors such as God's love or virtue.

Santor and Walker (1999) found that a person's perception of one's own physical attractiveness was not related to any measure of self-worth. They also found that participants who were rated as more physically attractive by others rated physical attractiveness as more important than participants judged as less attractive. Finally, the authors suggest that physical attractiveness may be a determinant of self-worth, but only on certain aspects. Santor and Walker (1999) stated that appearance may be a contingency of self-worth when another person rated the degree of physical attractiveness for an individual, but not when personal physical attractiveness was rated by the individual.

Kernis (2003) argues that it is not what a person bases his or her self-worth on, but rather, if that person has a basis for self-worth on any domain. The researcher suggests that people who do not base their self-esteem on any of the contingencies of self-worth have more stable ESE. Contrary to this study, Crocker (2002) found that a person's self-esteem stability depends on whether that person bases his or her self-worth on internal contingencies, which tend to create more stable self-esteem, or external contingencies, which create less stable self-esteem. Crocker (2002) found that only 4% of the participants could be classified as not basing their self-worth on one of the seven contingencies measured by the scale. Crocker (2002) suggests that appearance related self-worth is an external contingency; therefore, people with appearance-based self-worth have greater changes in ESE.

Patrick, Neighbors, and Knee (2004) suggest that people who have self-esteem contingent on physical attractiveness make more comparisons with others they believe to be more physically attractive, known as upward comparisons. Women with self-

esteem contingent on one of the external facets of self-worth tend to compare themselves with fashion models more than women with lower contingent self-esteem (Patrick, Neighbors & Knee, 2004). It was also found that these comparisons were involuntary for the women with high contingent self-esteem (Patrick, Neighbors & Knee, 2004). Harter (1997) found that females with high appearance self-worth feel worse about their appearance, have lower ESE and feel more depressed. It is possible, that high appearance self-worth women make more upward comparisons of physical attractiveness and this is why they feel worse about their appearance, have lower ESE and feel more depressed.

#### *Physical Attractiveness Awareness*

Physical attractiveness has been a topic of great interest as well. People are flooded with images of attractive people throughout their everyday lives. Many of the physical standards in place are unobtainable to most. It would stand to reason if people base their self-worth on physical attractiveness, yet they feel they do not meet the standard that has been set, their self-esteem would be lower.

There has been a weak and inconsistent relationship found between physical attractiveness and self-esteem (Adams, 1977; Mathes & Kahn, 1975; Walster, Aronson, Abrahams, & Rottman, 1966). The weak relationship between physical attractiveness and ESE has been explained that more attractive people may have higher expectations of success because of the positive feedback they receive. Or, physically attractive people may disregard positive feedback they receive because it is attributed to their physical attractiveness and not talent. The latter speculation is supported by Sigall and Michela (1976), who asked female students to compare themselves with either

attractive or unattractive photographs. The women who viewed the unattractive photographs, which aimed to make them feel more attractive, were more likely to disregard positive feedback from evaluators. The women may have disregarded the feedback because they were made to feel attractive and attributed the praise to their attractiveness. Major, Carrington, and Carnevale (1984) found that attractive participants who had not been seen by an opposite-sex evaluator were more likely to attribute praise they received to work related factors than attractive participants who had been seen by the evaluator.

It has been hypothesized that people who are physically attractive know how their appearance affects others. Due to this, people who are physically attractive may discount praise as affected by their appearance. Therefore, their self-esteem would not be increased by others' praise (Sigall & Michela, 1976). The hypothesis that physically attractive people discount praise from others may be one of the reasons there has been no effect on self-esteem when a person is physically attractive. Praise is taken more seriously and to have more credibility by unattractive people.

Many studies have been done on upward and downward comparisons people make with others. Upward comparisons occur when a person compares him- or herself to another person who is performing better at a certain task, and downward comparisons occur when a person compares him- or herself to someone who is not performing as well as oneself. These upward and downward comparisons have been used in studies of physical attractiveness to explore people's feelings when in the presence of either more or less attractive people. In general, people tend to feel worse



about themselves after upward comparisons and better about themselves after downward comparisons (Major, Testa, & Blysm, 1991; Wills, 1981; Wood, 1989).

Women tend to base their physical attractiveness more on body appearance (Wade, 1999) but for men the most important aspect in rating personal physical attractiveness is the face (Wade, 1999; Gangestad, Thornhill, & Yeo, 1994). Women who have smaller hips, waist, and medium to small buttocks are considered more attractive by both men and women (Wiggins, Wiggins & Conger, 1968). It has been shown that the woman's waist to hip ratio is very important to the woman's perceived attractiveness (Singh 1993; 1994; 1995b; Singh & Luis, 1995; Symons, 1995). Men of medium height were seen as more attractive than tall or short men. Men of medium height were not found to have higher ESE than men of tall or short stature, even though they were rated as more attractive (Graziano, Brothen, & Berscheid, 1978).

Santor and Walker (1999) found that people judged as more physically attractive rated physical attractiveness as more important to them. Thornton and Moore (1993) found that people who have lower ESE often rate themselves as less physically attractive. Wade, Thompson, Tashakkori, and Valente (1989) found a link between physical attractiveness and explicit self-esteem for women but not men.

It seems as though there is also a situational influence on self-perceived physical attractiveness. Women in the presence of physically attractive women will rate themselves as less physically attractive than they would if they were in the presence of unattractive or average appearance women (Cash, Cash, & Butters, 1983). Cash, Cash, and Butters (1983) found a contrast effect when women were exposed to highly attractive photographs. They found that in such situations, women rated their own

physical attractiveness as lower. They also found that women exposed to less attractive females rated their own appearance more favorably after such exposure. This study was supported by further research by Thornton and Moore (1993), who found when people are exposed to others of greater physical attractiveness they rate themselves as lower in physical attractiveness. These contrast effects have been more noticeable in conditions in which participants perceive the photographs as more realistic and similar to themselves, rather than models from magazines or television.

In addition, job applicants who were evaluated in the presence of another applicant who had highly desirable traits had a decline in ESE when measured shortly after (Morse & Gergen, 1970). It was also found that social self-esteem was affected by the comparisons to others, but overall ESE was not affected (Thornton & Moore, 1993).

Santor and Walker (1999) investigated the relationship among physical attractiveness, self-worth, and dominance. They found that self-perceived attractiveness was significantly greater for men than for women. Males rated their physical attractiveness significantly greater than their actual attractiveness as rated by others, but females' self-rated attractiveness was not different from actual attractiveness (Gabriel, Critelli, & Ee, 1994). However, females who scored high on a narcissism scale had higher self-rated attractiveness than actual attractiveness.

Garcia (1998) found that higher ESE is positively correlated with self-perceptions of attractiveness. Women who had higher social anxiety had lower ESE and judged themselves as less physically attractive. There was a higher correlation between males' actual attractiveness and ESE, but no correlation between the females' ESE and physical attractiveness.

### *Present Study*

This study is based on the notion that people's ISE and ESE are affected by their perception of their own personal physical attractiveness. In this study, the possibility that a change in ISE and ESE is more affected when a person bases his or her self-worth on the domain that is being challenged was examined. The domain that is focused on in this study is physical attractiveness. Participants were exposed to either a group of more attractive same-sex photographs or less attractive same-sex photographs to elicit changes in the participant's self-esteem. Implicit and explicit self-esteem were measured before and after exposure to the photographs to determine changes in both types of self-esteem. Higher-order interactions, which include some of the following hypotheses within them, will be examined

The primary study hypotheses are as follows:

- H1: There will be an increase in ISE for participants who viewed the unattractive photographs.
- H2: It is expected that there will be a decrease in ISE for participants who viewed the highly attractive photographs.
- H3: There will be no difference in ESE for either condition.
- H4: Participants who base their self-worth on attractiveness would have greater changes in ISE after rating the photographs.
- H5: Participants will experience a decrease in ESES after viewing the attractive photos and an increase after viewing the unattractive photos.

H6: It is expected that females will experience greater changes in ISE after viewing the photographs than males.

## CHAPTER 2

### METHOD

#### *Participants*

The participants were 94 students recruited through introductory psychology classes at the University of Dayton. Ages of the participants ranged from 18 to 21 years old ( $M = 19$ ,  $SD = 1.2$ ). The sample consisted of 87% Caucasian participants, 7% African American participants, and 5 % Hispanic participants. Participation in the study partially fulfilled a research requirement for the course. Participants were treated according to APA ethical guidelines.

#### *Measures*

*Rosenberg Self-Esteem Scale.* The Rosenberg Self-esteem Scale (Rosenberg, 1979) is a 10-item instrument that is used to measure participants' global ESE. Ratings are made on a 5-point continuum where a higher score reflects a more positive self-view. This is a well-validated scale (Winters, Meyers & Proud, 2002). Rosenberg (1965) found a test-retest correlation of .85. Reliability of the scale ranges from acceptable to high,  $\alpha = .72$  to .88 (Gray-Little, 1997).

*Self-Esteem Security Scale.* Attached to the Rosenberg self-esteem scale was a self-esteem security scale developed by Kimble (1990), used to measure the stability of participant's self-esteem. This scale is based on appendix items from Rosenberg's (1979) book. The scale is comprised of eight statements that are rated on a 5-point continuum. Higher scores on this scale reflect higher ESE. The scale is based

on Rosenberg's self-esteem scale, and it is similar to the ideas of Kernis (1993), except that Kernis's self-esteem stability is evaluated on variations in responses to Rosenberg's self-esteem scale over time, whereas Kimble's self-esteem security scale evaluates self-esteem fluctuations at a one-time measurement. The scale was tested on 260 college students, and found positive correlations with Rosenberg's Self-esteem scale,  $r = .50$ ,  $p < .001$  and negative correlations with public self-consciousness,  $r = -.29$ ,  $p < .001$ . Kimble found that participants who rated themselves positively about their appearance had a positive correlation with the self-esteem security scale,  $r = .18$ ,  $p < .001$ .

*Contingencies of Self-Worth.* Participants also completed the Contingencies of Self-Worth Scale (Crocker, 2002). This scale was used to measure differences in participants' bases of self-worth. This scale measures seven different contingencies of self-worth. These contingencies are others approval or regard, physical appearance, academic competency, love from family, competition success, virtue, and God's love. The scale was found to have good test-retest reliability of .68 to .92 for a 3-month period, and from .59 to .89 over an eight and a half month period (Crocker, 2001). Students were tested upon entering their first year of college and then again 3 months later and at the end of the students' first year of college. Social desirability was also found to be correlated most strongly with the appearance subscale ( $r = .28$ ,  $p < .01$ ). Correlations with other personality subscales never exceeded .30, suggesting that each domain is distinct from another. The scale found similar results for African Americans, Caucasians, and Asian Americans.

*Implicit Association Test.* The IAT is a computer program based on Greenwald, McGhee, and Schwartz's (1998) program. In this task, participants were asked to view a series of words displayed one at a time on a monitor. Each word was viewed on the computer monitor from a comfortable distance. Words appeared approximately 2 in. in height. The words were to be rapidly matched to either a "pleasant" or "unpleasant" label, or a "me" or "not me" label in the upper right or left part of the screen. The IAT measures reaction times to determine the strength of automatic associations between different concepts, such as "me" and "not me" or "pleasant" and "unpleasant" terms.

The IAT includes five blocks. The first block is learning the concept ("me" or "not me"), this step includes the grouping label "me" in the upper left corner of the screen and the "not me" grouping label in the right corner. Participants are shown words such as "I", "me", "it", and "they" and told to press "e" on the keyboard if the word is a "me" word and "i" if the word is a "not me" word. The next block is learning the attribute ("pleasant" or "unpleasant"). The word "pleasant" is placed in the upper left corner of the screen and the word "unpleasant" is placed on the upper right corner of the screen. Participants are told to press "e" if the word is a "pleasant" word such as "beautiful" or "smart" and "i" if the word is an unpleasant word such as "ugly" or "stupid". The pleasant and unpleasant words used in this study were selected from the evaluative list in the article by Greenwald and Farnham (2000). The two steps are then combined for the third block ("me/pleasant" and "not me/unpleasant"). The "me/pleasant" grouping is in the left corner of the screen and the "not me/unpleasant" grouping is in the right corner of the screen. Again participants are told to press "e" if the words are "me" or

“pleasant” words and press “i” if the words are “unpleasant” or “not me” words.

Participants then complete the fourth block, with the category labels reversed, which shows “not me” in the top left corner and “me” in the top right corner. Participants are told to press “e” to match “not me” words and “i” for “me” words. After this has been done the concepts are switched for the final/fifth block, with “not me” matched with “pleasant” in the top left corner and “me” matched with “unpleasant” in the top right corner. Participants are told to press the “e” key for “not me” and “pleasant” words and to press the “i” key for “me” and “unpleasant” words. Steps three and five are the fields that were used for measurement purposes (Nosek, Greenwald, & Banaji, 2005). The reaction times from block three are subtracted from the reaction times from block five to obtain the participant’s implicit self-esteem score.

Test-retest reliability has been found to be  $r = .65$  and  $r = .69$  (Greenwald, 2000). These scores show that the IAT has moderately good stability. Bosson, Swann, and Pennebaker (2000) found that the IAT had acceptable test-retest reliability ( $r = .69$ ). The IAT implicit self-esteem also correlated significantly with the Rosenberg scale of explicit self-esteem ( $r = .22$ ).

*Stimulus Photographs.* Participants also rated the physical attractiveness of a series of nine photographs on a 7-point scale. A higher score on this measure reflects higher rated physical attractiveness. The photographs were chosen from the website [www.hotornot.com](http://www.hotornot.com). The more attractive photographs used in the study had ratings of 7.5 out of 10 or above on the website and the less attractive photographs used in the study had ratings of 4 out of 10 or below on the website.



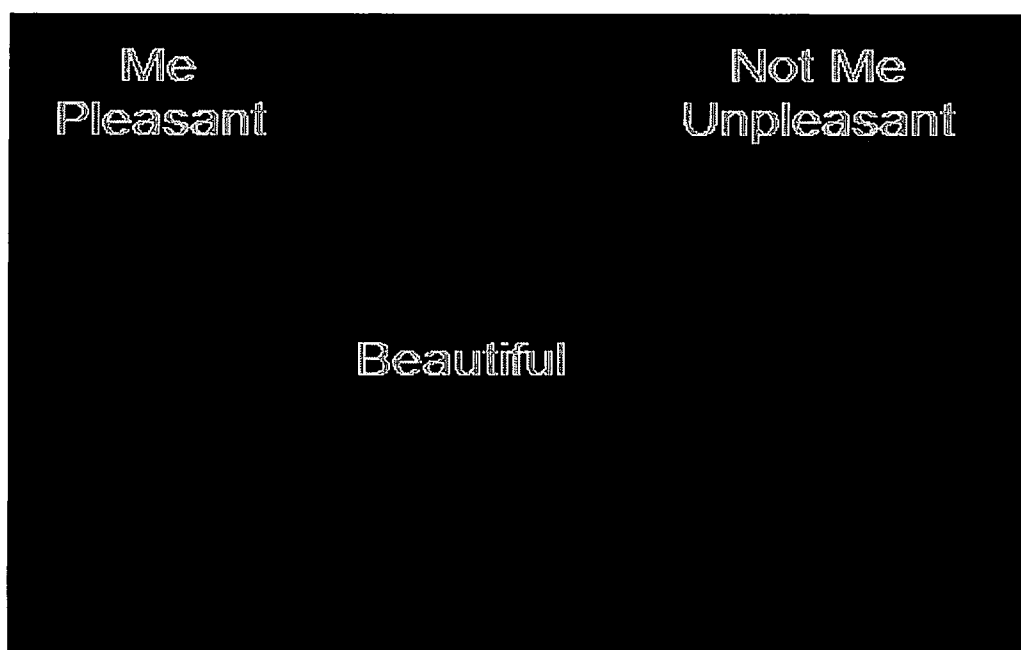


Figure 1. Slide from Block 3 with "me" paired with "pleasant" and "not me" paired with "unpleasant".

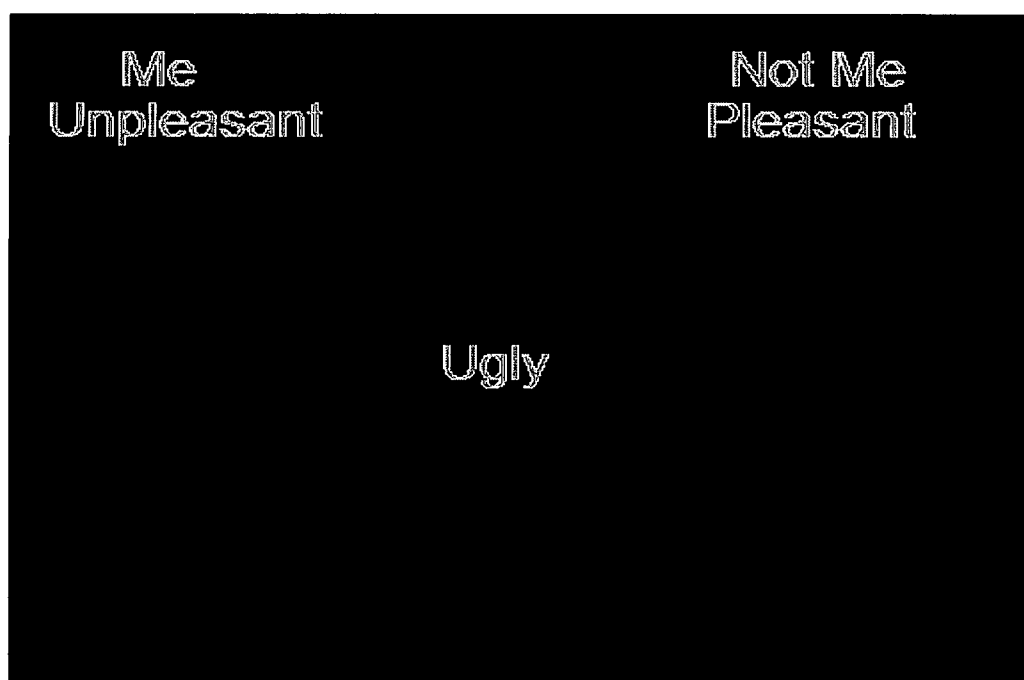


Figure 2. Slide from Block 5 with "me" paired with "unpleasant" and "not me" paired with "pleasant".

The photographs were presented to same-sex participants and were categorized as either highly attractive or less attractive photographs. Participants who viewed the highly attractive photographs were in the upward comparison group and those who viewed the less attractive photographs were in the downward comparison group. This step was done to examine changes in participants' self-esteem.

### *Procedure*

Before being selected for the current study, participants completed the mass testing session at the University of Dayton in the Winter of 2005, Spring of 2006, or Winter of 2006 session. This was done in order to complete the Rosenberg Self-Esteem Scale, Kimble Self-Esteem Security Scale, and the Contingencies of Self-Worth Scale for comparison purposes. The contingency of self-worth data, collected from the mass testing study, were analyzed in order to separate students into two groups. This procedure was a median split done to create a low appearance self-worth group and a high appearance self-worth group. Based on this appearance self-worth data, students in the groups were divided evenly by median split and placed in either the group that viewed highly attractive same-sex photographs or the group that viewed unattractive same-sex photographs.

As participants arrived for individual sessions, they were led into an individual room and told that the computer program would give all instructions. Participants were told to complete the IAT as fast as they could without making mistakes. It was explained that the program would last approximately 15 min. and the researcher would return shortly after the program was finished. Students first completed the IAT and then rated a series of 9 randomly assigned photos of either highly attractive or unattractive

same-sex photographs. After completing these tasks, participants again completed the IAT, to measure their ISE. This score was used for comparison purposes. Shortly after the participants finished the computer program the researcher returned to administer the Rosenberg Self-Esteem Scale and Kimble Self-esteem Security Scale. Participants were debriefed and told that the study was designed to examine differences in self-esteem in different situations. Students were thanked for their participation in the study and told they would receive one participation credit. Students were asked if they had any questions or concerns and were excused (See Figure 3).

## Group Testing

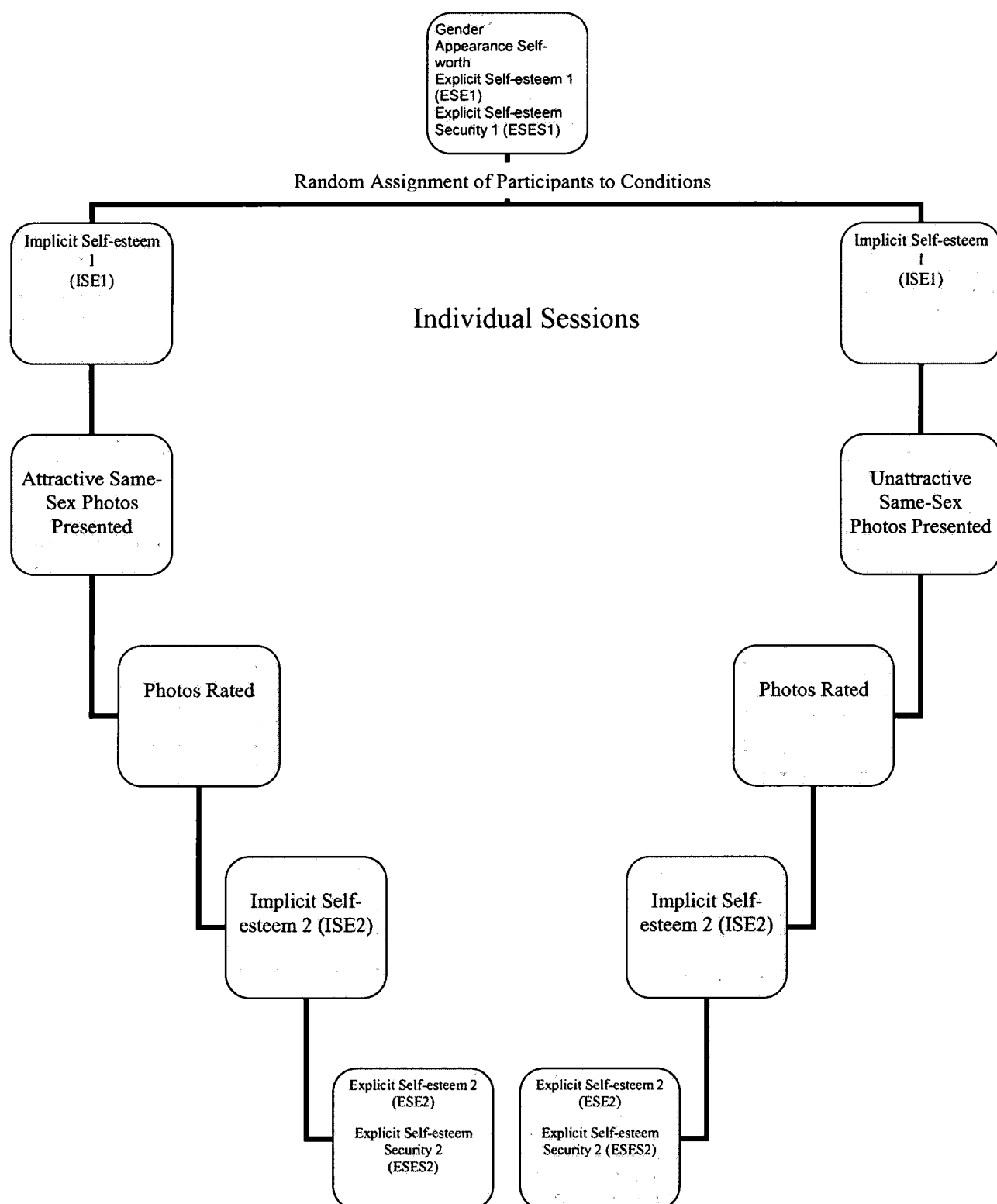


Figure 3: Diagram of testing time sequence for participants

## *Analyses*

Correlations of the contingencies of self-worth, ESES, ISE before viewing the photographs, and ESE before viewing the photographs were conducted. The design of the current study employed three primary dependent variables: ISE, ESE, and ESES. The ANOVA designs also included four independent variables: measurement time (1, 2), sex, attractiveness of photographs, and low or high appearance self-worth. Another analysis of attractiveness ratings of photographs with photo conditions, gender, and appearance self-worth as independent variables was also conducted.

A 2 (gender) x 2 (attractiveness of photographs) x 2 (high or low appearance self-worth) factorial ANOVA with ISE as the dependent variable was conducted. Simple effects analyses of ISE by gender, photo condition, and appearance self-worth were also studied to compare group differences in significant interactions.

Another 2 (gender) x 2 (attractiveness of photographs) x 2 (high or low appearance self-worth) factorial ANOVA with ESE as the dependent variable was conducted. A simple effects analysis was also conducted for ESE by gender, photo condition, and appearance self-worth to assess sex differences in significant interactions.

Finally a 2 (gender) x 2 (attractiveness of photographs) x 2 (high or low appearance self-worth) factorial ANOVA with ESES as the dependent variable was conducted. Simple effects analyses were also studied to compare group

differences in significant interactions. All of the interactions among gender, attractiveness of photographs, and appearance self-worth contingency were studied.

Based on the results of previous studies it was expected that ISE would increase if participants were in the downward comparison group and decrease if they were in the upward comparison group. Explicit self-esteem was not expected to change from Time 1 to Time 2 measurement. Participants' ESES was expected to increase after viewing unattractive photos and was expected to decrease after viewing attractive photos. The reason that ISE and ESES were expected to change is because the measures are more sensitive to change than ESE measures. Also, ESE tends to be more constant over time than ISE. It was expected that females would have greater changes in ISE than males after viewing both the highly attractive and unattractive photographs. Previous studies have found that people who base their self-worth on external contingencies such as physical attractiveness and competence have greater fluctuations in self-esteem. Therefore, it was expected that participants who base their self-worth on physical attractiveness would have greater changes in ISE.

## CHAPTER 3

### Results

#### *Preliminary Analysis*

Explicit self-esteem and explicit self-esteem security were measured two times, first in the mass testing session (Time 1), then after viewing and rating the photographs (Time 2). Scores for ISE were measured in ms., these scores were also measured twice. Participants first completed the IAT measure immediately before viewing the photographs then immediately after. Participants' ISE was considered higher when the difference between the mean reaction time of "me" variables with "unpleasant" adjectives was greater (or slower) than "me" variables with "pleasant" adjectives. The greater the reaction time differences the higher a participant's implicit self-esteem score at Time 1 or Time 2. Participants with high ISE have a high underlying emotion-based opinion of the self that is inaccessible to the person. Implicit self-esteem was analyzed on a continuum.

Self-worth was measured one time, during the mass testing session. The contingency of self-worth appearance was dichotomized with a median split of 5.2. Scores of 5.2 or above on a 7-point scale were considered to have high appearance based self-worth. This means the participant places more emphasis on appearance for maintenance of self-esteem than participants with low-appearance self-worth. A low score, below 5.2, means the person does not, or only slightly bases his or her self-esteem on appearance.

As a manipulation check, mean ratings of physical attractiveness of the photographs were performed. There was a significant difference between participant's ratings of attractive ( $M = 4.24$ ,  $SD = 1.128$ ) and unattractive ( $M = 3.82$ ,  $SD = 1.070$ ) stimuli (See Table 1),  $F(1, 85) = 4.92$ ,  $p = .029$  (See Appendix N). Mean attractiveness ratings by gender were also computed; males ( $M = 3.39$ ,  $SD = 1.097$ ) rated all photographs, on average, lower in physical attractiveness than did females ( $M = 4.697$ ,  $SD = .672$ ),  $F(1, 85) = 46.185$ ,  $p < .01$  (See Appendix N). Having participants rate the attractiveness of the two groups of photographs were successful in creating an awareness of physical attractiveness before the second set of ISE measurements.

#### *Analysis of Major Study Questions*

*Implicit Self-Esteem.* The expectation that participants ISE would increase after viewing the unattractive photographs and decrease after viewing the attractive photographs as stated in hypotheses 1 and 2 were analyzed. There was a significant change in ISE when the independent variables photo condition and appearance related self-worth were included in the analysis  $F(1, 86) = 5.586$ ,  $p = .020$ . There was also a significant difference in ISE between participants with high ( $M = 481.502$ ,  $SE = 46.460$ ) and low ( $M = 337.014$ ,  $SE = 43.013$ ) appearance self-worth  $F(1, 86) = 5.206$ ,  $p = .025$ . The interaction of ISE measurement time, appearance self-worth, gender, and attractiveness photo conditions on ISE approached significance  $F(1, 86) = 3.182$ ,  $p = .078$  (See Table 2).

A simple effects analysis was conducted between males and females divided into groups of high and low appearance self-worth. It was found that males with low appearance related self-worth had a decrease in ISE after viewing the attractive



photographs (Time 1  $M = 615.1$ ,  $SE = 139.0$ ; Time 2  $M = 317.8$ ,  $SE = 111.1$ ) and essentially the same ISE after viewing the unattractive photographs (Time 1  $M = 343.8$ ,  $SE = 92.6$ ; Time 2  $M = 325.9$ ,  $SE = 74.1$ ). The males with low appearance self-worth who viewed the attractive photographs had the highest ISE ( $M = 615.1$ ,  $SE = 139.0$ ) before viewing the photographs for this group of participants. Males with high appearance self-worth had a decrease in ISE after viewing the unattractive photographs (Time 1  $M = 647.4$ ,  $SE = 160.5$ ; Time 2  $M = 277.6$ ,  $SE = 128.3$ ) and an increase in ISE after viewing the attractive photographs (Time 1  $M = 455.2$ ,  $SE = 105.0$ ; Time 2  $M = 537.0$ ,  $SE = 84.0$ ). There was a significant decrease in ISE for males from time one to time two,  $F(1, 42) = 4.106$ ,  $p = .048$ . There was also a significant interaction among males of ISE Time1 vs. Time 2, appearance self-worth and attractiveness of photographs,  $F(1, 42) = 6.108$ ,  $p = .018$ .

Low appearance females had a non-significant decrease in ISE after viewing the attractive photographs (Time 1  $M = 418.5$ ,  $SE = 113.5$ ; Time 2  $M = 216.8$ ,  $SE = 90.7$ ), and ISE was virtually unchanged after viewing the unattractive photographs (Time 1  $M = 227.9$ ,  $SE = 113.5$ ; Time 2  $M = 230.4$ ,  $SE = 90.7$ ). Females with high appearance self-worth had an increase in ISE after viewing the unattractive photographs (Time 1  $M = 410.5$ ,  $SE = 113.5$ ; Time 2  $M = 508.9$ ,  $SE = 90.7$ ) and approximately the same implicit self-esteem ISE after viewing the attractive photographs (Time 1  $M = 509.592$ ,  $SE = 113.5$ ; Time 2  $M = 505.9$ ,  $SE = 90.7$ ). A within-participants ANOVA was performed. It was found that there was not a significant interaction of ISE from Time 1 to Time 2 by attractiveness of photograph by appearance self-worth among women,  $F(1, 43) = .340$ ,  $p = .563$ . However, there was a significant difference between

female participants with high ( $M = 483.7$ ,  $SE = 59.6$ ) and low ( $M = 273.4$ ,  $SE = 59.6$ ) appearance self-worth,  $F(1, 43) = 5.137$ ,  $p = .026$ , (See Appendix L). High appearance self-worth females had higher ISE than low appearance self-worth females.

*Explicit Self-Esteem.* Consistent with hypothesis 3, there were no changes in ESE, males' and females' ESE did not significantly differ from time 1 (mass testing) when viewing unattractive photographs ( $M = 40.8$ ,  $SD = 6.2$ ), to time 2 (after viewing the photographs) ( $M = 39.9$ ,  $SD = 6.1$ ). Also, ESE did not significantly differ when viewing attractive photographs from Time 1 ( $M = 41.9$ ,  $SD = 6.8$ ) to Time 2 ( $M = 42.4$ ,  $SD = 5.9$ ),  $F(1, 84) = .101$ ,  $p = .752$  (See Table 1). There was not an interaction of ESE and appearance self-worth for males or females. There were significant main effects in ESE depending on gender and appearance self-worth. Males had higher ESE ( $M = 42.0$ ,  $SD = 5.6$ ) than females ( $M = 40.6$ ,  $SD = 7.1$ ), and participants with low appearance self-worth had higher average ESE ( $M = 42.0$ ,  $SD = 6.3$ ) than participants with high appearance self-worth ( $M = 40.6$ ,  $SD = 6.6$ ). This finding is supported by Crocker (2002) who found that appearance self-worth is an external contingency that contributes to greater changes in ESE than low appearance self-worth people. Although there were no significant variations in ESE for males or females, it was found that changes in ESE when including the independent variables: gender, photo condition and level of appearance self-worth, came close to significance,  $F(1, 84) = 3.46$ ,  $p = .066$  (See Table 2). A simple effects analysis of ESE with the independent variables of high or low appearance self-worth and attractiveness of photo condition was conducted with no significant interactions for males,  $F(1, 44) = 2.005$ ,  $p = .164$  or females,  $F(1, 41) = 1.166$ ,  $p = .286$ .

Table 1

*Analysis of participants' implicit self-esteem as a function of gender, physical attractiveness condition, implicit self-esteem times and level of appearance self-worth*

	df	Mean Square	F	Sig
<b>Between Participants</b>				
Attractiveness Condition (PA)	1	242271.194	1.420	.237
Gender (G)	1	160380.571	.940	.335
Appearance Self Worth (ASW)	1	888388.160	5.206	.025
PAxG	1	2188.970	.013	.910
PAxSW	1	50988.494	.586	.299
GxSW	1	184447.056	1.081	.301
GxPAxASW	1	8791.709	.052	.821
Error	86	170647.844		
<b>Within Participants</b>				
<b>Implicit Self-esteem Times (ISET)</b>				
ISET Time 1	1	333065.261	4.032	.048
ISExASW	1	68562.379	.830	.365
ISExG	1	165318.466	2.001	.161
ISExPAxASW	1	461377.462	5.586	.020
ISExPAxG	1	152252.771	1.843	.178
ISExASWxG	1	47378.369	.574	.451
ISExASWxGxPA	1	262852.080	3.182	.078
Error	86	82601.120		

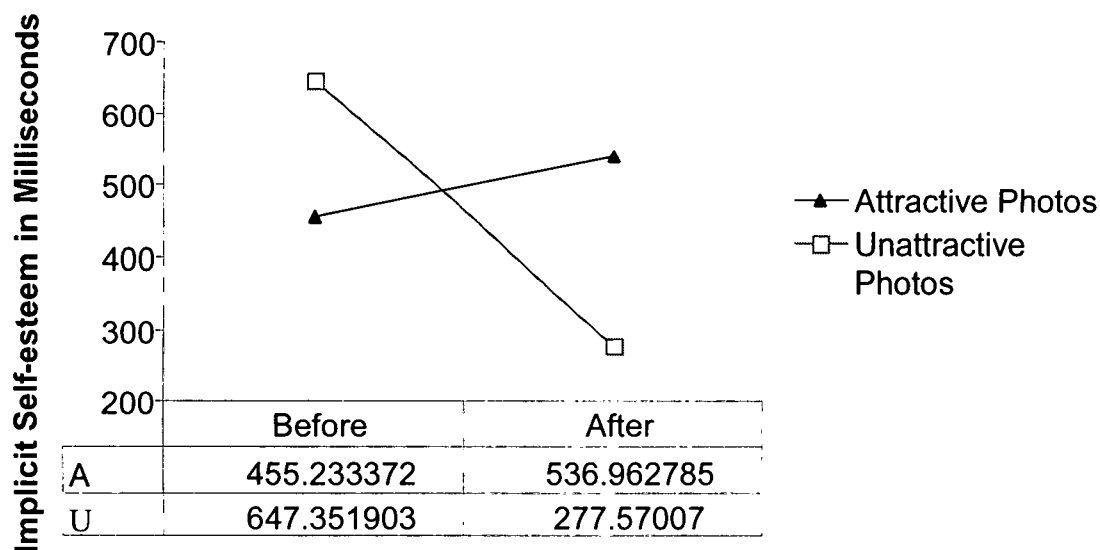


Figure 4: Average implicit self-esteem before and after viewing photographs for males with high appearance self-worth.

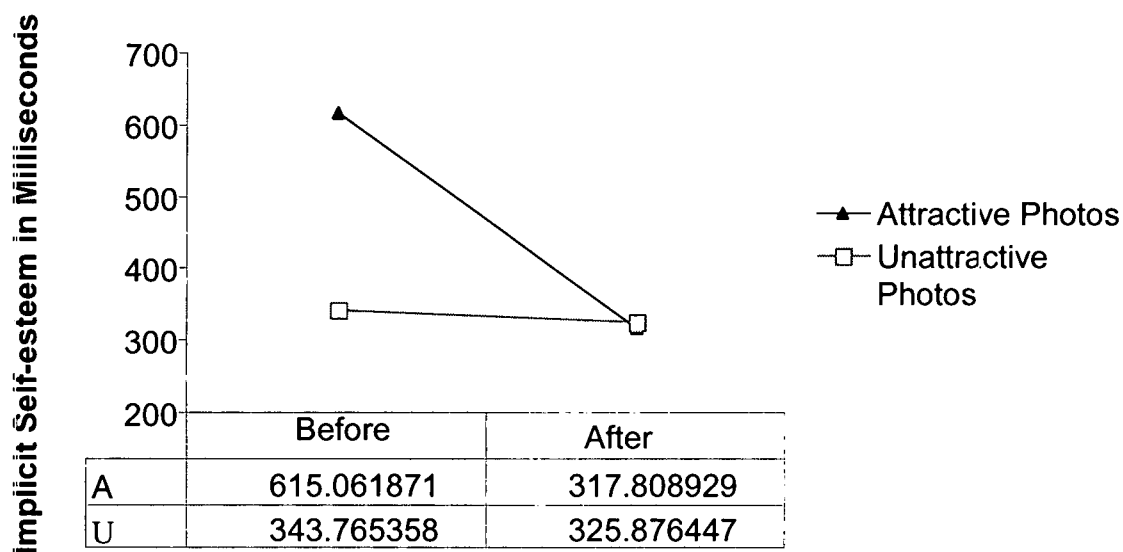


Figure 5: Average implicit self-esteem before and after viewing photographs for males with low appearance self-worth.

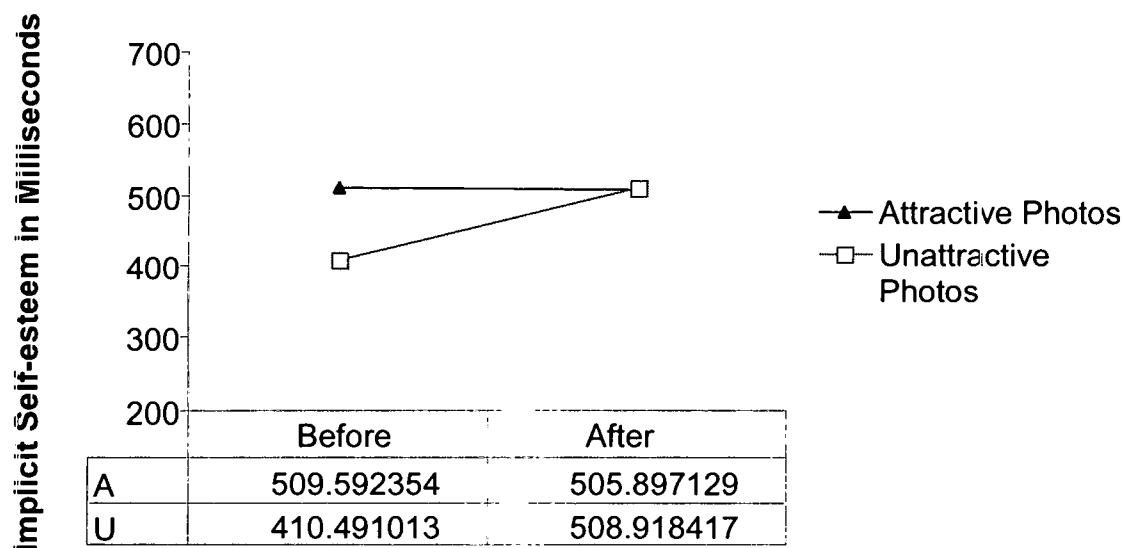


Figure 6: Average implicit self-esteem before and after viewing photographs for females' with high appearance self-worth.

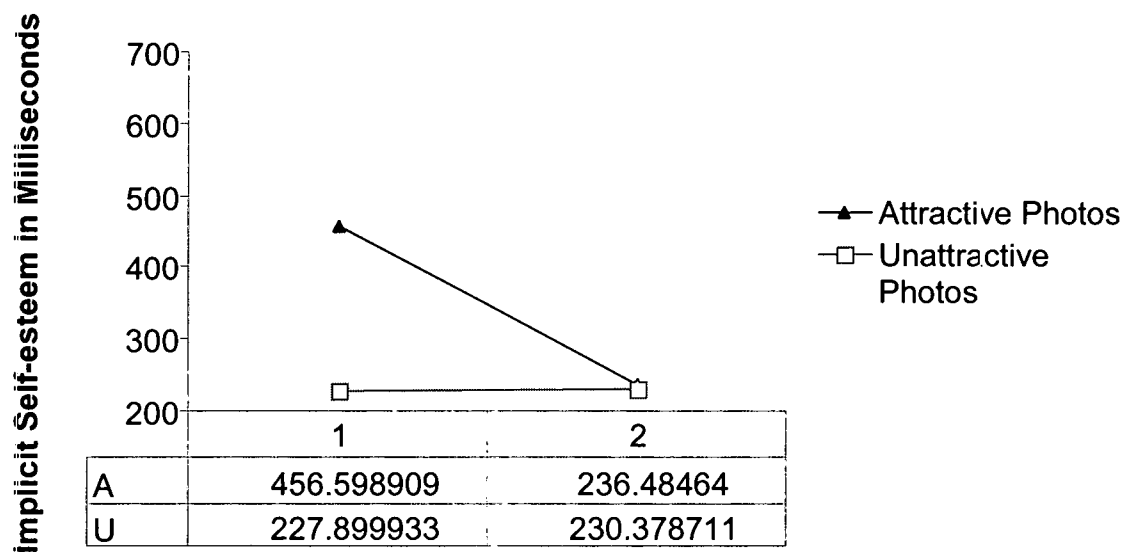


Figure 7: Average between implicit self-esteem before and after viewing photographs for females' with low physical attractiveness related self-worth.

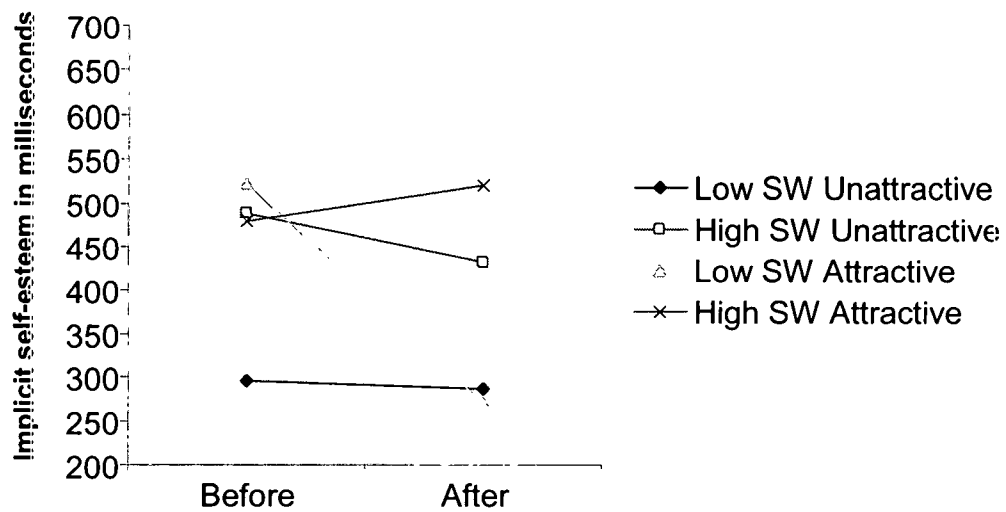


Figure 8: Changes in implicit self-esteem for all participants before and after photograph condition and separated by high and low appearance self-worth.

*Self-Esteem Security.* Finally, an ANOVA with the dependent variable of ESES and independent variables of gender, attractiveness of photographs, ESES measurement times, and level of appearance self-worth was performed. It was found that ESES at time 1 ( $M = 26.8$ ,  $SE = .646$ ) was significantly less than ESES at time 2 ( $M = 33.9$ ,  $SE = .900$ ),  $F(1, 84) = 94.129$ ,  $p < .001$ . Participants who rated attractiveness as important to their self-worth had lower ESES ( $M = 24.9$ ,  $SD = 6.6$ ) than those who did not rate appearance as important ( $M = 28.7$ ,  $SD = 5.0$ ),  $F(1, 76) = 4.753$ ,  $p = .032$  (See Appendix I) contingency. People who base their self-worth physical attractiveness have less secure ESE than those who base their self-worth on another contingency. There were no significant interactions for the variables stated above (See Appendix I).

Table 2

*Analysis of participants' explicit self-esteem, gender, physical attractiveness condition and level of appearance self-worth.*

	df	Mean Square	F	Sig
Between Participants				
Appearance Self-Worth (ASW)	1	347.739	4.412	.039
Gender (G)	1	383.690	4.868	.030
Physical Attractiveness (PA)	1	7.097	.090	.765
GxASW	1	21.061	.267	.607
PAXGxASW	1	7.830	.099	.753
Error	85	78.823		
Within Participants				
Explicit SE Time (ESET)	1	6.651	.428	.515
ESETxG	1	12.397	.797	.375
ESExASW	1	18.777	1.207	.275
ESExGxPA	1	1.569	.101	.752
ESExASWxG	1	.631	.041	.841
ESExASWxPA	1	.132	.009	.927
ESExASW xGxPA	1	53.873	3.464	.066
Error	84	15.552		



### *Correlations and Descriptive Statistics*

Means and standard error were computed for ESE before and after viewing the photographs, ESES before and after viewing the photographs, ISE before and after viewing the photographs and attractiveness rating (See Appendix J). There was a significant difference found between males' ( $M = 42.3$ ,  $SE = .9$ ) and females' ( $M = 40.3$ ,  $SE = .8$ ) explicit self-esteem,  $F(1, 85) = 4.868$ ,  $p = .030$  (See Appendix H & J). Males had higher ESES ( $M = 31.8$ ,  $SE = 1.0$ ) than females ( $M = 28.9$ ,  $SE = .9$ ) (See Appendix I). Explicit self-esteem security was found to be significantly different between males and females  $F(1, 76) = 4.419$ ,  $p = .039$  (See Appendix I). Implicit self-esteem was found to be significantly higher for participants who rated physical attractiveness as important to their self-esteem ( $M = 481.5$ ,  $SE = 46.5$ ) than those who did not ( $M = 337.0$ ,  $SE = 43.0$ ),  $F(1, 86) = 5.206$ ,  $p = .025$  (See Table 2). Males' ISE was higher ( $M = 515.4$ ,  $SE = 63.6$ ) than females' implicit self-esteem ( $M = 391.6$ ,  $SE = 56.7$ ). Participants who base their self-worth on physical attractiveness had higher ISE than those who did not base their self-worth on physical attractiveness.

People with high appearance related self-worth had lower ESE ( $M = 42.2$ ,  $SD = 6.3$ ) than participants with low appearance related self-worth ( $M = 40.6$ ,  $SD = 6.6$ ) (See Appendix O), but this finding was not significant. There was a significant difference between participants ESE when categorized as high or low appearance self-worth  $F(1, 85) = 4.412$ ,  $p = .039$  (See Table 2). Females had greater differences in ESE when separating participants into those with high appearance self-worth and low appearance

self-worth. There was a gender difference in ESE, with men ( $M = 41.7$ ,  $SE = .8$ ) displaying higher ESE than women ( $M = 40.9$ ,  $SE = .7$ ).

The average ratings for basis of self-worth on the seven dimensions were computed. The highest rating for basis of self-worth was family support ( $M = 5.8$ ,  $SD = .8$ ) followed by academic competence ( $M = 5.8$ ,  $SD = .8$ ), competition ( $M = 5.4$ ,  $SD = 1.0$ ), virtue ( $M = 5.4$ ,  $SD = .9$ ), appearance ( $M = 5.2$ ,  $SD = 1.0$ ), God's love ( $M = 4.8$ ,  $SD = 1.7$ ) and approval from others ( $M = 4.4$ ,  $SD = 1.2$ ) (See Appendix M). Correlations were performed for each of the contingencies of self worth (i.e., God's love, family support, academic competence, physical attractiveness, competition, approval from others, and morality). There were significant positive correlations found between the contingencies of appearance and other's approval ( $r = .58$ ,  $p < .01$ ), academic competence ( $r = .32$ ,  $p < .01$ ), family support ( $r = .20$ ,  $p < .05$ ), and competition ( $r = .29$ ,  $p < .01$ ) (See table 3). There were no other significant correlations among appearance self-worth and the other contingencies.

Correlations between ESES and the contingencies of self-worth were performed, there were negative correlations found between ESES and appearance ( $r = -.37$ ,  $p < .01$ ), and ESES and others approval ( $r = -.42$ ,  $p < .01$ ). Explicit self-esteem positively correlated with family support ( $r = .162$ ,  $p < .05$ ), ESE was negatively correlated with appearance self-worth ( $r = -.31$ ,  $p < .01$ ) and approval from others ( $r = -.37$ ,  $p < .01$ ). A significant positive correlation was found between self-esteem and self-esteem security ( $r = .57$ ,  $p < .01$ ), (see Table 3). There were no correlations found between ISE and ESE ( $r = .045$ ) or ESES and ISE ( $r = -.066$ ) (See Appendix L).

Table 3

*Correlations among contingencies of self-worth, explicit self-esteem, implicit self-esteem and self-esteem security.*

	Comp	Appe	God's Love	Acad Comp	Appr	Virtue	ESE	ESES	ISE
Family Support	.065	.200*	.252**	.245**	.102	.214 *	.162*	.077	-.035
Competition		.291**	-.029	.333**	.129	-.117	-.066	-.010	.030
Appearance			-.095	.319*	.579 **	-.141	-.313*	-.368**	.092
God's Love				.103	.072	.408*	.144	.062	-.203
Academic Competence					.168*	.258*	-.069	-.127	-.121
Approval From Others						-.100	-.366*	-.422**	.256*
Virtue							.101	.113	.230*
E SE	.569**	.045							
ESES									-.066

\*Correlation is significant at .05 level (2-tailed)

\*\* Correlation is significant at .01 level (2-tailed)

## CHAPTER 4

### Discussion

The purpose of this study was to find the relationships among implicit self-esteem, explicit self-esteem, explicit self-esteem security, appearance self-worth, and comparisons of physical attractiveness. Gender effects were also examined. As stated in hypotheses 1 and 2 it was expected that participants' ISE would increase after viewing the unattractive same-sex photographs and decrease after viewing the attractive same-sex photographs. It was found that males with high appearance self-worth had the opposite changes than expected. Implicit self-esteem score decreased after viewing the unattractive photographs and increased after viewing the attractive photographs for high appearance self-worth males. There were no other significant findings for males with low appearance self-worth or for females. Implicit self-esteem was expected to change after the comparisons of physical attractiveness because ISE tends to be less stable and more affected by situational variables. Implicit self-esteem is an automatic reaction that is acquired early in life. People are unaware of ISE because it is unconscious and related to a person's emotions (Rudman, 2004).

As stated in hypothesis 4, there was expected to be an interaction involving participants' appearance self-worth and ISE. The participants with high appearance self-worth were expected to have greater changes in ISE after viewing the photographs than those who do not base their self-worth on physical attractiveness. It was found that there was a significant complex relationship involving gender, appearance self-worth,

photo conditions, and the Time 1 and Time 2 measures of ISE. Participants with low appearance self-worth experienced significant changes in ISE but those with high appearance self-worth did not experience these changes. It is possible that high appearance self-worth participants did not experience significant changes in ISE because they may be more concerned with personal appearance rather than comparisons of physical attractiveness. Males with low appearance self-worth experience a decrease in ISE after viewing the unattractive photos and an increase after viewing the attractive photos.

Although the following findings were not significant males and females with low appearance self-worth experienced a decrease in ISE after viewing the attractive photos but did not have a change in ISE after viewing the unattractive photos. Also, another non-significant but interesting finding was females with high appearance self-worth had an increase in ISE after viewing the unattractive photos, but did not experience a change after viewing the attractive photos.

Overall ESE was not expected to change in either direction, hypothesis 3. Explicit self-esteem is considered a global measure of self-esteem that does not fluctuate much over-time, or in different situations. People also can present themselves in certain ways because measures of ESE have high face value. Also, because the ESE measures have high face validity people may try to be consistent with their answers to the questions.

Explicit self-esteem security was expected to increase after viewing unattractive photographs/downward comparison and decrease after viewing the attractive photographs/upward comparison, hypothesis 5. There were no changes in ESES found

after participants viewed either the attractive or the unattractive photographs. High appearance self-worth participants had lower ESES than participants with low appearance self-worth. Also, it was found that males did have greater ESES and ESE than females. ESES was found to be greater in Time 2 measurement than Time 1 measurement. Participants may have been trying to portray higher ESES after their self-esteem had been challenged in order to defend against changes in ESE.

Finally, hypothesis 6 stated that women would have greater changes in ISE after the photo comparisons than males. It was believed that women would have greater changes in ISE than males because there are greater societal pressures place on women about their appearance. Females did not have greater changes in ISE than males. Females may not have experienced changes in ISE because they are bombarded with images of attractive women everyday, more so than males. Because of this females may not be as affected by photographs as males. It is possible that if women were exposed to other females in person there would be a change in ISE more than when viewing the photographs. Also females ISE may have been more affected if the photographs were of the person's entire body rather than jus the face.

### *Review of Major Findings*

Past findings (Cash, Cash, & Butter, 1983) show that women exposed to attractive women rate themselves as less attractive, and when exposed to women who are less attractive they rate themselves as more attractive. Thornton and Moore (1993) found when males and females were exposed to people of greater physical attractiveness they rated themselves lower in physical attractiveness. These effects were more noticeable when the photos were perceived as more realistic and similar to

the participant. Previous research by Greenwald, McGhee, and Schwartz (1998) showed an increase in positive implicit attitudes when using the IAT, toward African Americans after educating participants about famous African Americans and their contributions. These past findings support hypotheses 1 and 2, that there would be a change in ISE after comparisons of personal physical attractiveness to photographs of either highly attractive or unattractive people in this study. But the results in this study did not confirm the hypotheses.

Results show that only male participants had significant changes in implicit self-esteem after viewing the photographs. The results show a significant interaction among the ISE measure, appearance related self-worth, and photo condition and a marginally significant interaction among these variables and gender on ISE. Not all of the participants experienced the expected changes in ISE after upward and downward comparisons. Low appearance self-worth participants experienced the expected lowering of ISE after viewing the attractive photographs, but did not experience the expected changes after viewing the unattractive photographs (See figure 8). Although not significant, females with high appearance self-worth had an increase in ISE after viewing the unattractive photographs but did not experience any changes in ISE after viewing the attractive photographs. Males with high appearance self-worth experienced the opposite changes in ISE after viewing the photographs. The males with high appearance self-worth experienced an increase in ISE after viewing the attractive photographs and a decrease in ISE after viewing the unattractive photographs. This result further suggests that the self-esteem of those who base their self-worth on

physical attractiveness is affected to a greater degree after comparisons of physical attractiveness.

Further investigation of this variable shows that males with high appearance related self-worth had an increase in ISE after viewing the attractive photographs and a significant decrease in ISE after viewing the unattractive photographs, but none of the other groups experienced a significant change. These findings suggest that upward and downward comparisons of physical attractiveness can raise and lower a person's ISE through focus of attention on appearance.

The results from the male participants with low appearance self-worth support hypothesis 4, that participants would have a decrease in ISE after viewing the attractive pictures. Past research (Major, Testa, Blysm, 1991; Wills, 1981; & Wood, 1989) found that people feel worse about themselves after upward comparisons and better about themselves after downward comparisons. The other results do not support the hypothesis. The male participants may have felt they belonged to the group of photographs that they viewed, instead of comparing themselves to the photographs. For example, participants viewing the attractive photographs may have believed they are attractive because they are being shown attractive photographs and therefore show an increase in ISE. Another possibility for these results is that the photographs were a person's face and did not include any part of the body past the person's shoulders. Wade (1999) found that women base appearance more on the body than males, and Gangstad, Thornhill, and Yeo (1994) found that males base appearance more on the face. This may be the reason males showed greater changes in ISE than females.



It was believed that there would not be a change in ESE after the comparisons for either males or females, hypothesis 3. This is because ESE is a global concept and is not as affected as much by situational changes as ISE is affected by situational changes. Hypothesis 3 was supported by the current study. There were no significant changes in ESE after participants' viewed attractive or unattractive photographs. Although ESE, did not show changes after the photo condition, males' with high appearance self-worth did show significant changes after the photo condition. On the other hand, changes in ESE after photo condition were close to significance after taking into consideration the variables appearance related self-worth and gender. It found that neither males nor females had a significant change in ESE. This finding shows that ISE is more sensitive than ESE to situational changes.

#### *Relationship Between Explicit Self-Esteem and Self-Worth*

Past research has shown the importance of people's self-esteem. Self-esteem is the focus of many different programs aimed to increase people's potential and life satisfaction. The problem with many of these programs is the lack of specificity towards the individual's basis of self-worth. Previous research by Crocker (2002) has shown the relationship among different contingencies of self-worth and self-esteem. She found that the contingency of physical attractiveness was an external source of self-esteem because it had to be validated by others. This finding meant that this contingency was less stable than internally based contingencies and can lead to lower overall self-esteem. Participants in this study who based their self-worth on physical attractiveness had lower overall ESE. It was found that appearance related self-worth was negatively

correlated with ESE. This means that participants with high appearance related self-worth had lower overall ESE.

#### *Relationship Between Self-Worth and Self-Esteem Security*

Results show that participants who base their self-worth on appearance had lower levels of ESE and lower levels of ESES. Self-esteem security was found to be negatively correlated with appearance related self-worth meaning that those with high appearance related self-worth have less stable self-esteem. Self-esteem security was found to be lower in females than males. These findings are supported by Crocker (2002) who found that people who base their self-worth on socially-bound contingencies, such as appearance, had lower overall ESE and had greater situational changes in self-esteem.

Results show that participants with high appearance self-worth had lower ESES. Hypothesis 5, that participants would have an increase in ESES after viewing the unattractive photographs and would experience a decrease in ESES after viewing the attractive photographs was not supported by this study. There were not significant changes in ESES after viewing the attractive or unattractive photographs. There was no interaction of appearance self-worth on ESES for males or females. Participants had greater ESES in Time 1 than Time 2. This finding could show participants defensive self-esteem, meaning that they were trying to portray high ESES after the photo condition even though changes in ISE were experienced. This is supported by research from Meagher and Aidman (2004), who found that participants with high ESE and low ISE have defensive self-esteem and try to portray greater self-esteem than is shown by ISE measures.

### *Gender Differences in Self-Worth, Self-Esteem, and Self-Esteem Security*

An analysis was performed to test if males or females had greater changes in ISE after upward and downward comparisons; males had greater changes in ISE than females. There were no significant changes in ISE or ESE for females or changes in ESE for males. These results were opposite hypothesis 6 that females will have greater changes in ISE than males after the photo condition. Results show that males with high appearance related self-worth had significant changes in ISE after the photo condition. These participants experienced an increase in ISE after viewing the attractive photographs and a decrease in ISE after viewing the unattractive photographs. Males with low appearance self-worth experienced an increase in ISE after attractive photographs and had approximately the same ISE after viewing the unattractive photographs. Females with low appearance self-worth had a decrease in ISE after viewing the attractive photographs and approximately the same ISE after viewing the unattractive photographs. Females with high appearance self-worth experienced approximately the same ISE after viewing the attractive photographs and had an increase in ISE after viewing the unattractive photographs. But, it was found that overall females with low appearance self-worth had higher ISE than females with high appearance self-worth. This finding shows that females with It seems that low appearance self-worth participants have similar reactions to photographs of high and low attractiveness, but high appearance self-worth participants have reactions to upward and downward comparisons that are less predictable.

High appearance self-worth females had higher ESES than females with low appearance self-worth. This finding may be explained that females with high appearance self-worth experience greater changes in ESE and have more highs and lows than females with high ESES whom experience fewer changes in ESE. The females also may have been trying to portray greater ESES because they may have had defensive self-esteem and had experienced changes in ISE.

Previous research has suggested sex differences in the correlation of ISE and ESE. Past studies have found ISE correlates more strongly with ESE for women than for men (Pelham, Koole, Hardin, Seah & DeHart, 2005), and still others have found a stronger correlation for males (Riketta, 2005). Greenwald (2000) found no difference in the correlation between males and females. The current study found no differences between the correlation of ISE and ESE between males and females, which is supported by the finding from Greenwald (2000). Greenwald and Banaji (1995) and Nosek (2004) found correlation scores between ISE and ESE that ranged from near zero to more than .7. The finding in this study that there was not a correlation between ISE and ESE supports the notion that measures of ISE and ESE are measuring different constructs.

There were no differences found between males and females and the average rating of appearance related self-worth. Males had greater average ISE, ESE, and ESES than females both before and after viewing the photographs.

### *Limitations*

The sample size was smaller than ideal (N=94). When separating the participants into smaller groups, such as males with low appearance related self-worth,

the sample was very small. The small sample size limited the statistical power of the results. Future research should employ methods to ensure equal numbers of males and females with both high and low appearance self-worth, or obtain a greater sample size to ensure the ability to analyze the effects of upward and downward comparisons.

Although ESE is assumed to be a stable construct, there was a greater amount of time between measuring the before and after ESE than the ISE. There was also a large amount of time between measuring ESES before and after viewing the photographs. This did not seem to have an effect on outcomes because there were no significant differences found in explicit self-esteem. An advantage of having participants complete the ESE measure weeks before is that it was unlikely to sensitize participants to what the hypotheses of the study were.

Another limitation of this study was the homogeneity of the sample. Because the sample was from a university most students were between the ages of 18-21. The sample also consisted of mostly Caucasian students; there was very little heterogeneity in race. Although there were no differences in basis of self-worth between different races in previous studies, this should be considered when considering the results of this study.

The self-worth scale used in this study looked at only seven bases for self-worth, and although these have been shown to be an effective measure for college students, other bases of self-worth should be considered in future studies with different populations. Other bases of self-worth that may be considered for future use could include professional achievement, love from a significant other, or support of friends.

Implicit self-esteem measures are a relatively new measurement tool. The findings from these methods are controversial because they are used to access a person's underlying and inaccessible self-esteem. There are mixed reviews and analyses of implicit self-esteem measures. For the current study, participants completed the IAT two times during the half-hour session. IAT measures the reaction time for participants between positive words paired with "self" related words and negative words paired with "self" related words. There were practice effects noted on the measure but, the practice effects were equal for all groups.

Because of the limitations mentioned previously this study can be generalized to college populations but should not be generalized to the general population. Future studies should look to wider sampling and obtain more realistic samples. There should also be a shorter amount of time between measurements of explicit self-esteem and this time should be equal among all participants. Future studies employing greater and more diverse sample sizes may expect to find a greater variety of bases of self-worth. Greater sample sizes may also find significant interactions within ESE and ISE dependent on condition, gender and level of contingency of self-worth which were not significant in this study, possibly due to small sample size.

#### *Summary and Future Directions*

Results show that both males and females had changes in ISE after viewing the photographs. Results show an increase in implicit self-esteem for women with high appearance self-worth after viewing unattractive photographs and a decline in self-esteem after viewing attractive photographs. Both males and females who did not base their self-worth on physical attractiveness and males with high appearance related self-

worth had a decrease in ISE after viewing the unattractive photographs and an increase after viewing the attractive photographs. The hypothesis that ISE would decrease after upward comparisons and increase after downward comparisons was supported by the results from females with high appearance self-worth, but not by both males with high and low appearance self-worth and females with low appearance self-worth. The meaning of this could be that females with high appearance self-worth tend to compare themselves with others whereas females with low appearance related self-worth and males tend to group themselves with others. Further investigations could look into the differences between males and females perceptions of themselves in group settings in which comparison or grouping could be done.

This study should spur future investigations into self-esteem research and programs that work to increase a person's self-esteem through the specific area in which people base their self-worth. This study shows no variation in participants' ESE, therefore future programs to increase self-esteem may want to investigate the self-worth of the participants and base the programs on the responses. These programs would then benefit the participants' ISE and possibly over time a person's ESE. Studies examining ISE should study changes in ISE after challenges to internal contingencies of self-worth such as virtue or family support. Studies of test-retest reliability of ISE should compare those with internally based contingencies to people with externally based contingencies to examine if people with internal contingencies of self-worth have more stable ISE.

Future studies should include a larger, more diverse sample size. Because the sample used in this study was pooled from a mid-western Catholic University, bases of

self-worth may differ from the older people, and people from different regions.

Participants may have placed more emphasis on God's love or on academic achievement than those either not attending college, or others that do not attend a religious university. Older and younger participants may place more emphasis on different sources than what was found for this study.

The changes in ISE, but not ESE in this study support the notion that ESE tends to be stable over time and ISE tends to vary in different situations. Future studies should investigate changes in ISE during different situations versus ESE changes, such as after an examination or after an argument with a family member to investigate other sources of self-worth. The seven factors used for this study are not all inclusive, although they do encompass many factors. Future studies should explore different contingencies such as: support of a significant other, or friends, or possibly employment capability when looking at older populations.



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## Appendix A

*Implicit Association Task*

<i>Categorization Target Presented</i>		
<i>Left-Hand Response Category</i>	<i>Right-Handed Response Category</i>	
<i>One at Time, Randomly Selected From:</i>		
Block 1 (# Trials) Me	Either the “me” or the “not me” list	Not Me
Block 2 (# Trials) Pleasant	Either “pleasant” or “unpleasant” words	Unpleasant
Block 3 (# Trials) Me Pleasant	From any of the four lists on following page	Not Me Unpleasant
Block 4 (# Trials) Unpleasant	From any of the four lists on following page	Pleasant
Block 5 (# Trials) Me Unpleasant	From any of the four lists on following page	Not Me Pleasant

## APPENDIX B

*Lists of words used in the Implicit Association Task*Me Words

I  
Me  
Myself  
Mine  
Self

Not Me Words

They  
Them  
It  
Their  
Other

Pleasant Words

Beautiful  
Smart  
Bright  
Strong  
Honest  
Loved  
Nice  
Valued  
Noble  
Splendid  
Proud  
Competent  
Successful

Unpleasant Words

Ugly  
Stupid  
Awful  
Awkward  
Guilty  
Hated  
Rotten  
Useless  
Vile  
Worthless  
Failure  
Ashamed  
Despised

## APPENDIX C

*Rosenberg Self-esteem Scale*

On the items below, indicate the degree to which each statement represents your personal reactions or feelings. Marking 5 would indicate that the statement is definitely true of your personal reactions. Marking 1 would indicate that the statement is definitely untrue of your reactions. Responses of 2, 3, or 4 represent the reactions on the scale below.

- 1 = not at all like me
- 2 = somewhat unlike me
- 3 = neither like nor unlike me
- 4 = somewhat like me
- 5 = very much like me

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

Items marked with an \* are reverse scored

## APPENDIX D

*Kimble Self-esteem Security Scale*

On the items below, indicate the degree to which each statement represents your personal reactions or feelings. Marking 5 would indicate that the statement is definitely true of your personal reactions. Marking 1 would indicate that the statement is definitely untrue of your reactions. Responses of 2, 3, or 4 represent the reactions on the scale below.

- 11. My opinion of myself tends to change a good deal. \*
- 12. On one day I have one opinion of myself and on another day I have a different opinion. \*
- 13. I have noticed that my ideas about myself seem to change very quickly.\*
- 14. Some days I have a very good opinion of myself; other days I have a very poor opinion of myself\*
- 15. I feel that nothing, or almost nothing, can change the opinion I currently hold of myself.
- 16. I am extremely sensitive to criticism.\*
- 17. Criticism or scolding hurts me terribly.\*
- 18. I feel very disturbed when anyone laughs at me or blames me for something I have done wrong. \*

Items marked with an \* are reverse scored



## APPENDIX E

*Contingencies of Self-Worth Scale*

Please respond to each of the following statements using the following scale from "1 = strongly disagree" to "7 = strongly agree". If you haven't experienced the situation described in a particular statement, please answer how you think you would feel if that situation occurred.

- 1 = strongly disagree
- 2 = disagree
- 3 = disagree somewhat
- 4 = neutral
- 5 = agree somewhat
- 6 = agree
- 7 = strongly agree

1. When I think I look attractive, I feel good about myself.
2. My self-worth is based on God's love.
3. I feel worthwhile when I perform better than others on a task of skill.
4. My self-esteem is unrelated to how I feel about the way my body looks.
5. Doing something I know is wrong makes me lose self-respect.
6. I don't care if other people have a negative opinion about me.
7. Knowing that my family members love me makes me feel good about myself.
8. I feel worthwhile when I have God's love.
9. I can't respect myself if others don't respect me.
10. My self-worth is not influenced by the quality of my relationships with my family members.
11. Whenever I follow my moral principles, my sense of self-respect gets a boost.
12. Knowing that I am better than others on a task raises my self-esteem.

13. My opinion about myself isn't tied to how well I do in school.
14. I couldn't respect myself if I didn't live up to moral code.
15. I don't care what other people think of me.
16. When my family members are proud of me, my sense of self-worth increases.
17. My self-esteem is influenced by how attractive I think my face or facial features are.
18. My self-esteem would suffer if I didn't have God's love.
19. Doing well in school gives me a sense of self-respect.
20. Doing better than others gives me a sense of self-respect.
21. My sense of self-worth suffers whenever I think I don't look good.
22. I feel better about myself when I know I'm doing well academically.
23. What others think of me has no effect on what I think about myself.
24. When I don't feel loved by my family, my self-esteem goes down.
25. My self-worth is affected by how well I do when I am competing with others.
26. My self-esteem goes up when I feel that God loves me.
27. My self-esteem is influenced by my academic performance.
28. My self-esteem would suffer if I did something unethical.
29. It is important to my self-respect that I have a family that cares about me.
30. My self-esteem does not depend on whether or not I feel attractive.
31. When I think that I'm disobeying God, I feel bad about myself.
32. My self-worth is influenced by how well I do on competitive tasks.
33. I feel bad about myself whenever my academic performance is lacking.
34. My self-esteem depends on whether or not I follow my moral/ethical principles.
35. My self-esteem depends on the opinions others hold of me.

## APPENDIX F

*Informed Consent*

- Project Title:** Personal and Social Attitudes
- Investigator(s):** Stacey Hadaway and Dr. Charles Kimble PhD (Faculty Advisor)
- Description of Study:** The main activities for the individual participants are 1) answering attitude statements about themselves, 2) rating photos of college-age students, and 3) making category choices about words appearing on a computer screen in a single session.
- Adverse Effects and Risks:** No adverse effects have been observed in similar research.
- Duration of Study:** This will study take approximately ½ of an hour.
- Confidentiality of Data:** Your name will be kept separate from the data collected. All data will be kept in a locked filing cabinet. Only the investigators will have access to the filing cabinet. Your name will not be revealed in any document resulting from this study.
- Contact Person:** Students may contact Charles E. Kimble, Ph.D. in SJ 319, 937.229. 2167, the chair of the Research Review and Ethics Committee, or Stacey Hadaway, 607.743.0113 if they have questions or problems regarding the study.
- Consent to Participate:** I have voluntarily decided to participate in this study. The investigator named above has adequately answered any and all questions I have about this study, the procedures involved, and my participation. I understand that the investigator named above will be available to answer any questions about research procedures throughout this study. I also understand that I may voluntarily terminate my participation in this study at any time and still receive full credit. I also understand that the investigator named above may terminate my participation in this study if s/he feels this to be in my best interest. In addition, I certify that I am (eighteen) years of age or older.

_____ Signature of Student	_____ Student's Name (printed)	_____ Date
_____ Signature of Witness		_____ Date

## APPENDIX G

### *Debriefing Form*

#### **Information about the Study**

The purpose of this study is to further understand the effects of physical attractiveness on self-worth and self-esteem.

The focus of this study is the basis of self-worth, mainly focusing on people who put emphasis on physical attractiveness and self-esteem. Self-worth is the basis for a person's self-esteem, and self-esteem is a person's overall feelings about him or herself and. The different facets of self-worth that are measured are; God's love, physical attractiveness, others approval, academic achievement, family support and competition. Physical attractiveness was manipulated through attractive and unattractive photos.

This study looked at both implicit and explicit measures of self-esteem. Explicit measures of self-esteem look at a person's feelings about him or herself that are known to the person and implicit self-esteem measures look at a person's underlying feelings a person has about him or herself.

Statistical tests will be performed on all participants' responses to see how physical attractiveness, self-worth, and self-esteem are related. Do you have any questions? For further information about this area of psychological research, you may read the articles cited below.

#### **References**

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#### **Assurance of Privacy**

We are seeking general principles about self-esteem and self-worth and are not evaluating you personally in any way. Your responses will be confidential and your responses will only be identified by a participant number in the data set along with other participants' numbers.

**Contact Information**

Participants may contact Dr. Charles Kimble in SJ 319, 937.229.2767, the chair of the Research Review and Ethics Committee. If you are experiencing any distress due to a negative view of yourself, please contact the University Counseling Center for a free and confidential appointment (229-3141).

**Thanks and Credit**

Thank you for your participation. I will give you credit for your participation.

## Appendix H

*Analysis of males' implicit self-esteem measure time, physical attractiveness condition, and appearance self-worth level on implicit self-esteem*

	df	Mean Square	F	Sig
Between Participants				
Appearance Self-Worth	1	118209.063	.692	.410
Physical Attractiveness	1	130457.595	.764	.387
PAXASW	1	45859.567	.269	.607
Error	42	170793.607		
Within Participants				
Male ISE Time 1 vs Time 2	1	434542.746	4.106	.048
ISETxPA	1	35393.058	.339	.546
ISETxASW	1	876.431	.008	.927
ISETxASWxPA	1	637976.425	6.108	.018
Error	42	104451.067		

## Appendix I

*Analysis of participants' self-esteem security measure, gender, physical attractiveness condition, and level of appearance related self-worth on explicit self-esteem security*

	df	Mean Square	F	Sig
Between Participants				
Appearance Self-Worth	1	375.228	4.753	.032
Gender	1	348.875	4.419	.039
Physical Attractiveness	1	12.007	.152	.698
GxPAxASW	1	3.883	.049	.825
Error	84	39.511		
Within Participants				
Explicit Self-esteem Security Time (ESEST)				
	1	2084.563	94.139	.000
ESESTxG	1	10.483	.473	.493
ESESTxASW	1	2.505	.113	.737
ESESTxGxPAxASW	1	8.265	.373	.543
Error	84	22.144		

## Appendix J

*Means and standard deviations for explicit self-esteem, implicit self-esteem, self-esteem security before and after photo condition and appearance related self-worth and physical attractiveness ratings for all participants as well as divided by gender.*

	Explicit SE Before	Explicit SE After	SE Security Before	SE Security After	SW	Implicit SE Before	Implicit SE After	Physical Attractiveness
Mean	40.5364	41.174	25.8609	33.957	5.23179	431.871	377.793	4.032
Standard Deviation	7.30002	6.290	7.14053	8.200	1.02732	396.184	322.722	1.1197
Males' Mean	42.327	42.689	31.840	35.778	4.91	464.470	382.416	3.3902
Females' Mean	40.250	39.723	28.929	32.213	4.99	399.966	373.269	4.4905



## Appendix K

*Analysis of Attractiveness Ratings Depending on Gender and Photo Attractiveness*

	df	Mean Square	F	Sig
Gender	1	37.126	46.185	.000
Physical Attractiveness	1	3.957	4.922	.029
GxPA	1	.04330	.054	.817
Error	85	.804		

## Appendix L

*Analysis of females' implicit self-esteem measure time, physical attractiveness condition, and appearance self-worth level on implicit self-esteem.*

	df	Mean Square	F	Sig
Between Participants				
Physical Attractiveness	1	160575.675	.948	.336
Appearance Self-Worth	1	900435.363	5.317	.026
PAxASW	1	28224.505	.167	.685
Error	43	169353.890		
Within Participants				
Female ISE Time 1 vs Time 2	1	22155.113	.354	.555
ISETxPA	1	154647.804	2.468	.124
ISETxASW	1	143109.883	2.284	.138
ISETxASWxPA	1	21286.681	.340	.563
Error	43	62663.830		

## Appendix M

*Descriptive values of the contingencies of self-worth*

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	Mean	SD
<hr/>		
Academic Competence	5.75364	.786026
Virtue	5.38808	.929296
Competition	5.42583	1.020945
Appearance	5.23179	1.027318
Family Support	5.83709	.787030
Approval from Others	4.34503	1.182564
God's Love	4.79768	1.669894
Explicit Self-Esteem	40.53642	7.300023
Self-Esteem Security	25.86093	7.140532

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## Appendix N

*Average attractiveness based on Gender and Photo Condition*

Gender	Photo Condition	Mean	Std.Dev
Male	Unattractive	3.152	.949
	Attractive	3.618	1.198
Female	Unattractive	4.490	.697
	Attractive	4.869	.613
Total	Unattractive	3.821	1.0698
	Attractive	4.244	1.282

## Appendix O

*Descriptive statistics for explicit self-esteem and self-esteem security based on gender and level of self-worth*

Gender	SW Level	Mean Explicit SE	SD ESE	Mean SE Security	SE ESE
Male	Low	42.400	5.624	32.931	1.399
	High	41.500	5.462	30.750	1.533
Female	Low	41.608	6.959	30.858	1.311
	High	39.792	7.396	27.00	1.283
Total	Low	42.0208	6.3396	31.894	.959
	High	40.5682	6.5713	28.875	.999

## Appendix P

*Means and standard error for implicit self-esteem before and after photo condition by, gender, level of appearance self-worth, and attractiveness of photographs.*

	Attractive Time 1	Att. 1 Std Error	Att Time 2	Att.2 Std. Error	Unatt. Time 1	Unatt 1 Std. Error	Unatt. Time 2	Unatt 2 Std. Error
Males								
Low ASW	615.062	138.963	317.809	111.110	343.765	92.642	325.876	74.073
Males								
High ASW	455.233	105.046	536.963	83.991	647.352	160.461	277.570	128.298
Females								
Low ASW	418.549	113.463	216.776	90.721	227.900	113.463	230.379	90.721
Females								
High ASW	509.592	113.463	505.897	90.721	410.491	113.463	508.918	90.721

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