

Rowan University

Rowan Digital Works

Theses and Dissertations

10-27-2015

How does social comparison affect self-esteem in the classroom after receiving an exam grade

Dana Oppenheimer
Rowan University

Follow this and additional works at: <https://rdw.rowan.edu/etd>



Part of the [Psychiatry and Psychology Commons](#), and the [Student Counseling and Personnel Services Commons](#)

Recommended Citation

Oppenheimer, Dana, "How does social comparison affect self-esteem in the classroom after receiving an exam grade" (2015). *Theses and Dissertations*. 564.
<https://rdw.rowan.edu/etd/564>

This Thesis is brought to you for free and open access by Rowan Digital Works. It has been accepted for inclusion in Theses and Dissertations by an authorized administrator of Rowan Digital Works. For more information, please contact graduateresearch@rowan.edu.

**HOW DOES SOCIAL COMPARISON EFFECT SELF-ESTEEM IN THE
CLASSROOM AFTER RECEIVING AN EXAM GRADE**

by
Dana Oppenheimer

A Thesis

Submitted to the
Department of Psychology
College of Science and Mathematics
In partial fulfillment of the requirement
For the degree of
Master of Arts in School Psychology
at
Rowan University
March 1, 2015

Thesis Chair: Terri Allen, Ph.D.

© 2015 Dana Oppenheimer

Abstract

Dana Oppenheimer

HOW DOES SOCIAL COMPARISON EFFECT SELF-ESTEEM IN THE
CLASSROOM AFTER RECEIVING AN EXAM GRADE

2014-2015

Terri Allen, Ph.D.

Master of Arts in School Psychology

Social comparison is a theory developed by Leon Festinger which states that social comparison has many effects on everyday life, including body perception, learning in schools, self-esteem, exercise habits, and even balance. These different topics have been studied numerous times in the past. The hypothesis of this study is social comparison will have a significant change in self-esteem after receiving an exam grade back and being able to talk about it. The study consists of a participant filling out a self-esteem inventory pre-test, which was taken one day in the beginning of the semester before any exams were given and a post-test after receiving back an exam grade. The results concluded that there was no significant difference in self-esteem in students before an exam and after an exam.

Table of Contents

Abstract	iii
Chapter 1: Introduction	1
Need for Study	1
Purpose.....	1
Hypothesis.....	1
Operational Definitions	1
Assumptions.....	2
Limitations	2
Summary	2
Chapter 2: Literature Review	3
Social Comparison	3
Self-Esteem	7
Surveys.....	10
Self-Esteem and Social Comparison Interaction	12
Chapter 3: Methodology	14
Participants.....	14
Materials	14
Design	14
Variables	14
Procedures.....	15
Statistical Analysis.....	15

Table of Contents (Continued)

Chapter 4: Results16

Chapter 5: Discussion17

 Conclusions of Social Comparison17

 Confounds17

 Future Research18

References20

Chapter 1

Introduction

Need for Study

This study showed how social comparison affected self-esteem of students when they received back an exam grade. There is a lot of previous research about how social comparison can affect self-esteem and how social comparison can affect other aspects of life but there is a limited amount about social comparison in the classroom. Therefore, there is a need to know how social comparison affects students in a classroom setting.

Purpose

This current study examined the effects of social comparison on student's self-esteem. The time of social comparison being measured here is when students received back an exam grade.

Hypothesis

There are negative affects on how social comparison affects self esteem on students in a classroom after receiving an exam grade.

Operational Definitions

Social comparison is the idea that people learn about their own attitudes, beliefs and abilities by comparing themselves to the other people around them (Aronson, Wilson, & Akert, 2010).

Self-Esteem is the evaluation of oneself (Erkut, n.d.).

Assumptions

The participants taking the survey are able to read at the appropriate grade level. The participants taking this survey have received back an exam grade recently. The participants are eighteen or older and in a college classroom setting.

Limitations

There was a small sample size due to the amount of students in a class and the amount that chooses to participate in the study. The sample size was also small because of the amount of professors willing to administer the survey after giving back an exam was limited.

Summary

In chapter two there will be a literature review of social comparison and self-esteem and their possible interaction. There will be a showcasing of studies that have attempted to accomplish this interaction in the past and studies that have measured each topic individually. However, it seems as though there has been little research in how the two interact in a classroom study and that is what this current study hopes to show.

Chapter 2

Literature Review

Social Comparison

Social comparison is the theory that people learn about their own attitudes, beliefs and abilities by comparing themselves to the other people around them (Aronson, Wilson, & Akert, 2010). Leon Festinger, the father of social comparison, wrote an article called “A Theory of Social Comparison Processes” in 1954. In Festinger’s original paper he had nine different hypotheses about the complex theory. Although the nine hypotheses are complex they are all interrelated and the theory would be incomplete without one of them. The first hypothesis was that humans have a natural instinct to evaluate their own opinions and abilities. Opinions and abilities are related because a person cannot have abilities in a certain situation without first having an opinion on that situation. The second hypothesis is that people compare themselves to people who have similar abilities and opinions. When people are in a new situation and they cannot compare themselves to others around them they do not know what to do and feel emotionally unstable. In his third idea Festinger stated people would not purposefully compare themselves to someone who is too different from them. In other words people would not compare themselves to someone significantly better than themselves because it would cause a feeling of low self-esteem. His next hypothesis is that people believe they are better when they are not comparing themselves to anyone. The reasoning behind this is that he or she does not have any cues telling them if they are doing better or worse than a typical person would do. The fifth idea is that it is hard to change the ability aspect but it is very easy to change the opinion aspect. This only happens when a comparison is happening.

The sixth hypothesis is that people experience unpleasant consequences when they are no longer able to compare themselves to others. For example, if a person has an unrealistic opinion of a situation they then become disappointed when they cannot perform equally to their opinions. The seventh hypothesis is that when people compare themselves to others they move to make the group more uniform. In other words a person is more likely to conform to the opinion and abilities of the group. The next hypothesis is when there are strong comparisons a person's ability range gets smaller. The final hypothesis is that people who are among the majority of the group are more likely to change the opinion of the minorities in the group. Overall, people change for what they perceive to be the good of the group (Festinger, 1954).

Festinger's theory is simply put by Gilbert, Giesler and Morris (1995) as social comparison is "spontaneous, effortless, and unintentional (227)." They also stated that it is "relatively automatic" (Bandura & Jordan, 1991; Gilbert, Giesler, & Morris, 1995; Wood, 1989). Festinger only had a small amount of data to support the theory he wrote in 1954, but now there has been a lot of research done to test his theory. Researchers have tested the ideas in a variety of different ways. Some examples of how social comparison has been tested since Festinger's original paper are priming for self esteem, career expectations according to gender, how students do on tests, if the gender of a teacher matters on comparison, the influence of friend groups on comparison, and class size and comparison (Bengtsson, Dolan & Passingham, 2011; Gibson & Lawrence 2010; Kuyper, Dijkstra, Buunk & van der Werf, 2011; Sharp, Voci & Hewstone, 2011; Thijs, Verkuyten & Helmond, 2010). Lane, Gibbons, Gerrard, Blanton, & Buunk (2002) showed that the level of social comparison can affect the outcome, in the case of this

study, grades. Social comparison is a strong predictor of outcome and can affect many situations (Lane, et al., 2002). There are studies that provide evidence that social comparison affects people of all ages including school-aged children (Visconti, Kochenderfer-Ladd & Clifford, 2013). The current study showed the social comparison affects college aged students in a classroom setting as well.

There are many different examples of how social comparison impacts daily life. Lewthwaite and Wulf (2010) showed an example of how social comparison impacts exercise and learning when they found that there was a learning curve of balancing on a balance board. The group that was told they did worse than average on their first try did significantly better on their second try than the group that was told they did better than average on their first try (Lewthwaite & Wulf, 2010). An example of how social comparison is used is that social comparison can be a predictor of body dissatisfaction. Some studies used questionnaires to see how dissatisfied with their bodies people are after they are showed media pictures. The conclusion is that women are generally unhappier but men are also unhappy (Myers & Crowth, 2009). Another example is survey done by Sohn about how the different sexes compare themselves in the body image area. This study used participants who are more vulnerable to body image problems. They used a survey to see how much people with body image problems compare themselves to others (Sohn, 2010). One study was done about narcissism, social anxiety and self-presentation in exercise. The study was a questionnaire about self-presentation in exercise. The researchers concluded that participants with high narcissism are protected from social anxiety. This would conclude that people with high

narcissism would not feel as much pressure from social comparison because they would think that they are better than the other person (Akehurst & Thatcher, 2010).

In 2010, Wehrens, Kvyper, Diskstra, Buunk, and Vanderwerf tested how social comparison affects academic performance. The comparison came about when students discussed their grades with each other after they received a grade back. The researchers predicted that comparing grades would have a positive impact on the student's grades. The results proved the researchers correct and showed that comparing grades actually helped the students do better in the future (Wehrens et al., 2010). A second study will take Wehrens, Kvyper, Disktra, Buuk, & Vanderwerf's (2010) study one step further and measure how social comparison affects a student's self-confidence after receiving an exam or assignment grade back. According to Gibbons and Buunk (1999) almost all young people had admitted that they engaged in academic social comparison at least once (Gibbons & Buunk, 1999). This is important for the current study because it showed that students compared themselves to one another several years ago.

Darlow and Xu (2010) investigated the relationship between social support and exercise. The study was conducted as a questionnaire that looked at how much people around the participant exercise and how much it influenced how much they exercised. The results showed that if the friends or romantic partners of the participant exercised a lot then they also said that their exercise habits were good. The difference between men and women is that men were more likely to exercise more if their best friend exercised more than if their romantic partner exercised. This fits into social comparison because the participants are comparing themselves to their friends or romantic partners and rating

themselves based on how they rate the others. The conclusion of the study is that social support can be a predictor of level of exercise (Darlow & Xu, 2010).

In 2011 Yun and Silk demonstrated the effect of body dissatisfaction and social comparison. This is an example of another aspect of life studied. The study also shows that using a survey is an accurate way to inflict feelings of social comparison. An example of how some of the questions started is “most of my friends”. The study focused on a questionnaire entitled attention of social comparison information (ACSI). The ACSI is a survey that asks questions that start with my behavior depends on. The people who pay attention to social comparison are more likely to be influenced by social norms in their intentions to exercise and eat a healthy diet. An example of a question is “I try to pay attention to the reactions of others to my behavior in order to avoid being out of place” (Yun & Silk, 2011). The results showed that people feel social comparison even when simply answering questions about their intention to exercise. The healthy diet aspect of the experiment was also influenced by social comparison. In conclusion, social comparison is a factor even when just taking a paper and pencil test (Yun & Silk, 2011). Social comparison can be displayed in every day life in many different ways. Most of these ways have been studied to some extent but there is a lot more research to be done on the topic.

Self-Esteem

Self-esteem is a different psychological topic but it is one that is equally important when discussing how students perform in the classroom. The definition of self-esteem is the extent of value someone places on himself or herself. The concept involves a positive or a negative connotation. A positive self-esteem is known as high

self-esteem. If someone feels high self-esteem they generally feel confident, optimistic, and do not care what others think. The opposite is negative self-esteem also known as low self-esteem. Some thoughts a person with low self-esteem can have are constantly worrying about what others think, generally pessimistic, and being envious of others or wanting to be like someone else (“The difference between,” 2012).

There is a well-documented relationship between psychological well-being and a person’s self-esteem. As Deeley and Love showed in 2012 having a low self-esteem can be a stronger predictor of the idea of suicide (Deeley & Love, 2012). Senol-Durak 2013 supported the results and gained evidence for social support being helpful in self-esteem. The social support significantly helped self-esteem and helped with stress related growth (Senol-Durak, 2013). Elfering and Grebner (2011) also gained evidence that having prolonged low self-esteem, or self-confidence, can negatively affect an individual. Their study showed that prolonged low self-esteem could cause a stress response. This was tested using a galvanized skin response. This is important because it is not self-report but how the body reacts (Elfering & Grebner, 2011). Another aspect of life low self-esteem can affect is the level of anxiety an individual feels (Keng & Liao, 2013). There are many studies that show that self-esteem, or self-confidence, can be a predictor of success in many areas, including academics (Park, Lawson, & Williams, 2012).

There are several different ways self-esteem can affect a person. For example, self-esteem can go up or down based of how much others pay attention to one person. The second idea is that comparison of others can affect self-esteem. For example, if the group is more successful than the individual the individual will develop a negative self-esteem. However, it works the other way as well where as if the individual is better than

the group the individual can develop a positive self-esteem. The third idea is that social roles can affect self-esteem. The role can affect self-esteem positively or negatively depending on what a certain society values. For example in the United States a doctor would probably have high self-esteem and an unemployed person would probably have low self-esteem. The final idea is how one identifies with their role, such as if they enjoy their role or not (McLeod, 2008). Although self-esteem is different than self-confidence they rarely occur without each other. For example, self-esteem is how someone feels about himself or herself and self-confidence is how someone feels about his or her abilities in the world (“The difference between,” 2012).

There has been research done to test self-esteem such as in 2003 Tavani and Losh tested motivation, self-confidence and expectations of high school students to see if they were predictors of performance. The participants were seventeen years old and up. The data was collected at a freshman orientation at a large university. Part of the survey questioned the students about their academic performance. For example, it asked average high school grades and what the student perceived their level of academic ability. Next the survey asked about the student’s expectations, such as what the likelihood that they would earn a “B” average would be. The survey did the same with self-confidence. Finally the survey asked about parent’s education level for analysis purposes. The researchers found that there is a positive correlation in motivation and self-confidence. They also found that all of the factors, motivation, self-confidence and expectations, are significantly correlated academic performance. This study found that motivation, expectations, self-confidence, and parental education levels are all strong predictors of academic performances. The study has also shown that there is a difference in self-

confidence based on gender. Other research has shown that men generally have more self-confidence than women (Tavani & Losh, 2003).

Surveys

One of the best ways to test self-esteem is through a psychological test such as a survey or self-esteem inventory. It is important to know what a psychological test is and what it involves. A psychological test “is a systematic procedure for comparing the behavior of two or more people” (Cronbach, 1960). There are three main components for a psychological test. They are behavioral samples, collection of the samples in a systematic way, and using the test to compare the behaviors of two or more people (Furr & Bacharch, 2008). Sometimes the test is a paper and pencil test, such as the Beck Depression Inventory (BDI; Beck, Steer, & Brown, 1996) and sometimes it can be verbal. The thousands of psychological tests vary in content and purpose (Furr & Bacharch, 2008). There are several different aspects that go into making sure a test is valid and reliable. Once a test has met all these standards it has to be tested many times in order to become a standard test in the area.

There are several different valid ways to test self-esteem but there are two main ones in the research. There are two tests that have met the requirements and have become two of the standard ways to measure self-esteem. One is the Harrill Self-Esteem Inventory, which is a fifteen-question questionnaire. The questions are about a range of interest (“The difference between,” 2012). The second is known as the Coopersmith self-esteem inventory. This test is a series of questions that the person states either like me or unlike me. There is than a manual that says which questions a person with high self-

esteem would answer like me or unlike me to. There are also questions that help to tell if the participant is lying in any way (Coopersmith, 1967).

There are many other ways to test for self-esteem but they are not as reliable. It is important to any study to make sure that the measure is reliable and valid. This is because if the measure cannot be used over and over than the results cannot be generated again. If the test has reliability and validity it eliminates the possibility for random measurement error (Carmines & Zeller, 1979). Another potential issue with a survey is there could be response bias. One example of a survey that can get response bias is the State-Trait Anxiety Inventory (Spielberger, 1983). This test creates bias because of the extreme answer options that it gives. For example, the choices go from often to almost always. These two statements can be taken a number of ways. The bias can be minimized by managing how the test is scored and how the questions are worded (Furr & Bacharch, 2008). To reduce certain bias, social desirability, the questionnaire should avoid asking questions that inflict social feelings such as social comparison (Paulhus, 1991). If a researcher thinks that a participant is being bias or giving dishonest answers than those questionnaires should be considered invalid and discarded (Graham 1990).

Another potential important issue is test fairness. The fairness of a test has to do with social judgment (Ghiselli, Campbell, & Zedeck, 1981), psychological judgment (Jensen, 1980) and even legal terms (Thorndike, 2005). Test fairness also has to do with the proper use of the test results. The fairness of a test is not determined on the opinion of certain people but on the properties stated previously. In order to be considered a fair test the test must follow procedures for administering, selecting participants, and

interpreting the results. Although these three aspects are different for all tests they are three basic guidelines for fairness (Furr & Bacharch, 2008).

Self-Esteem and Social Comparison Interaction

There are also studies that show the interaction of social comparison and self-esteem. The study being conducted will be adding to this type of research by measuring how the two interact in a college classroom setting when receiving exam grades. In 2012 Paterson, McKenzie and Lindsay did one study that tests how they interact. These researchers studied how social comparison and self-esteem affect adults with intellectual disabilities. The researchers believed that people with intellectual disabilities have a lower self-esteem because of the social stigma around them due to their disability. That is the first of their four hypotheses. The second hypothesis is that there is an association between perceived stigma and social comparison. The third hypothesis is there will be an association between social comparison made with service users and people in the community and their reported self-esteem. The last hypothesis is there is a difference in social comparison with service users compared to people in the community. The researchers gave sixty-five participants an adapted social comparison scale. The scale allowed the participants to rate themselves when inflicted with feelings of social comparison. The scale also was adapted to target a certain comparison group. The participants also had to complete the scale twice; once using incomplete the phrase service users and once using the phrase people in the city “name of city”. Then the participants were given an adopted version of a self-esteem scale. The researchers found that there is a positive correlation between perceived stigma and self-esteem. However, stigma only affected the individual’s self-esteem if it was already negative. They also

found that the more negative social comparisons an individual experienced the more negative their self-esteem was reported. If the individual felt like they were part of the group they had higher self-esteem. Another finding is individuals who reported themselves as more capable around people also had a higher reported self-esteem. Social comparison and stigma work in different ways to affect self-esteem of this particular population. In conclusion, these are two factors impact the lives of the intellectually disabled in a significant way and should be as positive as possible in order to keep their self-esteem high (Paterson, McKenzie & Lindsay, 2012).

Another study by Buckingham (2000) showed that social comparison and self-evaluation interacted. The study showed that the higher self-evaluation an individual has the less that they compare themselves to others (Buckingham, 2000). This ties into Festinger's theory because the people with high self-evaluation would be the part of the group to change the other individual's opinions (Festinger, 1954). An interesting study done by McGruder and Walden (2013) showed that it does not matter if the school is one gender when it comes to self-esteem after academic comparison (McGruder & Walden, 2013).

Chapter 3

Methodology

Participants

There were fifty-eight college-age students at Rowan University as participants.

There were fifteen men and forty-three women.

Materials

The self-esteem inventory that was used is the Coopersmith Self-Esteem Inventory. Two hundred copies of the survey and the manual were purchased from the manufacturer.

Design

The design of the study is a within subject pre-test and post-test. The results are dependent on the participant taking both surveys during the study.

Variables

The dependent variable is the answers on the self-esteem inventory. This shows how receiving the exam grade and being able to discuss it with peers affects the self-esteem of the participant. The independent variable is receiving back an exam grade before taking the self-esteem inventory the second time. Another independent variable is the time that is given between receiving the exam grade and taking the survey for the second time. It was administered once at the beginning of the semester as a baseline and once to the students after they receive an exam grade back. The self-esteem inventory and manual were purchased from the manufacturer.

Procedures

The goal of the research is to determine if social comparison has a significant impact on student's self-confidence after receiving an exam grade back. The participant was first given an alternate consent form and told that participation is optional. The participants were then given the self-esteem survey to gather a baseline of their current self-esteem. The students then went on with class as normal and about two weeks later took back an exam. After that the students went on spring break, which allowed the professor to have time to grade the exam. The participants were given back their exam grades and were given time to discuss questions with their teacher and to talk amongst themselves. After that time the students were given the survey again to receive a post-test.

Statistical Analysis

A 2x2 mixed measures ANOVA with group (below expectation/ about expectation/ above expectation) as the between factor and time (pre/post) as the within factor was run on SPSS.

Chapter 4

Results

Before the results are discussed the survey itself should be discussed. First the survey is twenty-five questions and the students then check if the statement is like them or not like them. The form that was given was the adult version because the participants were all college students. The test is a standard test for self-esteem and has been proven valid and reliable. This test has observed sex differences in some settings but this study did not because there was not enough males to compare males to females. A 2x2 mixed measures ANOVA within group (below expectation/ about expectation/ above expectation) as the between factor and time (pre/post) as the within factor was run on SPSS. However, interaction was not significant.

Chapter 5

Discussion

Conclusions of Social Comparison

The purpose of this study was to determine how social comparison would affect a student's self-esteem after they receive back an exam grade. This study showed no significant results but previous studies have shown that social comparison is a strong factor and can sway people do feel differently and do things differently. In the classroom students probably feel the need to compete and be the best. However, in this setting the class was a basic introductory level class so some people were probably just in the class to get by or get an easy grade. If this study had been done in a higher level class the results may have been different because the students may be more competitive with each other.

Confounds

There are several possible confounds to this study. One major problem was that the social comparison aspect was not strong enough to impact the self-esteem. The students were not necessarily directed to talk to each other so some students could have chosen to keep to themselves. The time allotted to talk about the exam was also very minimal because of this the participant probably was only able to discuss the grades with the person sitting next to them. The students were also not given the average of the class so they were not comparing themselves to everyone in their minds. If they had been given the class average the social comparison aspect could have been stronger. This manipulation was only semi-controlled and could have been better if it was completely

controlled. A better option, not in this setting but other experiments, would be to use a confederate so that what is being said and done can be completely controlled. The students were also all told different things because they were talking amongst themselves. If the participants were sitting with their friends than it is not likely that they would make each other feel poorly for not doing well on the test. Also if they are friends they may not feel as much comparison or they may feel more comparison. If it was a confederate than the participant may feel differently on how they did compared to someone they do not know.

Another possible confound is that some of the students could have been having a bad day to begin with on one of the days. Some of the scores changed drastically between the pre-test and the post-test. A lot of the students had the same score for both days. The students could have also not been honest on one of the tests, which is a possibility of why the scores were so extremely different. Another problem was that not all the people who showed up for the pre-test showed up for the post-test and vice versa. Another big potential confound is that the number of participants was very small and the population was not very diverse. All of the participants were psychology majors and most of them were in their second year. There were also not many males who participated in both the pre-test and post-test.

Future Research

There are many different ideas for future research. For example, social comparison can be tested on other aspects of education such as homework or other graded assignments. Students could also be given a longer time period to discuss the exam or grades in general. There are also many different psychological aspects that can

be tested in an education setting such as memory, learned behaviors, and stereotypes. These can be tested in a similar and can yield important results. Another twist could be to apply social comparison to other aspects of life such as playing a sport or doing an exercise activity. One of the most important changes to make in future research is to have a stronger social comparison factor. One way to make the factor stronger is use a confederate. When using a confederate the exact words said can be manipulated to ensure that every participant hears the same things.

References

- Akehurst, S., & Thatcher, J. (2010). Narcissism, social anxiety and self-presentation in exercise. *Personality And Individual Differences*, 49 (2), 130-135).
- Aronson, E., Wilson, T., & Akert, R. (2010). *Social psychology*. (7 ed., pp. 137-139). Upper Saddle River, NJ: Prentice Hall.
- Bandura, A., & Jourdan, F. J. (1991). Self-regulatory mechanisms governing the impact of social comparison on complex decision making. *Journal of Personality and Social Psychology*, 60, 941-951.
- Beck, A.T., Steer, R.A., & Brown, G.K. (1996). *Beck Depression Inventory-II (BDI-II)*. San Antonio, TX: Harcourt Assessment.
- Bengtsson, S. L., Dolan, R. J., & Passingham, R. E. (2011). Priming for self-esteem influences the monitoring of one's own performance. *Social Cognitive And Affective Neuroscience*, 6(4), 417-425.
- Buckingham, J. (2000, January). Social comparison and self-evaluations of ability: The relative impact of individual versus aggregated comparisons. *Dissertation Abstracts International*, 61.
- Carmines, E., & Zeller, R. (1979). *Reliability and validity assessment*. Thousand Oaks, CA: Sage Publications Inc. Retrieved from [http://books.google.com/books?hl=en&lr=&id=BN_MMD9BHogC&oi=fnd&pg=PA5&dq=validity and reliability importance&ots=_MS2C3WCY9&sig=KvXu0Lff_bZ8N-r1nuqZN31Wxgk](http://books.google.com/books?hl=en&lr=&id=BN_MMD9BHogC&oi=fnd&pg=PA5&dq=validity+and+reliability+importance&ots=_MS2C3WCY9&sig=KvXu0Lff_bZ8N-r1nuqZN31Wxgk)
- Coopersmith, S. (1967). *The antecedents of self-esteem*. San Francisco: W. H. Freeman & Co.
- Cronbach, L.J. (1960). *Essentials of psychological testing* (2nd Ed.). New York: Harper & Row.
- Darlow, S. D., & Xu, X. (2011). The influence of close others' exercise habits and perceived social support on exercise. *Psychology Of Sport And Exercise*, 12(5), 575-578.
- Deeley, S., & Love, A. (2012). The emotion self-confidence model of suicidal ideation. *Advances In Mental Health*, 10(3), 246-257. doi:10.5172/jamh.2012.10.3.246
- Elfering, A., & Grebner, S. (2011). Ambulatory Assessment of Skin Conductivity During First Thesis Presentation: Lower Self-Confidence Predicts Prolonged Stress Response. *Applied Psychophysiology & Biofeedback*, 36(2), 93-99. doi:10.1007/s10484-011-9152-3

- Erkut, C. (n.d.). Retrieved from http://www.wcwonline.org/pdf/previews/preview_427.pdf
- Festinger, L. (1954). The theory of social comparison processes. *Sage Social Science Collections*, 117-140.
- Furr, M., & Bacharach, V. (2008). *Psychometrics an introduction*. Los Angeles, CA: Sage Publishing Inc.
- Gheselli, E.E., Campbell, J.P., & Zedeck, S. (1981). *Measurement theory for the behavioral sciences*. San Francisco: W.H. Freeman.
- Gibson, D. E., & Lawrence, B. S. (2010). Women's and men's career referents: How gender composition and comparison level shape career expectations. *Organization Science*, 21(6), 1159-1175.
- Gibbons, F. X., & Buunk, B. P. (1999). Individual differences in social comparison: Development of a scale of social comparison orientation. *Journal Of Personality And Social Psychology*, 76(1), 129-142. doi:10.1037/0022-3514.76.1.129
- Gilbert, D.T., Giesler, R.B., & Morris, K. A. (1995). *When comparisons arise*. *Journal of Personality and Social Psychology*, 69, 227-236.
- Graham, J.R. (1990). *MMPI-2: Assessing personality and psychopathology*. New York: Oxford University Press.
- Jensen, A.R. (1980). *Bias in mental testing*. New York: Free Press.
- Keng, C., & Liao, T. (2013). Self-confidence, anxiety, and post-purchase dissonance: A panel study. *Journal Of Applied Social Psychology*, 43(8), 1636-1647. doi:10.1111/jasp.12116
- Kuyper, H., Dijkstra, P., Buunk, A. P., & van der Werf, M. C. (2011). Social comparisons in the classroom: An investigation of the better than average effect among secondary school children. *Journal Of School Psychology*, 49(1), 25-53.
- Lane, D. J., Gibbons, F. X., Gerrard, M., Blanton, H., & Buunk, B. P. (2002). Comparison strategies in response to threat: When does social comparison make a difference?. In S. P. Shohov (Ed.), *Advances in psychology research*, Vol. 10 (pp. 71-97). Hauppauge, NY US: Nova Science Publishers.
- Lewthwaite, R., & Wulf, G. (2010). Social-comparative feedback affects motor skill learning. *The Quarterly Journal Of Experimental Psychology*, 63(4), 738-749.

- McGruder, J. A. (2013). Comparison of academic performance and self-esteem levels in female adolescents attending single gender and coeducational public schools. *Dissertation Abstracts International Section A*, 74.
- McLeod, S. A. (2008). Self Concept - Simply Psychology. Retrieved from <http://www.simplypsychology.org/self-concept.html>
- Myers, T. A., & Crowther, J. H. (2009). Social comparison as a predictor of body dissatisfaction: A meta-analytic review. *Journal Of Abnormal Psychology*, 118(4), 683-698.
- Park, H., Lawson, D., & Williams, H. (2012). Relations between technology, parent education, self-confidence, and academic aspiration of Hispanic immigrant students. *Journal Of Educational Computing Research*, 46(3), 255-265. doi:10.2190/EC.46.3.c
- Paterson, L., McKenzie, K., & Lindsay, B. (2012). Stigma, Social Comparison and Self-Esteem in Adults with an Intellectual Disability. *Journal Of Applied Research In Intellectual Disabilities*, 25(2), 166-176. doi:10.1111/j.1468-3148.2011.00651.x
- Paulhus, D.L. (1991). Measurement and control of response bias. In J.P. Robinson, P.R. Shaver, & L.S. Wrightsman (Eds.), *Measures of personality and social psychology attitudes* (pp. 17-59). New York: Academic Press.
- Senol-Durak, E. (2013). Stress related growth among diabetic outpatients: Role of social support, self-esteem, and cognitive processing. *Social Indicators Research*, doi:10.1007/s11205-013-0435-3
- Sharp, M., Voci, A., & Hewstone, M. (2011). Individual difference variables as moderators of the effect of extended cross-group friendship on prejudice: Testing the effects of public self-consciousness and social comparison. *Group Processes & Intergroup Relations*, 14(2), 207-221.
- Sohn, S. H. (2010). Sex differences in social comparison and comparison motives in body image process. *North American Journal Of Psychology*, 12(3), 481-500.
- Spielberger, C.D. (1983). *Manual for the State-Trait Anxiety Inventory (STAI)*. Palo Alto, CA: Consulting Psychologists Press.
- Tavani, C. M., & Losh, S. C. (2003). Motivation, self-confidence, and expectations as predictors of the academic performances among our high school students. *Child Study Journal*, 33(3), 141-151.
- Thisj, J., Verkuyten, M., & Helmond, P. (2010). A further examination of the big-fish-little-pond effect: Perceived position in class, class size, and gender comparisons. *Sociology Of Education*, 83(4), 333-345.

- The difference between self-esteem & self-confidence is..... (2012). Retrieved from <http://www.theconfidencelounge.com/uncategorized/the-difference-between-self-esteem-self-confidence-is/>
- Thorndike, R.M. (2005). *Measurement and evaluation in psychology and education* (7th ed.). Upper Saddle River, NJ: Pearson Education.
- Visconti, K., Kochenderfer-Ladd, B., & Clifford, C. A. (2013). Children's attributions for peer victimization: A social comparison approach. *Journal Of Applied Developmental Psychology*, doi:10.1016/j.appdev.2013.06.002
- Wehrens, M. W., Kuyper, H., Dijkstra, P., Buunk, A. P., & Van Der Werf, M. C. (2010). The long-term effect of social comparison on academic performance. *European Journal Of Social Psychology*, 40(7), 1158-1171.
- Wood, J. V. (1989). Theory and research concerning social comparisons of personal attributes. *Psychological Bulletin*, 106, 231-248.
- Yun, D., & Silk, K. J. (2011). Social norms, self-identity, and attention to social comparison information in the context of exercise and healthy diet behavior. *Health Communication*, 26(3), 275-285.