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Comparisons with Competitive and Cooperative Others

Celinda M. Reese

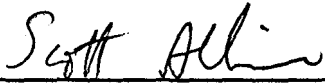
University of Richmond

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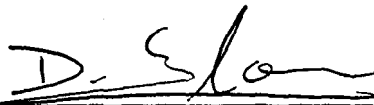
I certify that I have read this thesis and find that, in scope and quality, it satisfies the requirements for the degree of Master of Arts.



Scott T. Allison, Ph.D., Thesis Advisor



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The Social Basis of Emotion: Affective Consequences of Social
Comparisons with Competitive and Cooperative Others

By

Celinda M. Reese

B.S., Abilene Christian University, Abilene, Texas, 1992

A Thesis

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Abstract

The present research explores the affective consequences of social comparisons made by cooperators and competitors. Participants (75 males, 90 females) were randomly assigned to either a cooperative or competitive condition in which they either performed better or worse than a partner. Participants were asked to imagine themselves in a particular situation and then report their emotional reaction to the scenario. Consistent with R. Lazarus' cognitive appraisal theory of emotion, participants in the cooperative condition reported anger when their partner's actions hindered goal attainment but reported joy when the partner promoted goal attainment. Consistent with T. Wills' theory of downward social comparison, participants reported joy when they performed better than a competitor. In accordance with some aspects of L. Festinger's theory of upward social comparison, participants reported anger when they performed worse than a competitor. Implications for reward distribution practices in organizational settings are discussed.

The Social Basis of Emotion: Affective Consequences of Social Comparisons with Competitive and Cooperative Others

On a daily basis humans experience an array of emotions. As we go about our regular routine of interacting with other individuals, our emotions are to a great extent determined by our encounters with these other persons. To the extent that our encounters with others are positive, we are likely to experience positive emotions such as happiness, pride, or joy. If, however, our interpersonal experiences are unpleasant, we are likely to experience negative emotions such as anger, distress, or despair. Additionally, the type of relationship we have with the person with whom we interact is likely to affect the emotions we experience. For example, if a co-worker gets a raise, are we happy or envious? It depends. If the co-worker is someone with whom we have enjoyed a cooperative relationship, we will probably be happy. If, however, the co-worker is someone with whom we are competing for a promotion, we may be most unhappy, envious, or even indignant.

The purpose of the present research is to explore the social foundations of human emotional experience. Specifically, we wish to investigate the manner in which social comparisons of different types elicit affective reactions of different types. Moreover, we seek to illuminate whether these affective reactions differ as a function of one's relationship with the target of comparison. Cooperative human relations, we will argue,

engender different emotional responses than competitive ones. In order to consider the various processes that may influence the emotions elicited by cooperation and competition, this paper will review the literatures associated with emotion, social comparison processes, and cooperation and competition.

Human Emotion: An Overview

Although emotion is a widely researched subject, the current experts cannot agree on an answer to even the most elementary of questions such as "Are there basic emotions?" (Ekman & Davidson, 1994). Most researchers have chosen to study emotion from either a biological or a cognitive perspective. Researchers studying the cognitive component of emotion usually assume a social element is involved in the elicitation of emotion, but their goal is not to study the social basis of emotion. Their goal is to study the cognitive basis of emotion, and the social aspect of emotion is somewhat incidental.

The cognitive appraisal theory of emotion states that it is our *evaluation* of our situation which causes us to experience emotion. From this perspective, emotions may be defined as, "valenced reactions to events, agents, or objects, with their particular nature being determined by the way in which the eliciting situation is construed" (Ortony, Clore, & Collins, 1988 p. 121).

Research of the cognitive appraisal component of emotion stands as a testament to the importance of the social element of the

emotion process. Richard Lazarus (1994) acknowledged that although emotions may be elicited by the physical world, there is almost always a social aspect to emotion. Specifically, he posited that most emotions involve "two people who are experiencing either a transient or stable interpersonal relationship of significance" (Lazarus, 1994 p. 209). First, Lazarus proposed that in order for the situation to be emotionally provocative, what happens must be relevant to at least one of the individuals involved. The relationship must involve either harm or benefit. "Harm" in this instance refers to a threat to goal attainment, and "benefit" refers to the promotion of goal attainment. If the relationship involves harm there is a basis for a negative emotion, and if the relationship involves benefit there is a basis for positive emotion. The crux of Lazarus' cognitive appraisal theory of emotion is that the environment and personal goals are weighed against one another and the result is an emotion. The resulting emotion has what Lazarus called a "relational meaning."

Lazarus defined several emotions by their core relational meanings. For example, he defines "relief" as "a distressing goal-incongruent condition that has changed for the better or gone away" (Lazarus, 1994 p. 164). As an example of the usefulness of the cognitive appraisal theory of emotion, consider the following scenario: Paula receives her final course grade, and it is a "C." Getting a "C" is not congruent with Paula's goal of making the Dean's list. When the professor announces that

Paula's grade resulted from an error in calculation, and she actually earned an "A-," Paula experiences relief. In this example the environmental circumstances (finding out she received a "C") were originally such that Paula was not going to be able to attain her goal (making the Dean's list). When the environmental circumstances changed such that goal attainment was possible, Paula experienced a positive emotion, "relief."

The Social Bases of Human Emotion

Although there are multiple definitions for most human emotions, only a few definitions suggest a social basis. For example, from a social perspective, anger and the emotions considered to be subcategories of anger may be defined as negative emotions which result when an individual disapproves of someone else's blameworthy action and is unhappy about the resulting undesirable event (Ortony et al., 1988). However, most definitions of anger do not contain a social component to them. For example, anger is frequently defined as "defensive aggressive behavior with autonomic upset" (Frijda, 1994, p. 202). Empathy (or similar emotions such as pity, sympathy, or compassion) occurs when an individual is unhappy about an event which is undesirable for someone else (Ortony et al, 1988). An individual is likely to experience joy (or similar emotions such as delight, happiness, or elation) when he or she is pleased about the outcome of an event. Conversely, when an individual is displeased with the outcome of an event, he or she is likely to

experience distress (or similar emotions such as depression, regret, or sadness). Despair or hopelessness are emotions that result from the belief that the outcome of a negative event is not likely to change or that one is unable to cope with the negative outcome (Ortony et al., 1988). Although jealousy and envy are often considered interchangeable, they actually represent appraisals of two different situations. Jealousy results from the fear that something one possesses, whether it is a relationship or a physical possession, is threatened by another person (Salovey, 1991). Envy, however, "is the term reserved for the begrudging of another's possession of an attribute or relationship that one would like to have for oneself" (Salovey, 1991 p. 263). Finally, pride may be defined as the emotion that results when one takes credit for a valued achievement or possession, either one's own or that of another with whom one has a relationship (Lazarus, 1994). Most of the above definitions suggest that an interpersonal element is necessary for the emotion to be experienced. One interpersonal process that may influence the emotion experienced is the social comparison process.

Social Comparison Phenomena: An Overview

In 1954 Festinger proposed that humans evaluate their opinions and abilities by comparing them with the abilities and opinions of others; he called this idea *social comparison theory*. Social comparison theory states that humans have a drive to evaluate their opinions and abilities, and when objective criteria is

unavailable, one will use the opinions and abilities of others as the standard by which to judge one's own. The social comparison process is mediated by the relevance of the dimension to the individual; if the dimension is unimportant to the individual there will be no drive to evaluate that dimension.

Festinger asserted that individuals compare themselves with others who are *similar* in opinion or ability on relevant dimensions. For example, a novice tennis player does not compare his or her game to that of a professional player. A comparison of this kind could not provide a meaningful or accurate evaluation of the novice's ability. Instead, the beginning player compares his or her game to that of other beginners. By comparing oneself with similar others, one is able to obtain the most accurate evaluation possible in the absence of an objective criterion. Furthermore, Festinger suggested that the need to compare oneself with similar others promotes group *uniformity* by encouraging behaviors that will reduce the disparity between the performances of the group members. For example, the novice tennis player may try to help other players improve their game, or he or she could attempt to sabotage the other players' games. Depending on the direction of the discrepancy, either behavior could result in greater uniformity with respect to tennis ability.

Festinger stipulated, however, that group uniformity may never be fully achieved; he proposed that people have a "unidirectional drive upward" with respect to their abilities which

will lead the individual to strive to be slightly better than a similar other (Festinger, 1954). Therefore, the unidirectional drive upward can lead to competition between individuals; both individuals may strive to perform better than the other. Festinger also noted that when one is unable to perform some activity at the desired level of performance, feelings of failure and inadequacy may result.

The Emotional Consequences of Social Comparison

Although very little research has considered the emotional consequences of social comparison, research by Wills (1991) has demonstrated that social comparison does have emotional repercussions. Whereas the unidirectional drive upwards relates to what Festinger called upward comparison, Wills proposed a theory of downward social comparison. The theory of downward social comparison states that "subjective well-being can be enhanced through comparison with a less fortunate other" (Wills, 1991 p. 52). Wills defined subjective well-being as "...a short term variation in mood..." (Wills, 1991 p. 52). For example, a student who receives a mediocre grade in a course may look to the student who received an even lower grade in order to feel better about his or her own performance. In situations where one is not performing well and is unlikely to improve to the level of an upward comparison target, one may engage in downward social comparison as a means of enhancing feelings of subjective well-being.

Wills posited that a linear relationship between feelings of subjective well-being and downward social comparison is unlikely because while a relatively small discrepancy between one's performance and that of another may increase feelings of subjective well-being, a large discrepancy may result in feelings of empathy which would preclude feelings of self-enhancement. Wills postulated that small to moderate differences between the performance of the self and other would result in feelings of subjective well-being, but as the differential increases from moderate to large, feelings of empathy may result. Wills noted, however, that in a competitive situation a larger differential may be allowed before any feelings of empathy or uneasiness occur. In fact, it is likely that both cooperative and competitive situations are capable of influencing the emotions that the individual experiences.

Competition and Cooperation: An Overview

From Thomas Hobbes to modern evolutionary theorists, competition and cooperation have been subjects of great interest. Hobbes believed that humans were naturally selfish and that without the creation of government would lead a life that was "solitary, poor, nasty, brutish, and short" (Hobbes, 1651/1939 p.100). In other words, Hobbes believed that government was necessary to force cooperation on humans who are inherently selfish competitive beings. Richard Dawkins, a contemporary evolutionary theorist, suggested that a successful gene is a

selfish gene which ultimately spawns a selfish individual. In fact, Dawkins said that "...if you wish....to build a society in which individuals cooperate generously and unselfishly towards a common good, you can expect little help from biological nature" (Dawkins, 1976 pp.2-3). Yet numerous examples of cooperation and even altruism exist, so there must be some balance between our selfish natures and our desire to help others.

Social exchange theory, proposed by Thibaut and Kelly (1959), states that most human interaction involves the exchange of rewards and costs. People are motivated to maximize rewards and minimize costs. Thibaut and Kelly described a purely competitive situation called the "zero-sum game." In the zero-sum game, if one individual wins the other must lose. An example of the zero sum game is any wager between two people (Komorita & Parks, 1994). Thibaut and Kelly also describe a purely cooperative situation. In this situation if one person wins, then so do all of the others. An example of the purely cooperative situation is found in team sports. In baseball, for example, it does not matter if one player scores all of the runs, the whole team gets the victory not just the player who scored the runs (Komorita & Parks, 1994).

Morton Deutsch (1949a) examined the effects of cooperation and competition on the functioning of small groups. In Deutsch's experiment he set up two conditions. In the cooperative condition group members were told that they would

all share a grade based on their ability to solve a group problem. In the competitive condition group members were told that the highest grade would go to the member who contributed the most to the solution of the group problem, and the lowest grade would go to the group member who was the least contributory. The remaining members would receive grades that reflected their contribution relative to the other group members with no two members receiving the same grade. In the cooperative situation Deutsch hypothesized that when an individual performed a behavior that brought the group closer to their goal (solving a problem), his or her teammates are likely to "accept," "like," or "reward" the action of the individual. Deutsch also hypothesized that not only would the action be positively received by the teammates, but the person performing the action is likely to be positively regarded, and thus fellow teammates are likely to want to cooperate with this individual in future efforts. In the competitive situation, however, the reverse is true; when an individual performs a goal-directed behavior, the individual and his or her actions are likely to be negatively regarded and future competition with this individual will be viewed as undesirable.

Additionally, Deutsch (1949a) hypothesized that when an individual performs an action that results in his or her moving away from the goal (mistakes, bumbles, etc.), his or her cooperative teammates will regard the action and the individual negatively. When the "bungler" is a competitor, however, the

other competitors are expected to be pleased with the action and ambivalent or positive in regard to the person performing the action. From his observation of these groups and the subject's self-reports, Deutsch (1949b) concluded that members of cooperative groups were significantly more "friendly" toward one another than were members of competitive groups. Additionally, members of cooperative groups made more encouraging or rewarding remarks to one another than did members of competitive groups. Members of competitive groups made more aggressive remarks than members of cooperative groups. Finally, Deutsch reported that members of cooperative groups rated one another's contributions as more valuable than members of competitive groups. Deutsch, however, did not examine the emotions which may have contributed to positive and negative regard in cooperative and competitive groups. His focus was on the group processes involved in cooperation and competition rather than on the emotional state of the individual cooperator or competitor.

The Emotional Consequences of Cooperation and Competition

Given the dearth of research exploring the emotional effects of cooperation and competition, we can only speculate about what these effects may be. It seems reasonable to suggest that persons in cooperative situations may be more empathetic than individuals in competitive situations. Whereas persons in cooperative situations should be interested in maximizing joint

gain, individuals in competitive situations should be interested in maximizing the difference between their outcomes and the outcomes of others. For example, if Paula receives a "C" and is in a cooperative relationship with Jean, Paula should experience sadness if Jean receives an "F" and happiness if Jean receives an "A." If, however, Paula receives a "C" and is in a competitive relationship with Jean, Paula should experience happiness if Jean receives an "F" and sadness or anger if Jean receives an "A."

The Present Research

The present study examined the emotions elicited by cooperation and competition. Although there are a few theories that may be used to shed light on the processes that may contribute to the elicitation of different emotions in the competitive versus cooperative situations, this area of research has been largely neglected. As a result, much of the present study is exploratory. In the present study, subjects were first asked to report how they would feel if they received an A, a B, or a C in a class. Subjects were then engaged in a task in which they were told to imagine that they and another student have each received a letter grade for their individual work on a project. Each subject was assigned to only one condition with one self-other outcome combination. After learning the grade outcomes, the subject was allowed to report the emotions they experienced as a result of the imagery task. Subjects were randomly assigned to either a competitive or cooperative situation.

The competitive condition was one in which a student is informed by a college professor that he or she has been assigned a partner against whom he or she will compete for the highest course grade. Only one student can get the highest grade, and the student's goal should be to get the highest grade. In the competitive condition it seems reasonable to expect that when the subject outperforms the partner, a positive emotion will be reported. For example, if the subject receives an A and the partner receives a B, the subject is likely to report feelings of happiness, joy, or delight. In this situation, the subject performed slightly better than a competitor on a relevant dimension. The subject is essentially forced into downward social comparison and feelings of subjective well-being are expected to increase under these conditions. If, however, the subject performs poorly in comparison to their partner, negative emotions are likely to be reported, such as feelings of distress, anger, or envy. To guide the testing of the above assumptions, the following question is posed: Do people in competitive situations experience different emotions based on how they perform relative to their competitor?

The cooperative condition was one in which the student is informed by his or her college professor that he or she has been assigned a partner with whom he or she is to work cooperatively on all course assignments. Although the two students must work together, each must turn in his or her own work. At the end of the semester each partner will be told his or her own grade and

their partner's grade. The professor, however, will average the two grades to determine the final course grade for both.

Therefore, the student's course grade will be the average of his or her grade and the partner's grade. After reading the vignette the subject was told their grade, their partner's grade, and the final course grade. The subject was then asked to report what emotions he or she experienced.

In the cooperative condition, when the student performs worse than his or her cooperative partner, several different emotional responses are plausible. Because the final grades are determined by the average of the individual grades, the cooperative student who receives a lower grade than his or her partner may experience relief. Relief would be expected because the subject will get a final course grade which is higher than what he or she would have received independently. On the other hand, the subject may experience guilt for having lowered the final grade of the partner. It is likely that the differential between the subject's grade and the partner's grade will affect the resulting emotion. If the differential is large, it is more likely to be guilt-provoking because the subject has lowered the partner's grade significantly. If the differential is small, however, the subject will probably be quite pleased that their grade is somewhat higher.

If the subject outperforms his or her cooperative partner, he or she is likely to experience a mixture of emotions. One could speculate that the subject will experience positive emotions

because he or she has performed better than a similar other on a relevant dimension. However, negative emotions are feasible as well because the subject's grade will be lower since the partner's grade will lower the final average. In this situation anger and related emotions may be reported along with positive emotions such as pride or satisfaction. To guide the testing of these assumptions, the following question is posed: When participants are involved in a cooperative relationship with a partner do their emotions differ based on whether or not they performed better than their partner?

As stated previously, persons in cooperative situations are generally interested in maximizing joint gain while persons in competitive situations are interested in maximizing the difference between their outcomes and the outcomes of others. Because the goals of cooperative and competitive situations are different, one might expect different emotional responses from participants placed in cooperative and competitive situations. The following question is posed to test this hypothesis: Do subjects experience different emotions based on their relationship with their partner as competitor or cooperator?

Although we expect to see differences between the basic emotions (joy, anger, sadness, etc.) reported by participants, we also want to explore the possibility that emotions will vary within a basic emotion category. For example, a participant may report feeling many different types of sadness (depression, shame,

agony, etc.). To guide this investigation, the following question is posed: Do the types of sadness, joy, and anger reported by the participants vary over time (e.g. from baseline reports to reports made after reading the assigned scenario)?

To examine Deutsch's proposal that members of cooperative and competitive groups regard group members differently, the following two questions are proposed: Do participants in the cooperative condition like their partners more than subjects in the competitive condition? and Do participants who perform better than their partners like their partners more than subjects who perform worse than their partners?

Method

Participants

Participants ($n = 180$) were recruited from the Introduction to Psychological Science course at the University of Richmond and through flyers posted around the campus. Subjects either received course credit or five dollars for their participation. The data from 15 participants were not analyzed because the subject failed the manipulation check. Failure on the manipulation check indicated that the participant did not understand the materials well enough to respond meaningfully to the questions. Data from a total of 165 participants (75 males, 90 females) were analyzed.

Materials

All subjects were given a questionnaire which asked them to list the emotions that they would experience if they received an

"A", a "B" or a "C" in a college course. See Appendix A for a sample of this questionnaire. Previous research indicates that imagery tasks are an effective method of evoking emotion in a laboratory setting (Smith & Lazarus, 1993; Smith, 1989). The present study employed a vignette as means of eliciting emotion. See Appendix B for a sample of the type of vignette used. A cooperative and a competitive vignette were used. The subjects were randomly assigned to either the cooperative or the competitive condition and also to one grade outcome condition. There were six self-other grade outcome possibilities (A,B; B,A; A,C; C,A; B,C; C,B).

A two page questionnaire was used to determine what emotions were elicited by the imagery task. See appendix C for a copy of the questionnaire. This questionnaire contained a free-response question that required subjects to list the emotions they experienced. Additional questions assessed the student's recall of the grades, their perception of the situation as competitive or cooperative, the degree to which the subject "liked" their partner, and the degree to which the subject felt that their partner "liked" them. Subjects were also asked to complete a demographic questionnaire which requested the subject's gender, year in school, GPA, ethnicity, and age.

Research suggests that the emotions most frequently named by people when they are asked to list emotion may be subcategorized under the basic emotions of love, joy, surprise,

anger, sadness and fear (Shaver, Schwartz, Kirson, & O'Conner, 1987). The present study employed the categories and subcategories used by Shaver et al. as a means of classifying the emotions reported by subjects on the free-response emotion questionnaire. See Appendix D for a list of the emotions categorized according to Shaver et al.'s classification scheme.

An additional measure was also used to assess the subject's emotional response to their assigned condition. The twenty-two emotions corresponding to the cluster names reported by Shaver et al. (1987) were provided to the subject, and he or she rated the extent to which they experienced the given emotion by circling the appropriate number on a likert scale. See Appendix E for a copy of the scale.

A decomposed prisoner's dilemma game was used to determine the social value orientation of the subject (cooperator or non-cooperator). See appendix F for a copy of the decomposed game. This measure required subjects to circle a letter corresponding to their choice of own/other outcomes.

Procedure

Participants arrived at the testing site in groups of approximately twenty. They were told that the experiment concerned experimental teaching techniques and that they would read a brief scenario before responding to a series of questions. Participants were given a consent form to read and sign. Subjects were told that their responses would be kept confidential

and that they were free to withdraw from the study at anytime without penalty.

Each student received a test packet which contained the vignette, the questionnaires, and the social value orientation measure. Subjects were told that they could either leave when they finished or stay until the other participants finished so that they could be debriefed.

Results

The following results are based on comparisons of the emotions reported by participants in some of the competitive and cooperative conditions. During data collection, we first collected data on the participant's emotional responses to receiving a letter grade of A, B, and C. The cooperative condition, however, was one in which the participant's grade was averaged with their cooperative partner's grade. As a result of this averaging process, the subjects in the cooperative condition often received a final grade that did not match the baseline emotional response data. For example, if the participant received an A and his or her partner received a B, the resulting averaged grade was said to be a B+. No baseline emotional response data was collected for a grade of B+, and therefore, we were unable to compare their Time 2 emotional response (emotional response after having read the scenario for the condition to which the participant was assigned) to any baseline.

Additionally, there was no comparable grade outcome for participants in the AB competitive condition. In the competitive conditions, the participants always received a grade which matched a baseline measure. For these reasons, a full-factorial analysis of all the collected data would be inappropriate, and therefore, not all of the emotion data from all of the conditions were analyzed.

Each subject completed a measure designed to assess their social value orientation. There were no significant effects related to the social value orientation of the participants, and therefore, social value orientation was not included in the final analyses. As a manipulation check, each subject was asked to rate how cooperative or competitive they believed their assigned scenario to be by circling a number on a seven point Likert scale ranging from "extremely cooperative" to "extremely competitive." A one-way ANOVA revealed a significant interaction between the condition to which the subject was assigned and their assessment of the relationship as cooperative or competitive, $F(1, 163) = 55.16, p < .001$. Participants assigned to the cooperative condition had a mean assessment rating of 3.48 ($SD = 1.49$) while participants assigned to the competitive condition had a mean assessment rating of 5.19 ($SD = 1.47$). The results of the manipulation check suggest that the participants perceived the cooperative and competitive scenarios as intended by the researcher. To facilitate the reader's understanding of the results,

each research question is followed by the results which pertain to it.

Question 1 Do people in competitive situations experience different emotions based on how they perform relative to their competitor? This question was tested by comparing the BC competitive group to the BA competitive group.

A 2(BC, BA) X 2(time 1, time 2) X 3(joy, anger, sadness) ANOVA¹ with repeated measures on the last two variables revealed a significant three-way interaction, $F(2,42) = 9.12$, $p < .001$. Table 1 displays the means associated with this interaction. Simple effects tests showed that participants in the BA condition reported a rise in anger over time, $F(1,11) = 32.46$, $p < .001$ and a sharp decline in joy over time, $F(1,11) = 179.67$, $p < .001$. Participants in the BC condition, however, reported joy at approximately the same level over time, $F(1,10) = 1.37$, $p < .267$. Furthermore, participants in the BC condition reported significantly more joy at Time 2 than subjects in the BA condition, $F(1,21) = 6.68$, $p < .05$. There were no significant differences between the reports of sadness made by subjects in the BA and BC conditions.

Question 2 Do people in cooperative relations experience different emotions based on how they perform relative to their

¹ In accordance with the research of G.H. Lunney (1970), analysis of variance (ANOVA) was employed instead of chi-square analysis.

partner? This question was tested by comparing the AC cooperative group to the CA cooperative group.

A 2(AC, CA) X 2(time 1, time 2) X 3(joy, anger, sadness) ANOVA with repeated measures on the last two variables revealed a significant three-way interaction, $F(2,46) = 6.50$, $p < .01$. Table 2 displays the means associated with this interaction. Simple effects tests showed that participants in the AC condition reported a rise in anger over time, $F(1,12) = 21.42$, $p < .001$ and a sharp decline in joy, $F(1,12) = 40.00$, $p < .001$. Participants in the CA condition reported less joy at Time 2 than they had at baseline, $F(1,11) = 266.20$, $p < .001$, but they reported significantly more joy at Time 2 than did subjects in the AC condition, $F(1,23) = 7.31$, $p < .01$. There were no significant differences between the reports of sadness made by subjects in the AC and CA conditions.

Question 3 Do people experience different emotions based on their relationship with a partner as competitor or cooperator? This question was first tested by comparing the CA cooperative group to the BA competitive group.

A 2(cooperative, competitive) X 2(time 1, time 2) X 3(joy, anger, sadness) ANOVA with repeated measures on the last two variables revealed a significant three-way interaction, $F(2,44) = 7.00$, $p < .01$. Table 3 displays the means associated with this interaction. Simple effects tests showed that participants in the

competitive condition reported a rise in anger over time, $F(1,11) = 32.46$, $p < .001$ and a sharp decline in joy, $F(1,11) = 179.66$, $p < .001$. Participants in the cooperative condition, however, reported less joy at Time 2 than Time 1, $F(1,11) = 55.00$, $p < .001$, but reported significantly more joy than at Time 2 than subjects in the competitive condition, $F(1,23) = 9.33$, $p < .01$.

Next, we tested this question by comparing the AC cooperative group to the BC competitive group. A 2(cooperative, competitive) X 2(time 1, time 2) X 3(joy, anger, sadness) ANOVA with repeated measures on the last two variables revealed a significant three-way interaction, $F(2,44) = 8.82$, $p < .001$. Table 4 displays the means associated with this interaction. Simple effects tests showed that subjects in the cooperative condition reported a rise in anger over time, $F(1,12) = 21.43$, $p < .001$ and a sharp decline in joy, $F(1,12) = 40.00$, $p < .001$. Subjects in the competitive condition reported less joy at Time 2 than at Time 1, $F(1,10) = 19.39$, $p < .001$, but they reported significantly more joy at Time 2 than subjects in the cooperative condition, $F(1,22) = 5.73$, $p < .05$. There were no significant differences between the reports of sadness made by subjects in the cooperative and competitive conditions.

Question 4 Do the types of sadness reported by participants vary from their baseline reports to the reports made after reading their assigned scenario?

This question was addressed by comparing the reports of sadness that participants in the CB cooperative condition gave at baseline and at time 2. A 2(time 1, time 2) X 6(suffering, sadness, disappointment, guilt, neglect, pity) within subjects ANOVA revealed an interaction between time and type of sadness, $F(5,55) = 5.82$ $p < .001$. Table 5 displays the means associated with this interaction. As Table 5 shows, when subjects were first asked how they would feel about earning a C in a college course, they reported feelings of sadness and disappointment. Participants then read a scenario in which they earned a C and their partner earned a B, so their final course grade was a C+. After reading the scenario, participants still reported feeling sadness and disappointment, but they reported these emotions at lower levels than they had at baseline. In addition to these emotions, participants reported feelings of embarrassment, shame, and guilt.

Question 5 Do the types of joy reported by participants vary from their baseline reports to the reports made after reading their assigned scenario?

This question was addressed by comparing the types of joy that participants in the AC competitive condition reported at baseline to the types of joy reported after reading their assigned scenario. A 2 (time 1, time 2) X 7 (happiness, excitement, contentment, pride, optimism, enthrallment, relief) repeated

measures ANOVA revealed a main effect for time, $F(1,11) = 10.16, p. < .05$ and a main effect for type of joy, $F(6,66) = 10.54, p. < .001$. The interaction, however, was not significant, $F(6,66) = 1.63, p. < .15$. Table 6 displays the means associated with this interaction. As Table 6 shows, when participants were asked to report how they would feel if they earned an A in a college course, they reported emotion words related to the following types of joy: happiness, excitement, pride, and relief. After reading a scenario in which the participant was told that he or she earned an A and his or her competitor earned a C, participants still reported happiness, excitement, and relief, but the mean number of these reports was lower than it was at baseline. The only joy emotion that was reported at the baseline level was pride.

Question 6 Do the types of anger reported by participants vary from their baseline reports to the reports made after reading their assigned scenario?

This question was addressed by comparing the baseline reports of anger for participants in the CA competitive condition to their reports of anger made after reading a scenario in which they earned a C and a competitor earned an A. A 2(time 1, time 2) X 6(irritation, frustration, rage, disgust, jealousy, torment) repeated measures ANOVA revealed a main effect for type of anger, $F(5,70) = 7.58, p. < .001$. The interaction between time

and type of anger was not significant, $F(5,70) = 1.22, p. < .310$. Table 7 displays the means associated with this interaction. As Table 7 shows, when participants were asked how they would feel about earning a C in a college course, they reported emotion words related to frustration and rage. After reading the scenario, however, participants also reported feeling irritated and jealous. Additionally, their reports of words related to rage such as bitterness and resentment increased.

Question 7 Will participants who perform better than their partners like their partners more than participants who perform worse than their partners? This question was first tested by comparing the AC cooperative group to the CA cooperative group.

A one-way ANOVA revealed a significant interaction between the better/worse variable and the assessment of the degree to which the participant liked their cooperative partner, $F(1,23) = 24.31, p. < .001$. Table 8 displays the means associated with this interaction. As Table 8 shows, participants in the better condition reported liking their partner less than participants in the worse condition. Next, this question was tested by comparing the BC competitive group to the BA competitive group. The one-way ANOVA again revealed a significant interaction between the better/worse variable and the degree of liking, $F(1,21) = 9.12, p. < .001$. Table 8 displays the

means associated with this interaction. As Table 8 shows, participants in the better condition reported liking their partner more than subjects in the worse condition.

Question 8 Will subjects in the cooperative condition like their partners more than subjects in the competitive condition? This question was first tested by comparing the CA cooperative group to the BA competitive group.

A One-way ANOVA revealed a significant interaction between the cooperative/competitive variable and degree of liking, $F(2,44) = 7.00, p. < 01$. Table 9 displays the means associated with this interaction. As Table 9 shows, the participants in the cooperative condition reported liking their partners more than participants in the competitive condition did. Next, this question was tested by comparing the AC cooperative group to the BC competitive group. Again, the one-way ANOVA revealed a significant interaction between the cooperative/competitive variable and degree of liking, $F(2,44) = 9.08, p. < 01$. Table 9 displays the means associated with this interaction. As Table 9 shows, participants in the cooperative condition reported liking their partners less than participants in the competitive condition did.

Discussion

Competitive Human Relations

In competitive human relations, people are said to be motivated to maximize the difference between their outcome and the outcomes of others (Komorita & Parks, 1994). In most competitive situations, people desire to outperform their competitors. In the present study, participants in the competitive condition were told that they either did or did not perform better than a partner. Participants in the BC competitive condition performed better than their partner while participants in the BA competitive condition performed worse than their partner.

At baseline, subjects in both conditions reported that they would experience joy if they received a B in a college course, and no subject reported anger as an emotional response to a B. After reading a scenario in which the participant performed either better or worse than a competitive partner, however, some participants felt differently about the grade of B. Subjects in the BC condition still reported joy as their emotional response to the grade of B, but subjects in the BA condition reported no joy in response to receiving a B and most of their emotional responses were classified as anger responses.

Based on these results one may conclude that social comparisons of different types elicit emotional reactions of different types. Subjects in the BC condition were still pleased with their grade of B because they performed better than a similar other on a relevant dimension. Subjects in this condition were essentially forced into downward social comparison, and as Wills

(1991) proposed, enhanced feelings of subjective well-being ensued.

Participants in the BA condition, however, were forced to compare themselves to a competitor who outperformed them. The participants viewed the grade of B as less desirable when a similar other received a better grade. Festinger (1954) suggested that when one is unable to perform at the desired level, feelings of failure and inadequacy may result. It is possible that the participant's anger responses are related to feelings of inadequacy. Major, Testa, & Bylsma (1991) stated that upward social comparison is often an unpleasant experience and that people tend to experience anger and resentment when they find that similar others are doing better than themselves. The results of the present research certainly show support for this contention. All of the participants in the BA competitive condition expressed some form of anger and/or resentment when they discovered that their partner was better-off than themselves.

Major et al. (1991) also remarked that most of the studies which have found that upward social comparisons result in negative affect have included experimental conditions which did not allow the participant to feel that he or she had control over the outcome. Testa and Major (1990) examined the affective responses of two different groups of subjects to upward social comparisons. Testa & Major found that persons who believed they had little control over their outcome exhibited greater

depressive and hostile affect than persons who were led to believe that they would have the opportunity to improve their situation. The present study employed a methodology that did not offer the participants hope for improvement. It is possible that the differences between the affective responses of the participants in the BA/BC conditions would have been less dramatic had we provided them with the possibility to improve their outcome at a later time.

Cooperative Human Relations

In cooperative relations, humans are said to be motivated to maximize joint gains (Komorita & Parks, 1994). In the AC cooperative condition, the subject earned an A for their work, but because their cooperative partner earned a C, the final grade for both partners was a B. In the CA cooperative condition the subject earned a C and the partner earned an A, but the final grade was a B for both partners.

At baseline, all subjects reported that they would experience some form of joy if they were to receive a B in a college course, and no subject reported that they would be angry if their course grade was a B. However, after reading a scenario in which their grade was averaged with a cooperative partner's grade, subjects felt differently about the grade of B. Subjects in the CA condition still reported joy, although not at the level of their baseline reports. Subjects in the AC condition reported almost no joy.

The majority of their emotional responses were classified as falling under the heading of anger.

From these results, one may conclude that the outcomes of others are capable of negatively impacting our emotional response to situations which we once believed satisfactory. Lazarus (1994) suggested that if a relationship involves a threat to goal attainment, negative emotions will result, and if a relationship promotes goal attainment, positive emotions will result. The results of the present research strongly support Lazarus' proposal. Subjects who were hindered by their cooperative relations reported negative emotions while subjects who benefited from their cooperative relations reported positive emotions.

The results of the analysis of cooperative human relations and their emotional consequences have particular bearing on present trends in organizational settings. Many companies are beginning to employ team-based compensation measures which seek to distribute rewards on the basis of team performance (Baron & Pfeffer, 1994). Although subjects in the present study were asked to list their emotional responses to a cooperative situation, they frequently listed words and phrases such as "unfair," "mistreated," and "cheated out of the grade I deserved." These comments, made by participants in cooperative situations in which the participant's grade was lowered by the performance of a teammate, suggest that the participants felt that the cooperative condition resulted in an unfair distribution of rewards

(in this case, grades). Previous research suggests that when the procedures used to determine reward distribution are perceived as unfair, employees report lower job satisfaction and organizational commitment (Singh, 1994). Managers considering the implementation of team-based compensation should consider the effects that certain types of cooperative human relations can have on affect and the perception of justice within the workplace.

Competitive versus Cooperative Relations

To examine the differences between the emotional responses of those in competitive relationships and those in cooperative relationships, comparisons were made between two different sets of cooperators and competitors. First, we compared the CA cooperative group to the BA competitive group. In both the cooperative condition and the competitive condition, subjects received a final grade of B. Although both groups reported baseline feelings of joy at the prospect of receiving a B, the groups felt differently after reading the cooperative or competitive scenario. The subjects in the cooperative group still reported feelings of joy, but the subjects in the competitive condition reported no feelings of joy. In fact, most of their feelings were classified as types of anger.

Next, we compared the AC cooperative group to the BC competitive group. Again, subjects in both conditions received a final grade of B. Subjects in both conditions reported baseline feelings of joy at the prospect of getting a B in a college course,

but once again, subjects felt differently after reading the scenario. Subjects in the competitive condition still reported feelings of joy, but subjects in the cooperative condition reported no feelings of joy; subjects in the cooperative condition reported feelings of anger.

These mixed results can be explained in terms of the impact that the partner's grade had on the outcome of the cooperative participant. Most likely, participants in the cooperative CA condition reported feelings of joy because their partner's grade had a positive impact on their final outcome; the subject's grade was higher than it would have been without the help of the partner. Participants in the AC cooperative condition reported feelings of anger, however, because their partner's grade had a negative impact on their final outcome; their grade was lower than it would have been without the presence of the partner. In the first case, the partner helped the cooperator achieve the goal of getting the best grade possible, and in the second case, the partner hindered goal achievement.

Positive and Negative Regard for One's Partner

Deutsch (1949a) hypothesized that when an individual performs an action that results in his or her moving away from a goal, his or her cooperative partner will regard the action and the individual negatively. When the individual who performs an action that results in moving away from goal attainment is a competitor, however, the other competitors are expected to be

pleased with the action and ambivalent or positive in regard to the person performing the action.

The results of the present study support Deutsch's hypotheses. Participants in the cooperative condition stated that they liked their partner if the partner's grade improved the participant's final outcome. However, when the partner's grade lowered the participant's final outcome, the participant reported disliking the partner. Similarly, participants in the competitive condition reported liking the partner only if the participant's grade was higher than the partner's grade. When the participant's grade was lower than the partner's, the participant reported disliking the partner.

General Discussion

Although the primary focus of the present study was on changes in emotional response from one basic emotion to another, (such as a change from joy to sadness), we also wanted to examine changes over time within one basic emotion category. As reported in the results section, there were changes in the types of emotion words reported by participants, but these changes were not always significant. The changes were interesting and interpretable, however. The emotion words reported by the participants at baseline were words that reflected the participant's emotional response to a certain grade irrespective of the influence or grade of another person. The

emotion words reported by the participants after reading the assigned scenario, however reflected the presence of another individual. For example, after reading the scenario, participants often reported feeling "embarrassed," "jealous," and "guilty." These three words represent emotions which generally imply the presence of another person.. Therefore, some of the differences in the emotion words reported by participants may be attributed to the fact that participants first reported their emotional response to a grade while in a social vacuum and then later reported their emotional response to a grade while in a social situation.

Originally, we expected participants to report emotion words from five of the six basic emotions, joy, surprise, anger, sadness, and fear (the sixth basic emotion is love which we did not expect to be reported, and it was not). When asked to report their emotional responses to their assigned situation, however, very few subjects reported fear or surprise. The lack of reports of fear is, in fact, consistent with the emotion literature. An international survey of attitudes towards emotions revealed fear as the most dreaded emotion. Furthermore, subjects from all of the countries included in the survey reported experiencing sadness, anger, disgust, shame, and other negative emotions far more than fear (Izard, 1971). Izard (1971) suggested that experiencing fear may be so dreadful that we actively avoid feeling and thinking about it. If humans truly do avoid thinking about fear it is not surprising that very few subjects reported emotion words related to fear.

Surprise was also reported infrequently. One possible reason for this is that there are few words in our language which may be used to express surprise. Shaver et al. (1987) found that participants reported only amazement, astonishment, and surprise as emotion words frequently used to express surprise. Additionally, to experience surprise one must have certain expectancies which turn out to be inaccurate (Izard, 1991). It is unlikely that the participants in the present study expected any particular outcome, and therefore it is unlikely that they would experience surprise. Finally, some researchers of emotion have debated over whether or not surprise should even be considered an emotion (Izard, 1991). Perhaps surprise is not commonly thought of as an emotion, and if this is the case, it is unlikely that a participant would report surprise when asked to list emotions.

The goals of the present study were to investigate the manner in which social comparisons of different types elicit emotional responses of different types, and to discover whether these emotional responses differ as a function of one's relationship with a partner as a cooperator or competitor. The results, as explained above, support the idea that social comparisons of different types elicit emotional responses of different types.

The data, however, do not suggest that cooperative and competitive relations necessarily elicit different emotional reactions. Two factors appeared to influence the emotional

response of participants: 1) the performance of the participant relative to the performance of their partner 2) the impact that the partner's performance had on the outcome of the participant. It seems reasonable to suggest that one's relative performance may mediate emotional response in competitive situations while promotion/hindrance of goal attainment may mediate emotional response in cooperative situations. Future research should address the possibility that the processes that contribute to emotional responses in competitive and cooperative situations are fundamentally different.

One of the limitations of the present study was that a full factorial analysis could not be performed because of a flaw during data collection. As stated previously, data collected at baseline were not always completely compatible with the data collected after the participants read their assigned scenarios. Perhaps the relationship between emotion and cooperation and competition could be more clearly defined by a study which permits a full-factorial analysis. Future research should use the present study as a stepping-stone. The present study demonstrated that there is an interesting relationship between social comparison, emotion, and cooperation/competition. The next step should be to move away from the abstract toward the concrete by abandoning imagery as a means of evoking emotion and actually placing the participant in a situation where he or she is allowed to compete and cooperate with other individuals. Once the participant is

actually placed in the emotionally provocative situation, he or she will no longer be speculating about the emotions they might feel, but will actually be able to report the emotions experienced as a result of the experimental manipulation.

The present study connected the emotion, social comparison, and cooperation/competition literatures and demonstrated that each has bearing on the other. The present research offers support to the cognitive appraisal theory of emotion and Deutsch's theory of cooperation and competition by demonstrating that promotion and hindrance of goal attainment can have an impact on affect and regard for a similar other. This thesis offers its most valuable contribution to the social comparison literature, however. Researchers of social comparison theory are really just beginning to investigate the affective and behavioral consequences of different types of social comparisons. The present study supports the research that has already been done in this area and also offers fertile ground for additional research.

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Appendix A

1. How would you feel if you received an A in a college course? Please list between 3 and 5 emotions.

2. How would you feel if you received a B in a college course? Please list between 3 and 5 emotions.

3. How would you feel if you received a C in a college course? Please list between 3 and 5 emotions.

Appendix B

You are taking a course for college credit, and your professor informs you that you have been assigned a partner to compete against. Throughout the semester you receive reports about how you are doing in the course and about how your competitor is doing. Although you naturally want to do well in the course, your professor stresses to you that you should always try to do better than your competitor. Under this professor's grading system, you and your competitor cannot receive the same grade; one of you will get a higher grade than the other. At the end of the course your professor gives you a piece of paper with the following statements:

Outcome 1

Your course grade was an A.

Your partner's course grade was a B.

Outcome 2

Your course grade was a B.

Your partner's course grade was an A.

Outcome 3

Your course grade was a B.

Your partner's course grade was a C.

Outcome 4

Your course grade was a C.

Your partner's course grade was a B.

Outcome 5

Your course grade was an A.

Your partner's course grade was a C.

Outcome 6

Your course grade was a C.

Your partner's course grade was an A.

You are taking a course for college credit and your professor informs you that you have been assigned a partner. You are to complete assignments that you and your partner must work on cooperatively. Throughout the semester you and your partner study for all of the tests together, write you papers together, and complete all of the other assignments by working together. Your professor requires that you work together on all projects, but you must turn in your work separately meaning that your papers and tests are in your own words and your partner's are in his or her own words. Your professor tells you that at the end of the course your course grade will be the average of your grade and your partner's grade. On the last day of class your teacher hands you a piece of paper which says the following:

Outcome 1

Your course grade was an A.

Your partner's course grade was a B.

Your final course grade (after averaging) will be an B+.

Outcome 2

Your course grade was a B.

Your partner's course grade was an A.

Your final course grade (after averaging) will be a B+.

Outcome 3

Your course grade was a B.

Your partner's course grade was a C.

Your final course (after averaging) grade will be a C+.

Outcome 4

Your course grade was a C.

Your partner's course grade was a B.

Your final course grade (after averaging) will be a C+ .

Outcome 5

Your course grade was an A.

Your partner's course grade was a C.

Your final course grade (after averaging) will be a B.

Outcome 6

Your course grade was a C.

Your partner's course grade was a A.

Your final course grade (after averaging) will be a B.

Appendix C

1. On the following scale indicate how cooperative or competitive you think your relationship was with your partner. Circle a number below.

1	2	3	4	5	6	7	
extremely cooperative						extremely competitive	

2. Please write down the grade that you and your partner received.

Self _____

Partner _____

3. How would you feel if you were in this situation? Please list between 3 and 5 emotions.

1. _____

2. _____

3. _____

4. _____

5. _____

4. How do you think your partner would feel? Please list between 3 and 5 emotions.

1. _____

2. _____

3. _____

4. _____

5. _____

1. Gender (please circle): male female

2. Age _____

3. Year in school (please circle):

 first year sophomore junior senior

4. Ethnicity _____

5. College G.P.A. _____

If this is your first semester, please report your expected G.P.A.

Appendix E

Given the described situation, please indicate the extent to which you would experience the underlined emotion.

1. I would experience cheerfulness.

1	2	3	4	5	6	7
definitely						definitely not

2. I would experience excitement.

1	2	3	4	5	6	7
definitely						definitely not

3. I would experience contentment.

1	2	3	4	5	6	7
definitely						definitely not

4. I would experience pride.

1	2	3	4	5	6	7
definitely						definitely not

5. I would experience optimism.

1	2	3	4	5	6	7
definitely						definitely not

6. I would experience enthralment.

1	2	3	4	5	6	7
definitely						definitely not

7. I would experience relief.

1	2	3	4	5	6	7
definitely						definitely not

8. I would experience surprise.

1	2	3	4	5	6	7
definitely						definitely not

9. I would experience irritation.

1	2	3	4	5	6	7
definitely						definitely not

10. I would experience exasperation.

1	2	3	4	5	6	7
definitely						definitely not

11. I would experience rage.

1	2	3	4	5	6	7
definitely						definitely not

12. I would experience disgust.

1	2	3	4	5	6	7
definitely						definitely not

13. I would experience envy.

1	2	3	4	5	6	7
definitely						definitely not

14. I would experience torment.

1	2	3	4	5	6	7
definitely						definitely not

15. I would experience suffering.

1	2	3	4	5	6	7
definitely						definitely not

16. I would experience sadness.

1	2	3	4	5	6	7
definitely						definitely not

17. I would experience disappointment.

1	2	3	4	5	6	7
definitely						definitely not

18. I would experience shame.

1	2	3	4	5	6	7
definitely						definitely not

19. I would experience neglect.

1	2	3	4	5	6	7
definitely						definitely not

20. I would experience sympathy.

1	2	3	4	5	6	7
definitely						definitely not

21. I would experience horror.

1	2	3	4	5	6	7
definitely						definitely not

22. I would experience distress.

1	2	3	4	5	6	7
definitely						definitely not

Appendix F

This is a mini-study in decision making. You will be making choices by circling either the letter A, B or C. Questions or comments about this decision task or the instructions should not be made until everyone has completed it. Your choices determine the points you and someone else will receive. An example of a trial is displayed in the box below:

	A	B	C
You get	500	500	550
Other gets	100	500	300

In this example, if you chose A you would receive 500 points and the other person would receive 100 points; if you chose B, you would receive 500 points and the other 500; and if you chose C, you would receive 550 points and the other 300. There are nine trials. Please circle only one choice (A or B or C) for each trial. Remember, please do not make comments or ask questions about the following decision task until everyone has completed it.

- | | | | | | | | | | |
|----|------------|----------|----------|----------|----|------------|----------|----------|----------|
| 1) | You get | A
480 | B
540 | C
480 | 6) | You get | A
500 | B
500 | C
570 |
| | Other gets | 80 | 280 | 480 | | Other gets | 500 | 100 | 300 |
| 2) | You get | A
560 | B
500 | C
500 | 7) | You get | A
510 | B
560 | C
510 |
| | Other gets | 300 | 500 | 100 | | Other gets | 510 | 300 | 110 |
| 3) | You get | A
520 | B
520 | C
580 | 8) | You get | A
550 | B
500 | C
500 |
| | Other gets | 520 | 120 | 320 | | Other gets | 300 | 100 | 500 |
| 4) | You get | A
500 | B
560 | C
490 | 9) | You get | A
480 | B
490 | C
540 |
| | Other gets | 100 | 300 | 490 | | Other gets | 100 | 490 | 300 |
| 5) | You get | A
560 | B
500 | C
490 | | | | | |
| | Other gets | 300 | 500 | 90 | | | | | |

Table 1 Mean number of emotions reported across three emotion categories for participants in the BC competitive condition (better) and participants in the BA competitive condition (worse).

		BC		BA			
		Time 1	Time 2	Time 1	Time 2		
joy	M	1.63 (1.12)	.90 (1.22)	joy	M	1.83 (1.11)	.00 (.00)
anger	M	.00 (.00)	.09 (.30)	anger	M	.00 (.00)	1.75 (1.13)
sadness	M	.63 (1.02)	.27 (.46)	sadness	M	.25 (.43)	.75 (.75)

Note: SDs are reported in parentheses

Table 2 Mean number of emotions reported across three emotion categories for participants in the AC cooperative condition (better) and participants in the CA cooperative condition (worse).

		AC		CA			
		Time 1	Time 2	Time 1	Time 2		
joy	(M)	1.61	.07	joy	(M)	2.08	.91
		(1.21)	(.27)			(.99)	(1.08)
anger	(M)	.00	1.69	anger	(M)	.00	.08
		(.00)	(.94)			(.00)	(.28)
sadness	(M)	.23	.84	sadness	(M)	.16	.83
		(.43)	(.68)			(.38)	(.71)

Note: SDs are reported in parentheses.

Table 3 Mean number of emotions reported across three emotion categories for participants in the CA cooperative condition and participants in the BA competitive condition.

		CA Cooperative		BA Competitive			
		Time 1	Time 2	Time 1	Time 2		
joy	M	2.08	.91	joy	M	1.83	.00
		(.99)	(1.08)			(1.15)	(.00)
anger	M	.00	.08	anger	M	.00	1.75
		(.00)	(.28)			(.00)	(1.13)
sadness	M	.16	.83	sadness	M	.25	.75
		(.38)	(.71)			(.45)	(.75)

Note: SDs are reported in parentheses.

Table 4 Mean number of emotions reported across three emotion categories for participants in the AC cooperative condition and participants in the BC competitive condition.

		AC Cooperative				BC Competitive	
		Time 1	Time 2			Time 1	Time 2
joy	M	1.61	.07	joy	M	1.63	.90
		(1.12)	(.27)			(1.12)	(1.22)
anger	M	.00	1.69	anger	M	.00	.09
		(.00)	(.94)			(.00)	(.30)
sadness	M	.23	.84	sadness	M	.63	.27
		(.43)	(.68)			(1.02)	(.46)

Note: SDs are reported in parentheses

Table 5 Mean number of emotions reported for different types of sadness for participants in the CB cooperative condition.

	suffering	sadness	disappointment	guilt	neglect	pity
Time 1	.00	1.16	.50	.08	.00	.00
Time 2	.08	.25	.33	.33	.25	.00

Table 6 Mean number of emotions reported for different types of joy for participants in the AC competitive condition.

	happiness	excitement	contentment	pride	optimism	enthrallment	relief
Time 1	1.16	.41	.08	.25	.08	.00	.41
Time 2	.75	.16	.08	.25	.00	.00	.25

Table 7 Mean number of emotions reported for different types of anger for participants in the CA competitive condition.

	irritation	frustration	rage	disgust	jealousy	torment
Time 1	.06	.13	.33	.06	.00	.00
Time 2	.13	.13	.60	.00	.13	.00

Table 8 Participant's mean ratings of how much they like their partner.

	<u>M</u>	<u>SD</u>
AC Better (n=13)	5.23	1.09
CA Worse (n=12)	3.08	1.08
BC Better (n=11)	3.90	1.04
BA Worse (n=12)	4.66	.65

Note: Lower ratings indicate that the participants reported liking their partners while higher ratings indicate that the participants reported disliking their partners.

Table 9 Participant's mean ratings of how much they liked their partner.

	<u>M</u>	<u>SD</u>
CA Cooperative (n=12)	3.08	1.08
BA Competitive (n=12)	4.66	.65
AC Cooperative (n=13)	5.23	1.09
BC Competitive (n=11)	3.90	1.04

Note: Lower ratings indicate that the participants reported liking their partners while higher ratings indicate that the participants reported disliking their partners.