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Self-determination and the consequences of social comparison

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Abstract

The present research examined the consequences of social comparison as a function of individual differences in self-determination. Competing hypotheses were made regarding whether the effects of social comparison would be determined more by the tendency toward pressure and ego-defensiveness (higher controlled orientation), by the absence of choice and unconditional positive self-regard (lower autonomy orientation), or both. A forced comparison was created in which 79 college students completed a word finding task and received feedback about their performance along with that of a better or worse performing confederate. Autonomy orientation moderated comparison consequences such that less autonomous individuals experienced increased negative changes in affect and decreased self-esteem when paired with a better performing other. This was especially true, for affect, when participants had been told that the task was related to intelligence. Results provide preliminary support for integration of self-determination and social comparison theories.

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1. Introduction

Both self-determination theory (Deci & Ryan, 1985b, 1987, 1991, 2000) and social comparison theory (Festinger, 1954) address how one's performance, in combination with feedback from one's environment, impacts the self. Given the amount of attention that has been devoted to each of these theories, it is somewhat surprising that previous empirical work has not directly addressed the conceptual overlap between

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these theoretical traditions. The present research represents an initial step toward this objective by examining the consequences of social comparison as a function of individual differences in self-determination.

Self-determination theory focuses on motivations and intentions for engaging in behavior and assumes that individuals have innate psychological needs for autonomy, competence, and relatedness (Deci & Ryan, 1985b, 2000). From this perspective, motivation is viewed as multifaceted rather than as a unidimensional quality. For example, while one individual may be motivated to engage in an activity out of interest or because the activity is personally valued, another individual may be equally motivated to engage in the same activity to procure a reward, avoid punishment or rejection, or as an attempt to live up to perceived expectations. Individual differences in self-determination are thought to emerge over time as a function of individual predispositions combined with exposure to factors in the environment that serve to either control behavior or support autonomy (Deci & Ryan, 1985b).

Environmental factors that typically result in positive emotional consequences and more self-determined motivation include provision of choice (Swann & Pittman, 1977; Zuckerman, Porac, Lathin, Smith, & Deci, 1978), and support of autonomy (Deci, Nezlek, & Sheinman, 1981a; Deci, Schwartz, Sheinman, & Ryan, 1981b). In contrast, controlling factors such as rewards (Deci, Koestner, & Ryan, 1999), threats and deadlines (Amabile, DeJong, & Lepper, 1976), surveillance (Lepper & Greene, 1975; Plant & Ryan, 1985), and evaluation (Benware & Deci, 1984; Harackiewicz, Manderlink, & Sansone, 1984) typically result in reduced self-determination. Ryan (1982), for example, found that manipulating the salience of evaluative implications for task performance by telling some students that the task was related to intelligence subsequently reduced their intrinsic motivation for the task.

1.1. Causality orientations

Individual differences in self-determination have frequently been examined by assessing causality orientations (Deci & Ryan, 1985a). Causality orientations have been described as three general motivational orientations: autonomy orientation, controlled orientation,¹ and impersonal orientation. The autonomy and controlled orientations are both positively associated with level of motivation. Being higher on either of these indicates more motivation, although they differ distinctly in quality. The impersonal orientation focuses on a relative absence or lack of motivation and was not of interest in the present study. While autonomy and controlled orientations each address independent aspects of self-determination, autonomy can generally be thought of as a positive indicator of self-determination whereas controlled orientation can be thought of as a negative indicator of self-determination.

¹ While originally termed control orientation (Deci & Ryan, 1985a, 1985b), we have chosen the term controlled orientation in an effort to help reduce confusion of this orientation with the numerous other “control” constructs (see Skinner, 1996 for a review of this issue). Also, note that Ryan and Deci (2002) use the term controlled orientation.

The autonomy orientation involves the experience of choice and is theoretically associated with a more integrated, non-contingency-based sense of self. Thus, more autonomous individuals are thought to perceive performance feedback as useful information rather than as a potentially ego-threatening indicator of self-worth (Deci & Ryan, 1987, 1991; Koestner & Zuckerman, 1994). Autonomy-oriented individuals are assumed to seek out behaviors based on the awareness of needs and goals consistent with the integrated self-concept and to seek situations that allow behavioral choices. Autonomy is associated with more openness to information (Hodgins & Knee, 2002) and has been associated with less self-derogation (Deci & Ryan, 1985a), better emotional health, vitality, and well being (Reis, Sheldon, Gable, Rosco, & Ryan, 2000; Sheldon, Ryan, & Reis, 1996). The autonomy orientation has been found to be positively related to self-actualization, supporting autonomy in children, private self-consciousness, ego-development, interest, and self-esteem; and negatively related to self-derogation, hostility, guilt (Deci & Ryan, 1985a), and boredom proneness (Farmer & Sundberg, 1986). Thus, autonomous individuals tend to be growth-oriented and maintain stable, favorable, and non-contingent self-views. At the same time, these individuals are more supportive in fostering these traits in others.

In contrast, the controlled orientation is associated with experiencing a lack of true choice and with regulating behaviors based on pressures and contingencies either in the environment or within the individual (Deci & Ryan, 1985a, 1985b, 1987, 1991). Environmental controls include contingencies (e.g., rewards or punishments for specific behaviors), rigid direction of behavior, and salient evaluative contexts. Internal controls are experienced as internal pressures to behave in a particular way (e.g., feeling that one should, ought, or must behave in a certain way based on feelings of guilt, obligation, or perceived expectations). Controlled individuals chronically perceive pressures from the environment and tend to react in an ego-defensive manner (Hodgins & Knee, 2002).

Thus, individuals who are more autonomous tend to regulate their behaviors according to interests, values, and choice. Individuals who are more controlled tend to regulate their behaviors according to pressures, contingencies, and perceived expectations. As discussed by Deci and Ryan (1985b, 1991) these constructs are distinct from seemingly related constructs such as locus of control (Rotter, 1966) and self-efficacy (Bandura, 1977). The autonomy orientation is distinct from self-efficacy, which refers to the degree to which individuals believe they can obtain some outcome (Deci & Ryan, 1991). A student may be high in self-efficacy, believing that he or she can achieve good grades, while being low in autonomy orientation, to the extent that his/her desire for good grades is motivated by factors other than interest, enjoyment, or self-improvement. Similarly, a student may be high in self-efficacy and high in controlled orientation, to the extent that a desire for good grades is driven by controlling factors like monetary rewards or social approval. Locus of control refers to perceived behavior-outcome dependence. Internals believe that their behavior is reliably associated with outcomes whereas externals believe that outcomes are relatively independent of behavior. External locus of control is moderately correlated with controlled orientation ($r = .29$, Deci & Ryan, 1985a) but these constructs are far from equivalent. The moderate relationship is probably due in part to a greater

tendency for controlled individuals to defensively attribute negative outcomes to external causes (Knee & Zuckerman, 1996). Extending the example above, a student who attributes good grades to internal causes (e.g., effort and/or ability) might be motivated to obtain them either by autonomous (e.g., interest) or controlling (e.g., perceived expectations of parents) factors.

1.2. Causality orientations and esteem-maintenance processes

Research has shown that individual differences in self-determination moderate many esteem-related social processes including impression management (Hodgins, Liebeskind, & Schwartz, 1996b), defensiveness in social interactions (Hodgins, Koestner, & Duncan, 1996a), peer pressure (Knee & Neighbors, 2002), self-serving bias (Knee & Zuckerman, 1996), defensive coping and self-handicapping (Knee & Zuckerman, 1998), and ego-defensive and aggressive reactions in driving situations (Knee, Neighbors, & Vietor, 2001; Neighbors, Vietor, & Knee, 2002). In examining the relationship between self-determination and impression management, Hodgins et al. (1996b) focused on the extent to which individuals would choose between defending their own face, or social identity, versus helping to repair another person's face. Participants who were higher in controlled orientation were more likely to choose the ego-defensive route by repairing their own face. Autonomous participants, on the other hand, focused more on helping to repair damage to another person's face versus repairing their own. In addition, controlled individuals told more lies in response to face threat than did autonomy-oriented individuals. Elsewhere, autonomy has been associated with honesty and openness in social interactions, whereas controlled orientation has been associated with defensiveness in social interactions (Hodgins et al., 1996a).

With regard to specific esteem-maintenance strategies, causality orientations have been found to moderate self-serving bias (Knee & Zuckerman, 1996), defensive coping, and self-handicapping (Knee & Zuckerman, 1998). Knee and Zuckerman (1996) found that individuals who were both higher in autonomy and lower in controlled orientation (self-determined) did not make self-serving attributions as a function of their performance. These self-determined individuals made similar attributions after success and failure. In contrast, all other individuals took more responsibility for success than failure, thus engaging in self-serving bias. Consistent with these findings, Knee and Zuckerman (1998) found that individuals who were both higher in autonomy and lower in controlled orientation exhibited lower levels of defensive coping, especially denial, compared to all other individuals. In addition, these same individuals exhibited lower levels of self-handicapping than all other participants. The latter finding is consistent with earlier research which showed that controlled orientation was positively related to ratings of importance for achievement on a task but negatively related to reported effort on the task (Deci & Ryan, 1985b).

Further evidence of the relation between esteem-maintenance and motivational orientations comes from Koestner and Zuckerman's (1994) examination of the relationship between motivational orientations and Dweck and Leggett's (1988) social cognitive theory of achievement. Autonomous students tended to adopt learning

goals whereas controlled students were more likely to adopt performance goals. In addition, performance on an achievement task was unrelated to persistence among autonomous individuals. In contrast, controlled individuals showed increased persistence following failure feedback. Presumably, controlled participants perceived the failure feedback as a threat to self-esteem and responded with persistence in hopes of repairing their self-image. In contrast, participants who were high in autonomy orientation felt no threat to self-esteem and no subsequent need to persist in response to failure feedback. Thus, research has shown that both autonomy and controlled orientations influence how individuals perceive, interpret, and react to potentially ego-threatening information. However, no research has yet explicitly examined this in the context of social comparison.

One of the central features in social comparison research has been the distinction between comparisons with others who are of higher standing on some dimension (upward comparison) versus comparisons with others who are worse off in some way (downward comparison). The traditional (“neo-classic”) assumption suggested a negative relationship between comparison direction and affect, with downward comparisons resulting in positive consequences to the self and upward comparisons resulting in negative consequences (Suls & Wheeler, 2002). Accordingly, comparing oneself with a person of lower standing can be ego-bolstering, whereas comparison with a higher standing other is presumably ego-threatening. In recent years, researchers have revealed that the consequences of social comparison cannot be inferred from direction alone and in fact “either direction has its ups and downs” (Buunk, Collins, Taylor, VanYperen, & Dakof, 1990; Collins, 1996). These researchers and others have argued that the direction of comparison may be less important than the underlying motivation for the comparison (e.g., self-evaluation, self-enhancement, and self-improvement) and the way in which the information is construed.

1.3. Overview and hypotheses

The present study was designed to examine the relationships among self-determination and social comparison processes in a controlled laboratory setting. This study focused on the affective and esteem-related consequences of social comparison. Of specific interest were the influence of one’s own performance and the influence of a comparison target’s performance (relative to one’s own) on affect and state self-esteem. We expected, consistent with the traditional view, that a comparison target’s performance, relative to one’s own, would be negatively related to changes in subjective well being. Thus, we predicted that better performances by comparison targets would lead to decrements in self-esteem and increased negative affect whereas worse performances by comparison targets would lead to positive changes in subjective well-being. We also predicted that one’s own performance would have an independent effect on subjective well being. Individuals performing better on a task were expected to feel better about themselves than those doing poorly, regardless of the comparison target’s performance.

In predicting the impact of causality orientations on the relationship between a comparison target’s performance and subjective well-being, we held competing

hypotheses, given that autonomy and controlled orientations are independent (Deci & Ryan, 1985a). Because controlled orientation is associated with pressure and defensiveness, one might expect that being higher in controlled orientation would accentuate the effects of doing relatively better or worse than a comparison target. One might alternatively expect, because autonomy is associated with choice and unconditional positive regard, that being lower in autonomy would accentuate the effects of social comparison. The resulting question was whether the effects of social comparison are determined more by the tendency toward pressure and ego-defensiveness (controlled orientation), by the absence of choices and unconditional positive regard (autonomy orientation), or both.

We were also interested in examining whether manipulating ego-involvement by varying the evaluative implications of the task would impact the relationship between self-determination and social comparison consequences. Specifically, we expected that the differential impact of a comparison target's performance on subjective well-being as a function of autonomy and/or controlled orientations would be more extreme when evaluative implications of task performance were salient.

Finally, we wished to provide discriminant validity. Self-determination shares conceptual overlap with other constructs that are presumably relevant to social comparison. The most obvious of these is trait self-esteem which is associated with greater autonomy (Deci & Ryan, 1985a, 1985b; Knee & Neighbors, 2002) and has been discussed and examined in relation to social comparison far more than any other individual difference (e.g., Aspinwall & Taylor, 1993; Gibbons & McCoy, 1991; Wheeler, 2002; Wheeler & Miyake, 1992; Wills, 1991). In addition, self-esteem has been viewed by some as a key moderator of ego-involvement (e.g., Baumeister, Heatherton, & Tice, 1993; Leary, Tambor, Terdal, & Downs, 1995). It is therefore important to demonstrate that consequences of social comparison related to self-determination are not duplicated and/or accounted for by trait self-esteem. In addition, social anxiety is associated with motivation, construal, and evaluation in social interactions (Schlenker & Leary, 1982) and was also considered in evaluating discriminant validity.

2. Method

2.1. Participants

Eighty-three undergraduate psychology students from the University of Houston participated in the study. Four participants expressed suspicion of the experimental manipulations during the debriefing and were excluded from all analyses. The remaining sample consisted of 79 students (59 women and 20 men). All students received extra credit in exchange for participation.

2.2. Procedure

Participants completed the procedure along with a confederate who played the role of a fellow participant and who served as a comparison target. For male partic-

ipants, a male assistant played the role of the confederate. For female participants, a female assistant played the role of the confederate. Hence, the sex of the confederate always matched the sex of the participant.

Upon entering the lab, the participant and confederate were seated across from each other at a small table. A file tray sat in the middle of the table, which kept the participant and confederate from being able to see each other's writing but did not otherwise obstruct their view of each other. After being given an overview of the study, which was described as an examination of personality, self-evaluation, and performance, participants completed a questionnaire packet, which included measures of causality orientations, affect, and performance state self-esteem.

After completing the questionnaire packet, participants were introduced to a word finding task. The task consisted of cartoon drawings by Al Hirschfeld, which contain his daughter's name, Nina, hidden in various places within the cartoons. These puzzles have been used in previous studies examining motivation (Elliot & Harackiewicz, 1996; Ryan, 1982). Participants were then given a sample puzzle, which they were allowed to work on for 2 min in order to become familiar with the puzzles.

2.3. Ego-involvement manipulation

We manipulated ego-involvement by varying the task description using the procedure described by Ryan (1982). Participants were randomly assigned one of two conditions. In the ego-involvement condition, participants ($N = 40$) were given instructions relating performance to intelligence:

The puzzles you will be working on involve the ability to break down and reorganize a perceptual field. This ability requires a flexibility of cognitive capacities that has been shown in previous studies to be highly associated with creative intelligence; in fact, such puzzles are even used as one component of many IQ tests. Thus, your performance on these puzzles should indicate at least one component of your general intelligence.

Participants in the control condition ($N = 39$) were given instructions that were approximately the same length but addressed the background of the puzzles:

The puzzles you will be working on are cartoons drawn by Al Hirschfeld. Hirschfeld's drawings are often satires of famous people and have been regularly included in numerous newspapers and popular magazines. In each drawing he hides his daughter's name, Nina, in at least one place. Throughout her childhood Nina spent many Sunday mornings looking for her name hidden in her father's newspaper cartoons.

Next, the participant and the confederate each received six different Nina puzzles (face down) and were given the following instructions:

Both of you have the same six Nina puzzles. You will have five minutes to work on these puzzles, but you may spend as much of that time as you wish on each puzzle. Circle each Nina that you locate and try to find as many Ninas as you can. At the end of the five minutes, your scores will be tabulated as the number of Ninas correctly located and I will report both of your scores to each of you. Please begin. You have five minutes.

Following the 5-min period, the experimenter collected the puzzles from the participant and the confederate and briefly went to the other side of the room

“to tabulate the results.” During this time participants completed a questionnaire, which included items asking participants how well they thought they did (I believe that I did well on the puzzles) and whether they believed the task related to intelligence (I feel that my performance on the puzzles will be an indicator of my overall intelligence) from 1 (strongly disagree) to 5 (strongly agree).

2.4. Comparison direction manipulation

Participants were randomly paired with either a better ($N = 41$) or worse performing confederate ($N = 38$). The participant was told the actual total number of Ninas he/she circled, but the confederate’s score was presented as being either higher (+5) or lower (–5). When the participant was paired with a better performing confederate, the confederate’s score was given first followed by their own score. For example, if the participant had located 17 Ninas, the experimenter first looked at the confederate and said, “You located 23 Ninas,” and then turned to the participant and said, “You were only able to locate 17 Ninas.” When the participant was paired with a worse performing confederate, the participant received their score first, after which the confederate was told, “You were only able to locate 12 Ninas.”

Participants were then asked to complete a subset of the initial questionnaire packet and were told that afterward they could compare each other’s puzzles, if they wished, to see which Ninas they were not able to locate that the other participant was, or which Ninas they located that the other participant did not. This statement was made to help ensure believability of the scores they received. The questionnaires included measures of affect and performance state self-esteem. Finally, participants were gently probed for suspicion, thanked, and debriefed.

2.5. Measures

2.5.1. Causality orientations

The revised version of the General Causality Orientations Scale (GCOS; Deci & Ryan, 1985a; Hodgins et al., 1996a) consists of 17 vignettes. Each vignette is followed by an autonomous response, a controlled response, and an impersonal response (the impersonal orientation was not of interest here). Participants rated each item on a 7-point scale in terms of the likelihood that they would make the given response from 1 (very unlikely) to 7 (very likely). For example, one of the vignettes is, “You have been offered a new position in a company where you have worked for some time. The first question that is likely to come to mind is:” The autonomy orientation is measured by the response, “I wonder if the new work will be interesting.” The controlled orientation is measured by the response, “Will I make more at this position?” Scores are computed for each subscale by summing the 17 responses. Reliability was satisfactory (α s were .74 for the autonomy orientation and .75 for the controlled orientation). Consistent with previous research autonomy and controlled orientations were uncorrelated ($r = .02$).

2.5.2. *Affect*

Affect was measured using a brief version of the Multiple Affect Adjective Checklist (MAACL; Zuckerman & Lubin, 1965). The shortened MAACL consisted of 32 adjectives. Eight adjectives tapped each of four emotions: anxiety (e.g., fearful), depression (e.g., lost), hostility (e.g., angry), and positivity (e.g., happy). Participants responded to the question, “Right now, to what extent do you feel...” for each adjective on a 7-point Likert-type scale (1 = not at all, 7 = very much). Affect was scored as the mean of all items after reversing negative affect items. Thus higher scores indicate positive emotion. Alphas for pre- and post-affect were .93 and .94, respectively.

2.5.3. *Performance state self-esteem*

We used the performance state self-esteem subscale of the Heatherton and Polivy (1991) state self-esteem scale to measure how participants felt about their performance and abilities. Performance state self-esteem is measured by 7 items. Respondents are asked to answer each question “as they are true for you RIGHT NOW.” Responses to each item are made on a Likert-type scale from 1 (*not at all*) to 5 (*extremely*). Example items include “I feel confident about my abilities,” and “I feel frustrated about my performance” (reversed). Alphas for pre- and post-performance state self-esteem were .85 and .84, respectively.

2.5.4. *Alternative constructs*

Measures of self-esteem and social anxiety were included to provide discriminant validity for self-determination effects. Self-esteem was measured by Rosenberg’s (1965) 10-item measure. Example items include “I am able to do things as well as most other people” and “I feel that I have a number of good qualities.” Participants respond to each item on a Likert-type scale from 1 (strongly disagree) to 5 (strongly agree). Reliability in this study was .88. Social anxiety was assessed by the social anxiety subscale of the Self-Consciousness Scale (Fenigstein, Scheier, & Buss, 1975). Sample items include “I get embarrassed very easily” and “I have trouble working when someone is watching me.” Items are rated on a Likert-type scale from 0 (extremely uncharacteristic) to 4 (extremely characteristic). Reliability in this study was .80.

3. Results

3.1. *Preliminary analyses*

Table 1 presents means and standard deviations of pre- and post-affect and performance state self-esteem scores by comparison condition. Overall, outperforming the confederate was associated with increased positive affect and state self-esteem whereas being outperformed had no overall impact on affect or state self-esteem.

3.1.1. *Perceptions of performance*

Recall that after the task was completed but before feedback was delivered, participants were asked the extent to which they believed the task was indicative of

Table 1
Changes in affect and performance state self-esteem

	Baseline Mean (SD)	Post-comparison Mean (SD)
Affect		
Upward comparison group	5.66 (.87)	5.71 (.80)
Downward comparison group	5.67 (.87)	5.91 (.80)**
Performance state self-esteem		
Upward comparison group	3.77 (.73)	3.78 (.62)
Downward comparison group	3.89 (.73)	4.09 (.62)**

Note. Affect was coded such that higher scores represent more positive affect. *** $p < .001$. Between group differences were apparent only for post-comparison state self-esteem, $t(77) = 2.16$, $p < .05$.

intelligence and how well they thought they had done on the task. We regressed each of these items, which were uncorrelated, on performance implication condition (1 = task described as intelligence related), task score, autonomy orientation, and controlled orientation. With regard to the first item, there was a main effect of autonomy such that individuals who were lower in autonomy orientation were more likely to perceive the task as indicative of intelligence, $t(74) = -3.46$, $p < .001$. However, there was no main effect for the ego-involvement manipulation. Thus, participants who were told the task was indicative of intelligence were not significantly more likely to believe that the task was indicative of intelligence, $t(74) = 1.38$, $p = .17$. Regarding performance perceptions, participants' scores were positively associated with believing they had done well on the task, $t(74) = 2.63$, $p = .01$, suggesting that, independent of the confederate's performance, those who did well on the task believed they had done well.

3.2. Primary analysis

We examined social comparison consequences using residual change hierarchical multiple regressions separately for affect and performance state self-esteem. In each analysis the criterion was the post-score on the relevant variable. The pre-score on the relevant variable was entered at step 1 as a baseline to translate the criterion into an analysis of residual or conditional change. Autonomy orientation, controlled orientation, participant score, confederate score, and performance implication salience were entered simultaneously. Ego-involvement was coded as a dummy variable (1 = task defined as indicative of intelligence). Two-way products were entered and interpreted at step 2 and three-way products were entered and interpreted at step 3.

3.2.1. Affective consequences

Results from step 1 revealed a main effect of confederate score, $\beta = -.22$, $t(72) = 2.03$, $p < .05$, revealing that lower confederate scores were associated with more positive changes in affect. Neither ego-involvement nor motivational orientations had a direct impact on post-comparison affect. Step 2 results revealed that the impact associated with confederate scores was moderated by autonomy

orientation, $t(62) = 2.01, p < .05$, but not controlled orientation. Specifically, among participants who were lower in autonomy, higher confederate scores had an adverse impact. Fig. 1 presents predicted post-comparison affect (controlling for pre-comparison affect), derived from the regression equation with low and high values on autonomy and confederate score defined as one SD below and above the mean respectively (Aiken & West, 1991). A synergistic contrast revealed that less autonomous participants paired with higher scoring confederates felt worse than anyone else, $t(76) = -2.21, p < .05$. The interaction between autonomy and the confederate's score was in turn moderated by ego-involvement, $t(52) = 2.65, p = .01$. Simple effects revealed that the two-way interaction between autonomy and the confederate's score was more prominent when the task had been described as indicative of intelligence, $t(28) = 3.27, p < .01$, but not when only background information had been provided, $t(29) < 1$.

To establish discriminant validity we conducted a series of analyses to determine whether the moderation effects observed for autonomy were duplicated by trait self-esteem or social anxiety. Neither variable interacted with confederate score in predicting changes in affect, nor did either of the three-way interactions with ego-involvement approach significance. In addition, we repeated the primary analyses simultaneously controlling for both of these variables. Results were essentially unchanged. Affect change associated with higher confederate scores was still moderated

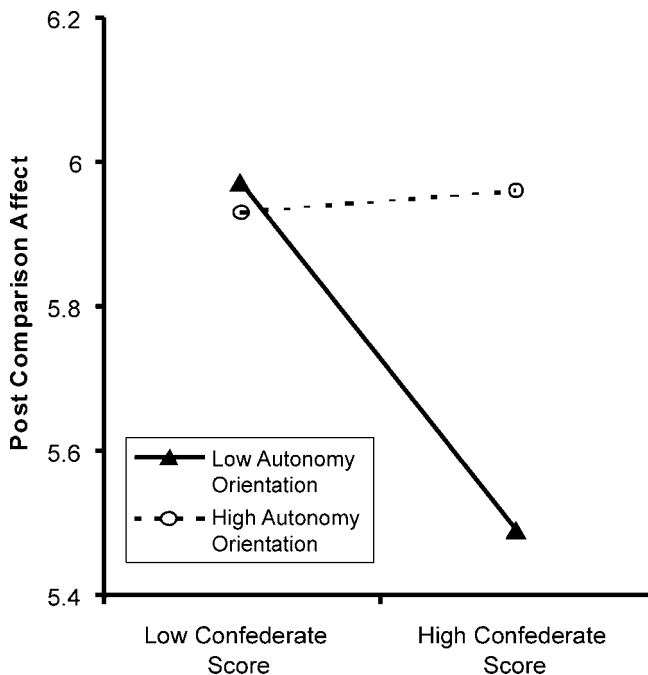


Fig. 1. Post-comparison affect as a function of autonomy and confederate's performance. Analyses controlled for pre-comparison affect.

(marginally) by autonomy orientation, $t(59) = 1.96, p < .06$ and the three-way interaction of autonomy, confederate score, and ego-involvement remained significant, $t(49) = 3.09, p < .01$.

3.2.2. State self-esteem

In examining changes in performance state self-esteem, step 1 revealed a main effect for confederate score, with higher confederate scores resulting in decreased performance state self-esteem, $\beta = -.32, t(72) = -2.98, p < .01$. In addition, a main effect of participant score revealed that scoring higher on the task resulted in increased performance state self-esteem independent of the confederate score, $\beta = .27, t(72) = 2.39, p < .05$.

Step 2 again revealed that the effect of confederate scores depended on autonomy orientation, $t(62) = 2.03, p < .05$, but not controlled orientation. Fig. 2 presents predicted post-comparison performance state self-esteem (controlling for pre-comparison state self-esteem) derived from the regression equation. The resulting pattern reveals that the negative impact of being paired with higher scoring confederates was only apparent among less autonomous individuals. Consistent with this interpretation, a synergistic contrast revealed that less autonomous individuals paired with higher scoring confederates had lower post-comparison performance state

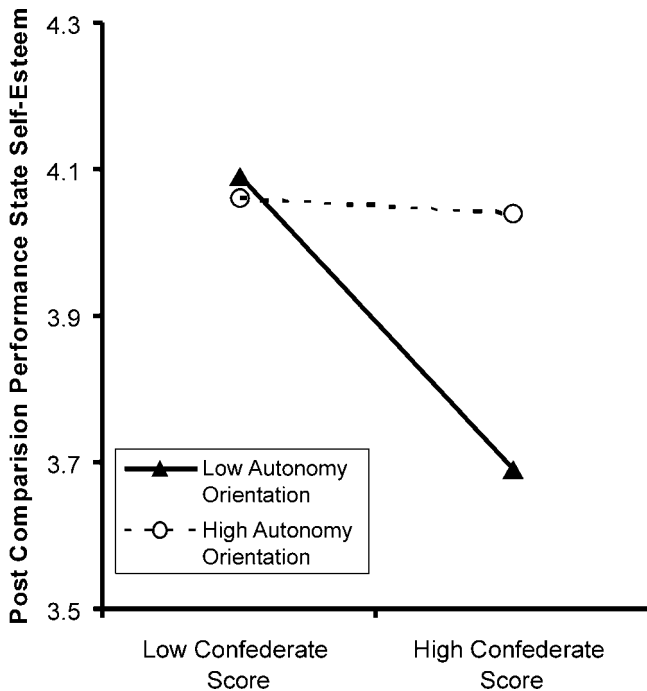


Fig. 2. Post-comparison performance state self-esteem as a function of autonomy and confederate’s performance. Analyses controlled for pre-comparison state self-esteem.

self-esteem than all other participants, $t(76) = -2.73$, $p < .01$. The interaction between participant and confederate score was also significant, $t(62) = -2.06$, $p < .05$, revealing that confederate scores had a larger impact on state self-esteem among higher scoring participants. Ego-involvement had no impact with regard to performance state self-esteem.

To establish discriminant validity, we again examined whether the moderation effect observed for autonomy was duplicated by trait self-esteem or social anxiety. Neither variable interacted with confederate score in predicting changes in performance self-esteem. When we repeated the primary analyses simultaneously controlling for trait self-esteem and social anxiety, the interaction between autonomy and confederate score was somewhat reduced, $t(59) = 1.84$, $p = .07$. However, the synergistic contrast remained significant revealing that less autonomous participants who were outperformed experienced reduced state self-esteem relative to all others, even when controlling for trait self-esteem and social anxiety, $t(73) = -2.40$, $p < .01$.

4. Discussion

The present study provided an experimental examination of the affective and esteem-related consequences of social comparison as a function of self-determination. Our findings were consistent with the traditional (“neo-classic”) view of ego-enhancing downward comparisons (e.g., Morse & Gergen, 1970; Wills, 1981; Wood, Taylor, & Lichtman, 1985). Our findings are also consistent with the more recent suggestions that upward comparisons may or may not be threatening depending on how they are construed (Collins, 1996, 2002). Also, consistent with expectations, participants’ performance had a unique impact on self-esteem, with those who performed better reporting increased performance state self-esteem, regardless of the comparison target’s performance. While comparison target performance impacted both state self-esteem and affect, the unique impact of one’s own performance was only evident for self-esteem consequences.

We found support for the central hypothesis that comparison consequences would vary as a function of individual differences in self-determination. Alternative hypotheses examined whether social comparison consequences would be more extreme among those lower in autonomy orientation, those higher in controlled orientation, or both. Results revealed that affect and performance state self-esteem were generally higher than baseline except when less autonomous individuals were paired with a better-performing confederate. We were also interested in whether this would be especially true when performance implications were made salient by describing the task as related to intelligence. While this hypothesis appeared to be supported regarding changes in affect, the fact that participants did not seem to believe the manipulation makes this particular finding difficult to interpret. It is important to note that the differential effects of upward comparisons as a function of autonomy were not duplicated by trait self-esteem or social anxiety, nor were they eliminated when controlling for either or both of these constructs. It is particularly compelling that autonomy effects were not duplicated by self-esteem given that self-esteem is

correlated with autonomy and has been suggested as a moderator of both social comparison and ego-involvement. This does not rule out the possibility of other potentially relevant third variable explanations, but it does provide a degree of confidence in the uniqueness of autonomy as a moderator of upward comparison effects.

While other research has shown controlled orientation to be more diagnostic in situations involving pressure and ego-threat (e.g., Hodgins & Knee, 2002; Knee & Neighbors, 2002; Neighbors et al., 2002), the present results support findings that being oriented toward autonomy is associated with more adaptive responses to failure feedback, openness to experience, stability of self-concept, emotions, and attitudes, and less defensiveness in stressful social situations (Bober & Grolnick, 1995; Hodgins & Knee, 2002; Hodgins et al., 1996a, 1996b; Koestner, Bernieri, & Zuckerman, 1992; Koestner & Zuckerman, 1994).

Why did comparing with a better performing other have more aversive consequences for less autonomous individuals but not for more controlled individuals? It is not clear why we did not find effects for the controlled orientation. While we can only speculate, one possibility concerns the strong relationship between controlled orientation and ego-defensiveness. It is possible that in this study, controlled individuals were affected by comparisons (especially upward) but were unwilling to express it. This is consistent with work that has shown controlled individuals to be more likely to engage in impression management. There are two plausible explanations for the differential effects of upward comparison as a function of autonomy. Upward comparisons are presumed to result in positive or negative consequences depending on whether they are construed as contrasts or assimilations (Collins, 1996, 2002). Contrasts between one's own performance and a better performing other are potentially ego-threatening. Among individuals who were more autonomy oriented, the potentially ego-threatening nature of forced upward comparisons may lose its bite. Being autonomy oriented may serve as a buffer against potentially threatening social comparisons. Autonomy-oriented individuals may be less likely to define themselves according to external criteria as evidenced by the negative relationship between autonomy orientation and perceiving one's performance as indicative of intelligence. This is consistent with the notion that low levels of self-determination are associated with the development of contingent self-esteem, where positive self-regard is contingent upon meeting external or internally imposed standards (Deci & Ryan, 1995).

Alternatively, when presented with performance feedback indicating that a comparison target has performed relatively well, individuals can perceive similarity between themselves and the target. Assuming similarity with another who has performed relatively well is likely to have a positive impact on self-evaluation. Individuals who are more autonomous may be especially likely to engage in upward assimilation. Higher autonomy has been associated with greater openness and cohesion (versus distance) in response to interpersonal conflict (Hodgins et al., 1996b; Knee, Patrick, Vietor, Nanayakkara, & Neighbors, 2002). However, because less autonomous individuals in the upward comparison condition were the only participants who did not feel better following comparison, we are inclined to emphasize the former explanation. Additional research may compare both possibilities in more detail.

It is interesting that making performance implications salient accentuated the differential effects of autonomy on social comparison consequences, even though participants in this condition did not believe that the task indicated intelligence significantly more than those in the control condition. Although the suggested relationship between performance and intelligence did not translate to reported perceptions, it may have created a performance-oriented context, in which less autonomous individuals were more susceptible to the effects of performance feedback (Koestner & Zuckerman, 1994). Another possibility, however, is that participants in the ego-involvement condition may have been motivated to deny the diagnosticity of the task. In this study, participants knew in advance that their performance was going to be evaluated. Those who were told the task related to intelligence may have preemptively denied its diagnosticity. Previous authors have suggested that individuals who are ego-involved prior to receiving feedback may defensively (and preemptively) deny diagnosticity (Nicholls, 1984; Ryan, Plant, & Kuczowski, 1991).

Despite the questions concerning the ego-involvement manipulation, results were generally consistent with our expectations. These findings are consistent with previous work on both self-determination and social comparison. However, our work is unique in that it provides a preliminary step towards integrating these large and diverse literatures. Still, it is important to identify some of the limitations of the study. First, a single and relatively small sample of college students was examined here. It is unclear whether these findings will generalize to more diverse populations. Another limitation was the artificial nature of the experiment. While forced comparisons may be more difficult to study outside of a controlled setting, the extent to which our findings will generalize to naturally occurring forced comparisons requires further study. In addition, consequences of cross-sex social comparisons were not examined in the present study.

The present research provides the first empirical integration between two extensive literatures. Additional questions regarding the relationships between self-determination and social comparison await exploration. This research examined individual differences in a forced comparison situation. Perhaps individual differences in self-determination distinguish how often and with whom comparisons are made. It is also possible that self-determination relates to specific motives for engaging in social comparison (e.g., self-enhancement versus self-improvement). The present study is an initial step toward integrating self-determination and social comparison, and several avenues remain for future research.

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