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# Connecting the Horizontal Dimension of Social Comparison With Self-Worth and Self-Confidence

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*Multilevel modeling of undergraduates (N = 229) event-contingent records of naturalistic social comparison experiences revealed distinct correlates of the horizontal (similar-different) dimension and vertical (better-worse) dimension of comparisons. Complementing past studies showing associations between the horizontal dimension and communal dispositions and experiences, the current study showed that the horizontal dimension also is associated with agentic dispositions and experiences such as self-worth and self-confidence. For example, participants perceived more similarity when comparing with targets' desirable attributes than with targets' undesirable attributes and perceiving similarities with desirable target attributes (and dissimilarities with undesirable target attributes) enhanced their self-confidence. Participants higher in self-worth (high in self-esteem and low in depression) were more discriminating in their experiences of similarity and connection; specifically, they reported more similarity and connection when targets' attributes were desirable but less connection the more targets' attributes were inferior to their own.*

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**Keywords:** social comparison; agentic; communal; social desirability; self-worth

Social comparison has been defined as “the process of thinking about information about one or more other people in relation to the self” (Wood, 1996, p. 521). An extensive literature suggests that people conceptualize “other people in relation to the self” in terms of two broad, independent dimensions—a “vertical” dimension of status, dominance, or agency and a “horizontal” dimension of solidarity, friendliness, or communion (e.g., Brown, 1965; Foa & Foa, 1974; Horowitz, 2004; Wiggins & Trobst, 1999). If so, social comparison should involve locating others in relation to the self along a vertical dimension of status and a horizontal dimension of solidarity. Indeed, naturalistic research suggests that approximately half of social comparisons are “vertical

comparisons” that focus primarily on whether the comparison target is better than the self (an upward comparison) or worse than the self (a downward comparison), whereas the other half are “horizontal comparisons” that focus primarily on whether the target is similar to the self (a connective comparison) or different from the self (a contrastive comparison) (Locke, 2003).

Naturalistic studies also indicate that horizontal and vertical comparisons have distinct situational predictors and distinct emotional consequences. As an example of a situational predictor, when people make comparisons during interactions they tend to feel neither better off nor worse off than the target and instead their primary concern is “Are we similar? Can we understand and connect with each other?” (Locke & Nekich, 2000). Comparing hard-to-rank attributes—such as attitudes, feelings, personalities, lifestyles, and preferences (e.g., “she likes Thai food, whereas I prefer Mexican food”)—has the same effect, and whereas most experimental studies of comparison rely on easy-to-rank attributes—such as test scores or wealth—more than half of the spontaneous comparisons in these naturalistic studies involved hard-to-rank attributes. As an example of distinct emotional consequences, horizontal comparisons were better predictors of connected feelings than self-confident feelings, whereas the reverse was true for vertical comparisons (Locke, 2003). Also, the emotional impact of horizontal comparisons was greater and the impact of vertical comparisons was (under some circumstances)

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weaker for people who placed great importance on interpersonal communion (Locke, 2003).

Most social comparison research has emphasized the vertical dimension and neglected the horizontal dimension. Whereas distinguishing the emotional and motivational antecedents and consequences of upward and downward comparisons has probably received more attention than any other topic in the social comparison literature (see Collins, 1996; Wills, 1991), the social comparison literature has devoted little attention to the horizontal dimension. When the horizontal dimension has been assessed, it typically has been to predict the targets and outcomes of vertical comparisons. For example, although a number of studies have tested whether people prefer comparison targets who are similar in some way (for an overview, see Wheeler, Martin, & Suls, 1997), this research conceptualized similarity as a moderator of the informational or emotional importance of the comparison rather than as a focus of the comparison itself. As another example, although a number of studies have tested whether perceiving similarities facilitates assimilation versus contrast effects following social comparisons (Mussweiler, 2003), this research again conceptualized similarity solely as a moderator of the self-evaluative effects of vertical comparisons.

My previous research sought to redress this imbalance by showing that connective and contrastive comparisons constitute a distinct dimension of comparison experiences that is reliably associated with communal dispositions, communal situations, and communal feelings toward the comparison target (Locke, 2003; Locke & Nekich, 2000). The current research was designed to further remedy this imbalance by investigating directly whether horizontal comparisons are also reliably related to the types of agentic dispositions and outcomes that have been the traditional focus of social comparison research. In particular, the research will examine whether horizontal comparisons are predicted by judgments of self-worth and the desirability of the target attribute as well as being predictive of feelings of confidence and insecurity. Although the study's main hypotheses concerned the horizontal dimension, to show how the correlates of vertical comparisons and horizontal comparisons differ, the current study also examined the relationships between the vertical dimension and self-worth, target attribute desirability, and confident and connected feelings. The following sections detail the specific questions addressed in the study.

#### *Does Target Attribute Desirability Predict the Comparison Dimensions and Feelings?*

In this article, "target" refers to the person with whom the self is comparing and "target attribute" refers to the feature of the target that is being compared to a corre-

sponding feature of the self. Judgments of the desirability of the target attribute should not be confused with vertical comparisons. Vertical comparisons place the target attribute above or below a corresponding attribute of the self. Desirability judgments place the target attribute high or low on a scale that is independent of the self. Imagine that the attribute being compared is IQ. If the IQ of the self is 100 and the IQ of the target is 80, the direction of comparison is downward. If the IQ of the self is 140 and the IQ of the target is 120, again the direction of comparison is downward. However, independent of the IQ of the self, an IQ of 120 is desirable and an IQ of 80 is undesirable, and this difference in desirability may have an effect on comparisons that is independent of the effect of comparison direction. That is not to suggest that target attribute desirability and comparison direction are unrelated. Indeed, we should expect that the more desirable the target attribute, the more likely it will be that the corresponding feature of the self will be judged inferior; conversely, the more undesirable the target attribute, the more likely it will be that the corresponding feature of the self will be judged superior.

Although the current study tests whether target attribute desirability predicts vertical comparisons, it is more concerned with the question, Does target attribute desirability also predict horizontal comparisons? There are at least two arguments for expecting desirability to predict horizontal comparisons. First, people may prefer to believe that the self shares desirable (and does not share undesirable) target attributes than to believe that the self shares undesirable (and does not share desirable) ones. Second, people actually do tend to believe their attributes are above average in social desirability (Taylor & Brown, 1988). Either way, the first main hypothesis of the current study was as follows:

*Hypothesis 1:* People will be biased toward judging that they share desirable target attributes and do not share undesirable target attributes.

#### *Does Self-Worth Predict the Comparison Dimensions and Feelings?*

The social comparison literature has devoted more attention to self-worth (i.e., high levels of self-esteem or low levels of depression) than to any other individual difference variable (Wheeler, 2000). Several studies of naturalistic social comparisons have found that self-worth predicts vertical comparisons. For example, Wheeler and Miyake (1992) found that higher self-esteem predicted making more downward comparisons with respect to "lifestyle" topics. Locke and Nekich (2000) found that higher self-esteem predicted making fewer upward and more downward comparisons independent of type of topic. Giordano, Wood, and Michela (2000)

found that as levels of dysphoria decreased, the tendency to make more downward than upward comparisons increased. Laboratory studies have yielded less consistent results (for reviews, see Wheeler, 2000; Wood & Lockwood, 1999), but as a whole the literature indicates that greater self-worth predicts making more downward and fewer upward comparisons, and so the same pattern was expected in the current study.

Although the current study tests if self-worth predicts vertical comparisons, it is more concerned with the question, Does self-worth also predict horizontal comparisons? Once again, although there is extensive research on the relationship between self-worth and vertical comparisons, there is almost no research on the relationship between self-worth and horizontal comparisons. However, there is evidence that greater self-esteem predicts perceiving the self as generally more included and less excluded (Leary, Tambor, Terdal, & Downs, 1995). To that extent, greater self-worth should predict perceiving the self as sharing more in common and feeling more connected with others regardless of the desirability of others' attributes. Therefore, the second main hypothesis of the current study was as follows:

*Hypothesis 2:* There will be a positive relationship between self-worth and horizontal comparisons (and associated feelings of connection) and this relationship will be found when comparing with desirable as well as undesirable target attributes.

#### *Do the Comparison Dimensions Predict Feelings?*

With respect to the relationship between vertical comparisons and confident feelings, on the basis of the findings of previous studies of naturalistic social comparison (Giordano et al., 2000; Locke, 2003; Wheeler & Miyake, 1992), the current study predicted positive relationships across all levels of target attribute desirability. With respect to the relationship between vertical comparisons and connected feelings, previous research has yielded inconsistent findings (with one study suggesting people feel more connected after downward than upward comparisons and a second study finding no relationship; Locke, 2003), so the current study made no predictions.

With respect to horizontal comparisons, on the basis of previous studies of naturalistic social comparison (Locke, 2003; Wheeler & Miyake, 1992) as well as numerous laboratory studies showing that shared attitudes promote feelings of warmth and attraction (Byrne, 1971), the current study predicted positive relationships between horizontal comparisons and connected feelings across all levels of target attribute desirability. The question of greater interest, though, was, Do horizontal comparisons also predict feelings of confidence? A reasonable assumption is that horizontal comparisons will

increase self-confidence to the extent that they increase the salience of desirable attributes of the self and increase insecure feelings to the extent that they increase the salience of undesirable attributes of the self. Therefore, the third main hypothesis of the current study was as follows:

*Hypothesis 3:* Sharing desirable attributes (and not sharing undesirable ones) will increase confidence, whereas sharing undesirable attributes (and not sharing desirable ones) will undermine confidence.

#### *Does Self-Worth Moderate*

#### *Comparison Dimension-Feeling Relationships?*

Although the relationships between horizontal comparisons and connected feelings and between vertical comparisons and confident feelings are likely to be robust across not only different levels of target attribute desirability but also different levels of self-worth, the implications of horizontal comparisons for self-confidence and of vertical comparisons for connectedness may depend on the comparer's self-worth. For example, the implications of horizontal comparisons for self-confidence may be stronger for people low in self-worth than people high in self-worth. Therefore, the current study also will examine whether self-worth moderates the relationships between the comparison dimensions and feelings. However, given the lack of research on the moderating effects of self-worth, these final analyses were considered exploratory and no specific predictions were made.

#### *Overview of the Study*

To assess naturalistic social comparisons, the study employed an event-contingent self-recording procedure (Wheeler & Reis, 1991) that has been used by numerous social comparison studies in recent years (e.g., Giordano et al., 2000; Locke & Nekich, 2000; Olson & Evans, 1999; Wheeler & Miyake, 1992; Wood, Michela, & Giordano, 2000). Specifically, each time participants noticed themselves making a social comparison they recorded various features of their experience on a "Social Comparison Record." The preceding discussion articulated a number of predictions concerning the correlates of the comparison dimensions. With respect to the vertical dimension, it was expected that more downward vertical comparisons would be associated with more confident feelings and that more downward comparisons and confident feelings would be associated with greater self-worth and less desirable target attributes. With respect to the horizontal dimension, which was the primary focus of the study, the three main hypotheses were as follows: target attribute desirability will predict horizontal comparisons (and connected feelings), with participants being more likely to report that they share targets'

desirable attributes than targets' undesirable attributes (H1); greater self-worth will predict more horizontal comparisons (and connected feelings) independent of target attribute desirability (H2); and the interaction of horizontal comparisons and target attribute desirability will predict self-confidence, with confidence being higher when people believe they share desirable target attributes or do not share undesirable ones (H3). Finally, exploratory analyses will test if the emotional correlates of vertical and horizontal comparisons differ for people high versus low in self-worth.

## METHOD

### *Participants*

University of Idaho undergraduates (146 women, 82 men, 1 unknown) participated for extra credit in psychology classes.

### *Materials*

*Measures of self-worth.* The Rosenberg Self-Esteem Inventory (RSEI; Rosenberg, 1965) is a widely used 10-item self-report measure of overall self-esteem. The Beck Depression Inventory-2 (BDI-2; Beck, Steer, & Brown, 1996) is a widely used 21-item self-report measure of depression. Because they were strongly associated ( $r = -.610$ ), the RSEI and the (reverse-scored) BDI-2 were converted to  $z$  scores and summed to yield an overall measure of self-worth.<sup>1</sup>

*Social Comparison Record (SCR).* The first three items used multiple choice formats: "Did you compare yourself with (a) a friend or relative or (b) stranger or acquaintance?" "Did you (a) deliberately try to compare yourself with him/her/they or (b) did it happen automatically?" and "Was the characteristic of the other person (a) desirable, (b) undesirable, (c) neutral/neither?"

The remaining 12 items were answered on scales ranging from 1 (*not at all*) to 7 (*very much*). The first four items assessed the horizontal and vertical comparison dimensions. For approximately half of the subjects ( $n = 123$ ), these four items always framed the other person as the standard of comparison: "you were better off than him/her/they" (downward comparison), "you were different from him/her/they" (contrastive comparison), "you were worse off than him/her/they" (upward comparison), and "you were similar to him/her/they" (connective comparison). For the other subjects ( $n = 106$ ), these items always framed the self as the standard of comparison: "he/she/they were worse off than you" (downward comparison), "he/she/they were different from you" (contrastive comparison), "he/she/they were better off than you" (upward comparison), and "he/she/they were similar to you" (connective comparison).<sup>2</sup>

Given the strong association between the connective and contrastive scales ( $r = -.72$ ), the connective and (reverse-scored) contrastive scales were averaged to yield an overall measure of horizontal comparison or "similarity." Given the strong association between the downward and upward scales ( $r = -.58$ ), the downward and (reverse-scored) upward scales were averaged to yield an overall measure of vertical comparison or "superiority." (The relationships between the other scales were, in order of magnitude, contrastive-downward,  $r = .30$ ,  $p < .001$ ; connective-downward,  $r = -.29$ ,  $p < .001$ ; connective-upward,  $r = .08$ ,  $p < .01$ ; and contrastive-upward,  $r = -.02$ , *ns.*)

The final eight questions asked about how participants were feeling during the comparison. Four items assessed feelings of self-confidence: "confident," "insecure" (reverse-scored), "good about yourself," "bad about yourself" (reverse-scored); Cronbach's  $\alpha = .85$ . Four items assessed feelings of connection: "connected," "distant" (reverse-scored), "a sense of solidarity and kinship with them," and "a sense of isolation and separateness from them" (reverse-scored);  $\alpha = .86$ .

### *Procedure*

Participants were asked to complete, in order, a packet containing the BDI-2 (first), the RSEI (second), and 10 SCRs (third). The packets were distributed in classrooms. Detailed instructions inside the packet asked participants to complete a SCR "each time you notice yourself talking about or thinking about similarities and/or differences between yourself and another person or persons with respect to some characteristic." The instructions also stated,

Take as long as you need to complete the 10 records. Some of you may notice 10 comparisons and complete all 10 record sheets in a single day. Others may take a couple of weeks to notice and describe 10 comparisons. The important thing is for you to do your best to complete a record whenever you notice yourself engaging in social comparison, whether that occurs once a day or 10 times a day.

After completing all 10 SCRs, the instructions told participants to place the packet in a slot in a laboratory door and take a full page debriefing sheet from a folder above that slot.

## RESULTS

### *Data Analysis*

The data were observations from multiple SCRs ("level-1 units") nested within participants ("level-2 units"). Multilevel random coefficient modeling (Kenney,

**TABLE 1: Mean Ratings of Comparison Dimensions and Feelings While Comparing With Undesirable, Neutral, and Desirable Attributes**

| <i>Level-1 Variable</i> | <i>Undesirable</i> |       | <i>Neutral</i> |       | <i>Desirable</i> |       |
|-------------------------|--------------------|-------|----------------|-------|------------------|-------|
|                         | $\gamma_{00}$      | SE    | $\gamma_{00}$  | SE    | $\gamma_{00}$    | SE    |
| Similarity              | 2.535              | 0.055 | 3.643          | 0.070 | 3.646            | 0.061 |
| Connected feelings      | 3.219              | 0.065 | 4.252          | 0.070 | 4.192            | 0.066 |
| Superiority             | 5.660              | 0.062 | 4.288          | 0.069 | 2.986            | 0.065 |
| Confident feelings      | 5.558              | 0.057 | 5.121          | 0.063 | 4.296            | 0.074 |

NOTE: The values represent mean ratings on 1 to 7 scales. Mean differences greater than 0.25 within rows or within columns are significant at  $p < .05$ .

Kashy, & Bolger, 1998; Nezlek, 2001) analyzed the effects of both within-subjects variance in level-1 variables (i.e., similarity, superiority, self-confident feelings, and connected feelings) and between-subjects variance in level-2 variables (i.e., gender and self-worth). Gender was dummy coded (female = 0, male = 1). Because men reported more self-worth than women,  $r(230) = .25$ ,  $p < .001$ , gender was included in all analyses involving self-worth to control for gender differences. The program HLM/2L (Bryk & Raudenbush, 1992; Bryk, Raudenbush, & Congdon, 1996) performed the computations. Level-2 predictors were grand mean centered and level-1 predictors were centered within subjects.<sup>3</sup>

#### *Does Target Attribute Desirability Predict the Comparison Dimensions and Feelings?*

To test whether the desirability of the target attribute predicted horizontal and vertical comparisons, we first needed to determine the mean ratings of similarity, superiority, and feelings of self-confidence and connection during social comparisons. To do this, the level-1 model was

$$Y_{ij} = \beta_{0j} + r_{ij} \quad (1)$$

and the level-2 model was

$$\beta_{0j} = \gamma_{00} + u_{0j} \quad (2)$$

For example, if the  $Y_{ij}$  is the feeling of confidence on participant  $j$ 's  $i$ th comparison,  $\beta_{0j}$  is  $j$ 's mean confidence across all comparisons,  $r_{ij}$  is the residual feeling for record  $i$ ,  $\gamma_{00}$  is the mean confidence across all participants, and  $u_{0j}$  is the residual for participant  $j$ . The analyses were conducted separately on comparisons with undesirable target attributes ( $n = 704$ ), comparisons with neutral attributes ( $n = 558$ ), and comparisons with desirable attributes ( $n = 996$ ). The values presented in Table 1 show that people reported more similarity and

**TABLE 2: Effects of Self-Worth as a Function of the Desirability of the Target Attribute**

| <i>Level-1 Variable</i> | <i>Undesirable</i> |       | <i>Neutral</i> |       | <i>Desirable</i> |       |
|-------------------------|--------------------|-------|----------------|-------|------------------|-------|
|                         | $\gamma_{01}$      | SE    | $\gamma_{01}$  | SE    | $\gamma_{01}$    | SE    |
| Similarity              | 0.018              | 0.046 | 0.046          | 0.053 | 0.133**          | 0.041 |
| Connected feelings      | 0.013              | 0.045 | 0.082          | 0.048 | 0.182**          | 0.042 |
| Superiority             | 0.076              | 0.051 | 0.147*         | 0.057 | 0.180**          | 0.049 |
| Confident feelings      | 0.138**            | 0.042 | 0.220**        | 0.045 | 0.296**          | 0.048 |

\* $p < .05$ . \*\* $p < .005$ .

connected feelings when the target attribute was desirable than when the target attribute was undesirable, thus providing support for Hypothesis 1. Ratings of similarity and connection when comparing neutral versus desirable target attributes did not significantly differ. Table 1 also shows, as expected, that people reported less superiority and confident feelings when the target attribute was desirable as opposed to undesirable.

#### *Does Self-Worth Predict the Comparison Dimensions and Feelings?*

Self-worth was hypothesized to predict horizontal comparisons and connected feelings as well as vertical comparisons and self-confidence. To test whether self-worth predicted between-subjects variations in comparison dimensions and feelings, Equation 2 was expanded as follows:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}W_j + \gamma_{02}G_j + u_{0j} \quad (3)$$

where  $W_j$  and  $G_j$  are  $j$ 's self-worth score and gender dummy-code,  $\gamma_{01}$  is the effect of self-worth (controlling for gender), and  $\gamma_{02}$  is the effect of gender (controlling for self-worth). In this analysis and subsequent analyses, the continuous variables were standardized relative to their between-subjects means and standard deviations. As before, the analyses were conducted separately at each level of target attribute desirability. Whereas Hypothesis 2 predicted that self-worth would be associated with greater similarity and connection across all levels of target attribute desirability, Table 2 shows that self-worth predicted greater similarity and connected feelings only when the target attribute was desirable. Thus, the data provided only partial support for Hypothesis 2. Table 2 also shows that self-worth was positively related to superiority and confident feelings and these relationships were strongest when the target attribute was desirable and weakest when the target attribute was undesirable. Likewise, the tendency for men to report more confidence than women was significant only when the target attribute was desirable ( $\gamma_{02} = 0.380$ ,  $SE = 0.100$ ,  $p < .001$ ).

TABLE 3: Relationships Between Comparison Dimensions and Feelings as a Function of Target Attribute Desirability

| Dimension-Feeling Slope | Undesirable |       | Neutral    |       | Desirable  |       |
|-------------------------|-------------|-------|------------|-------|------------|-------|
|                         | $\gamma_0$  | SE    | $\gamma_0$ | SE    | $\gamma_0$ | SE    |
| Similarity-connected    | 0.428**     | 0.040 | 0.510**    | 0.048 | 0.497**    | 0.033 |
| Similarity-confident    | -0.090**    | 0.031 | 0.121**    | 0.040 | 0.270**    | 0.031 |
| Superiority-connected   | -0.055      | 0.044 | -0.046     | 0.052 | 0.162**    | 0.036 |
| Superiority-confident   | 0.301**     | 0.043 | 0.237**    | 0.052 | 0.371**    | 0.036 |

\*\* $p < .005$ .

#### Do the Comparison Dimensions Predict Feelings?

To test if (within-subjects) variations in horizontal and vertical comparisons interact with target attribute desirability to explain (within-subjects) variations in feelings of connection and confidence, the level-1 model was

$$Y_{ij} = \beta_{0j} + \beta_{1j}X_{1ij} + \beta_{2j}X_{2ij} + r_{ij} \quad (4)$$

and the level-2 model was

$$\beta_{0j} = \gamma_{00} + u_{0j}, \quad (5)$$

$$\beta_{1j} = \gamma_{10} + u_{1j}, \quad (6)$$

$$\beta_{2j} = \gamma_{20} + u_{2j}. \quad (7)$$

For example, if  $Y$  is connected feelings and  $X_{1ij}$  and  $X_{2ij}$  are perceived superiority and similarity on  $j$ 's  $i$ th comparison,  $\beta_{1j}$  and  $\beta_{2j}$  are  $j$ 's superiority-feeling and similarity-feeling slopes,  $\gamma_{10}$  and  $\gamma_{20}$  are the mean superiority-feeling and similarity-feeling slopes across all participants, and  $u_{1j}$  and  $u_{2j}$  are the components of the slopes unique to  $j$ . Table 3 shows the comparison dimension-feeling slopes at each level of target attribute desirability. As predicted, desirability moderated the similar-confident slope (but not the consistently positive similar-connected slope). The similar-confident slope was positive and strong when the target attribute was desirable, positive but weaker when the target attribute was neutral, and negative when the target attribute was undesirable. Thus, in accord with Hypothesis 3, confidence was enhanced by sharing desirable attributes and undermined by sharing undesirable ones. Similarly, desirability moderated the vertical-connected slope (but not the consistently positive vertical-confident slope), with the vertical-connected slope being positive only when the target attribute was desirable.<sup>4</sup> Thus, participants felt more alienated the more they judged targets' desirable attributes to be superior to their own.

#### Does Self-Worth Moderate

#### Comparison Dimension-Feeling Relationships?

Finally, I tested if the emotional correlates of vertical comparisons and horizontal comparisons differed for people high versus low in self-worth. To test if self-worth (controlling for gender) moderates the relationships between the comparison dimensions and feelings, the level-2 equations were expanded as follows:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}W_j + \gamma_{02}G_j + u_{0j}, \quad (8)$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}W_j + \gamma_{12}G_j + u_{1j}, \quad (9)$$

$$\beta_{2j} = \gamma_{20} + \gamma_{21}W_j + \gamma_{22}G_j + u_{2j}. \quad (10)$$

where  $\gamma_{11}$  and  $\gamma_{12}$  are the effects of self-worth and gender on superiority-feeling slopes and  $\gamma_{21}$  and  $\gamma_{22}$  are the effects of self-worth and gender on similarity-feeling slopes. Self-worth moderated one slope: higher self-worth predicted a more negative superior-connected slope ( $\gamma_{11} = -0.050$ ,  $SE = 0.020$ ,  $p < .05$ ).<sup>5</sup> Thus, people high in self-worth tended to feel more distant from people with inferior attributes than did people low in self-worth. Gender also moderated one slope: the superior-confident slope was stronger for women than men ( $\gamma_{12} = -0.107$ ,  $SE = 0.053$ ,  $p < .05$ ).<sup>6</sup> Thus, the only gender effects in this study were that women tended to report less confidence than men when the target attribute was desirable or superior.

#### DISCUSSION

The results showed that the horizontal as well as the vertical dimension of social comparison was related to perceptions of self-worth and target attribute desirability and to feelings of confidence and connection. The following discussion will first clarify the implications of the results for each of the main hypotheses and then outline the limitations and broader significance of the study.

### *Does Target Attribute Desirability Predict the Comparison Dimensions and Feelings?*

As expected, more desirable target attributes were associated with less downward comparisons and less confident feelings (see Table 1). Moreover, as predicted by Hypothesis 1, people perceived less similarity and felt less connection when the target attribute was undesirable than when the target attribute was neutral or desirable (see Table 1). The positive relationship between target attribute desirability and horizontal comparisons is consistent with experimental studies showing that people perceive themselves as more similar to more physically and vocally attractive others (Marks & Miller, 1982; Marks, Miller, & Maruyama, 1981; Miyake & Zuckerman, 1993). People may report more similarity and connection when comparing with more desirable attributes because they want to believe and do believe that their own attributes are relatively desirable (Taylor & Brown, 1988). If so, then people who are especially likely to believe that their attributes are desirable—namely, those high in self-worth (Taylor & Brown, 1988)—should be especially likely to report feeling similar to and connected with desirable targets. Consistent with this explanation, the relationship between desirable target attributes and perceptions of similarity and feelings of connection was especially strong for people high in self-worth (see Table 2).

### *Does Self-Worth Predict the Comparison Dimensions and Feelings?*

On the basis of previous diary studies (Locke & Nekich, 2000; Wheeler & Miyake, 1992; Wood et al., 2000), it was hypothesized that greater self-worth would be associated with more downward comparisons and self-confidence. The results supported this hypothesis. Moreover, on the basis of previous evidence that greater self-esteem is associated with perceiving the self as generally more included and less excluded (Leary et al., 1995), Hypothesis 2 predicted that greater self-worth would be associated perceiving the self as sharing more in common and feeling more connected with others regardless of the desirability of others' attributes. The results did not support this hypothesis. Specifically, in accord with other findings showing that greater self-worth enhances the tendency to perceive the self as "better than average" (Taylor & Brown, 1988), greater self-worth predicted perceiving similarities and feeling connected only when the target attribute was desirable (see Table 2). In addition, the moderator analyses (described in the last paragraph of the results) showed that greater self-worth predicted feeling less connected with people perceived as worse off. A closer examination of this finding showed that downward comparisons were

positively correlated with feelings of distance for people high in self-worth but not for people low in self-worth. Thus, the results indicated that self-worth is not associated with indiscriminate inclusiveness but instead is associated with selective inclusiveness. Specifically, the results suggested that greater self-worth predicts greater solidarity with people with desirable target attributes but greater alienation from those who are worse off than the self.

### *Do the Comparison Dimensions Predict Feelings?*

Consistent with previous research on social comparison (e.g., Locke, 2003; Wheeler & Miyake, 1992) and interpersonal attraction (Byrne, 1971; Rosenbaum, 1986), horizontal comparisons and connected feelings were strongly positively correlated (see Table 3), and this robust relationship was unaffected by target attribute desirability or comparer self-worth. However, target attribute desirability did moderate the relationship between horizontal comparisons and feelings of confidence (see Table 3). In accord with Hypothesis 3, sharing a desirable attribute or not sharing an undesirable attribute predicted feeling confident, whereas sharing an undesirable attribute or not sharing a desirable attribute predicted feeling insecure.

With respect to vertical comparisons, as hypothesized, there was a strong, positive relationship between vertical comparisons and self-confidence that was unaffected by either the self-worth of the comparer or the desirability of the target attribute. There was also a negative relationship between feelings of connection and upward comparisons with desirable target attributes; in other words, people felt more alienated from targets when they perceived themselves as not having desirable attributes that those targets did have. Locke (2003, Study 3) also found that more upward comparisons predicted less communal feelings but did not assess or control for target attribute desirability.

### *Gender Differences*

Although the study did not predict any gender differences, two gender differences did emerge, even after controlling for self-worth. Specifically, women tended to report less confidence than did men when comparing themselves with target attributes that were desirable or superior. Future research is necessary to determine whether when noticing that others had desirable or superior attributes, men really felt less insecure or simply reported feeling less insecure than did women.

### *Limitations and Conclusions*

SCRs have both strengths and limitations (Wheeler & Miyake, 1992; Wood, 1996). A key strength is the ability to obtain information about what occurs in naturalistic

settings close in time to the actual occurrences. On the other hand, a limitation is uncertainty about whether the sample of events that participants notice and select to report is representative of the population of naturalistic events. Another limitation is that cross-sectional, non-experimental data cannot resolve questions of causality. For example, the data show that when comparing with a desirable target attribute, similarity and confidence are correlated; however, experimental methods may be needed to clarify whether judgments of similarity cause feelings of confidence or feelings of confidence cause judgments of similarity, or both.

In closing, I would like to highlight three broad conclusions suggested by the current results. First, the benefits of high self-worth appear to be greater when the target attribute is desirable than when the target attribute is undesirable. For example, high self-worth softened desirable attributes' negative impact on feelings of confidence and magnified desirable attributes' positive impact on feelings of connection (see Table 2).

Second, by showing that the horizontal dimension of social comparisons is predicted by self-worth and target attribute desirability and can predict feelings of confidence, the current study shows that horizontal comparisons are relevant to understanding the relationship of social comparisons to the types of agentic dispositions and agentic outcomes that have been the primary focus of social comparison research. In so doing, the current study complements prior studies (e.g., Locke, 2003) that showed the relevance of horizontal comparisons for understanding the relationship of social comparisons to communal dispositions and communal outcomes.

Finally, the data again show that the vertical and horizontal dimensions of comparisons have distinct causes and consequences. As an example of divergent causes, Table 1 shows that whether the target attribute was desirable versus neutral strongly influenced vertical comparisons but not horizontal comparisons. As an example of divergent effects, Table 3 shows that the relationship between target attribute desirability and self-confidence was moderated by horizontal comparisons but not by vertical comparisons. Yet, whereas the horizontal and vertical dimensions of social comparisons are fundamental and distinct dimensions, they are also intricately interdependent. Mapping naturalistic social comparisons on both dimensions simultaneously helps to reveal the complex topography of these common, ordinary social experiences.

## NOTES

1. Conducting the analyses on depression and self-esteem separately yielded few differences and none that would warrant presenting two separate sets of analyses.

2. Standard of comparison was not included as a variable in the analyses reported in the results because it did not change any of the basic findings. However, it did influence responses on the upward and downward comparison rating scales. The mean downward comparison rating was higher when the other person was the standard of comparison ( $M = 3.87$ ) than when the self was the standard ( $M = 2.86$ ),  $t(227) = 9.54$ ,  $p < .001$ . In other words, participants were more willing to say "I'm better off" than "He/she is worse off." Conversely, the mean upward comparison rating was higher when the self was the standard of comparison ( $M = 3.44$ ) than when the other person was the standard ( $M = 2.78$ ),  $t(227) = -5.71$ ,  $p < .001$ . That is, participants were more willing to say "He/she is better off" than "I'm worse off." So, either way, people seemed more willing to indicate who was better than who was worse. Standard of comparison did not affect connective or contrastive comparisons,  $\beta s > .1$ .

3. The Social Comparison Records (SCRs) also assessed closeness and automaticity. These variables, not being part of the hypotheses or analytic plan, were omitted from the results and discussion. However, for exploratory purposes, they were analyzed using the same procedures used to analyze the effects of similarity and superiority. The percentage of comparisons that were automatic (vs. deliberate) was 56.9%, and the percentage with close (vs. distant) targets was 64.9%. Of interest, naturalistic research by Wheeler and Miyake (1992) reported a very similar percentage of comparisons with close targets—specifically, 62%. In the hierarchical linear modeling (HLM) analyses, the variables were dummy-coded as follows: distant = 0, close = 1; deliberate = 0, automatic = 1. Consistent with previous research (Locke, 2003), closeness predicted greater similarity ( $\gamma = 0.410$ ,  $SE = 0.049$ ,  $p < .001$ ), connected feelings ( $\gamma = 0.761$ ,  $SE = 0.053$ ,  $p < .001$ ), and to a lesser extent, confident feelings ( $\gamma = 0.095$ ,  $SE = 0.042$ ,  $p < .05$ ). Automaticity showed no main effects but did amplify the self-worth-superiority slope ( $\gamma = 0.136$ ,  $SE = 0.051$ ,  $p < .01$ ). A previous study of everyday social comparisons also found that whether a comparison is motivated or unintended moderates the relationship between self-esteem and vertical comparisons (Wood, Michela, & Giordano, 2000).

4. Separate analyses on the upward and downward comparison scales showed that in relation to desirable target attributes, inferiority predicted feeling alienated ( $\gamma_{10} = -.210$ ,  $SE = .038$ ,  $p < .001$ ) but superiority did not ( $\gamma_{10} = .038$ ,  $SE = .034$ ).

5. Separate analyses on the upward and downward scales showed that higher self-worth moderated the downward-connected slope ( $\gamma_{11} = -0.054$ ,  $SE = 0.022$ ,  $p < .05$ ) but not the upward-connected slope ( $\gamma_{11} = 0.034$ ,  $SE = 0.019$ ).

6. Separate analyses on the upward and downward scales showed that gender moderated the upward-confident slope ( $\gamma_{11} = 0.157$ ,  $SE = 0.054$ ,  $p < .01$ ) but not the downward-confident slope ( $\gamma_{11} = -0.055$ ,  $SE = 0.057$ ).

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