

SOCIAL COMPARISONS IN EVERYDAY LIFE:  
THE VALIDITY OF A DIARY METHOD AND THE ROLES OF  
DEPRESSIVE PERSONALITY STYLES AND DYSPHORIA

by

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## Abstract

Sociotropy and autonomy have been characterized as personality styles that, in interaction with congruent major life events, confer vulnerability to depression (Beck, 1983). The present study had two purposes: to examine social comparisons in the daily affective lives of people with these personality styles, and to examine the validity of Wheeler and Miyake's (1992) diary method for studying social comparisons naturalistically. For three weeks, 27 sociotropic and 35 autonomous undergraduates completed a record each time they engaged in a social comparison. The social comparison diary demonstrated strong validity: It correlated predictably with various individual difference measures and the results supported previous theory and research in the literature. Furthermore, Wheeler and Miyake's provocative findings regarding the association between comparison direction and precomparison affect, self-esteem, and mood effects were replicated. Depressive personality style also was found to moderate the selection of comparisons and the affective consequences of comparisons, particularly in dysphoric individuals. These results have implications for the social comparison and depressive personality styles literatures.

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## Introduction

Different people seem to become despondent in response to different unpleasant events in their lives. Whereas some people become blue when they fail to achieve an important goal, others do when they experience interpersonal rejection or loss. Researchers have suggested that certain personality styles predispose people to depression in response to these two types of unpleasant events. In the present study, I examine people who possess these personality vulnerabilities and in particular, the role of social comparison in their affective lives. I also examine the validity of a new measure of social comparison that aims to assess social comparisons in everyday life.

Both cognitive (e.g., Beck, 1983) and psychoanalytic (e.g., Blatt, Quinlan, Chevron, McDonald, & Zuroff, 1982) theorists have implicated two distinct personality types as making people vulnerable to depression: "sociotropy/dependency" and "autonomy/self-criticism." Individuals described as "sociotropic" or "dependent" are highly invested in close interpersonal relationships and in being loved, accepted, and admired by others. "Autonomous" or "self-critical" people have high achievement and status needs, and they value the attainment of meaningful goals, personal independence, and freedom. Both Beck (1983) and Blatt and his colleagues (1982) have outlined personality-event congruency models of depression that suggest that individuals are especially likely to become depressed in response to negative events that are congruent with or match their predominant personality type. Thus, people high in sociotropy are especially susceptible to depression following negative interpersonal events, such as rejection by others, whereas people high in autonomy tend to experience depression following negative achievement or independence-

related events, such as academic failure.

Research has generally supported the congruency hypothesis (e.g., Hammen, Ellicott, Gitlin, & Jamison, 1989; Ouimette & Klein, 1993; Neitzel & Harris, 1990; Robins, 1990). Depressed sociotropic/dependent and autonomous/self-critical people report having experienced more personality-congruent than noncongruent negative recent life events (Bartelstone & Trull, 1995; Robins, 1990, Study 2), although some studies have found this effect only for sociotropes (Robins, 1990, Study 1; Hammen & Goodman-Brown, 1990). The experience of negative personality-congruent events, as assessed through retrospective accounts, has also been associated with the onset or exacerbation of depressive symptoms (Hammen, Ellicott, Gitlin, & Jamison, 1989; Hammen, Ellicott, & Gitlin, 1989; Hammen & Goodman-Brown, 1990; Robins, 1990, Study 2), especially for sociotropic/dependent people (e.g., Allen, Horne, & Trinder, 1996; Clark, Beck, & Brown, 1992; Segal, Vella, & Shaw, 1989; see Neitzel & Harris, 1990, for a review). However, the congruency hypothesis has also been challenged, especially on the grounds that the measures used may not capture personality independent of current depressive symptomatology, especially for self-criticism, and that its status as a vulnerability factor for depression has not been established (see Coyne & Whiffen, 1995).

The goals of the present study differ from most previous research on the congruency hypothesis. Most importantly, my aim was not to predict clinical depression, but the ups and downs of moods that people experience in their daily lives. I did not study life events of the severity that can precipitate depression (Coyne & Whiffen, 1995), but minor events. However, minor life events, such as daily hassles, can be distressing (e.g., Bolger,

DeLongis, Kessler, & Schilling, 1989), and some researchers have speculated that personality vulnerability factors may interact with less severe daily events as well (e.g., Clark & Oates, 1995). To date, however, no studies have examined whether sociotropic and autonomous individuals experience different types of minor everyday events and whether they respond differently to such events. I also did not examine respondents' retrospective reports of the events they had experienced, but their immediate affective responding as the events occurred. Finally, I used a new measure of sociotropy/autonomy, which was designed to be more psychometrically sound than previous measures of these constructs (Robins et al., 1994).

The minor events that I examined were social comparisons. Several researchers have proposed that social comparison processes (Festinger, 1954; see Wood, 1989, for a review) may be involved in depression (e.g., Weary, Elbin, & Hill, 1987), and Swallow and Kuiper (1988) have suggested that social comparisons may interact with depressive vulnerability, leading to negative self-evaluations that may contribute to the onset and/or maintenance of depression. For example, a lonely sociotropic university student who has an extremely popular roommate may continually make comparisons that are depressing to her. I examined whether people with these depressive vulnerability styles would experience more personality-congruent than noncongruent comparisons and whether personality-congruent comparisons would have special impact on their moods. In addition, I examined whether these effects depend on whether these individuals are currently dysphoric or not.

### Depressive Personality Styles, Depression, and Comparison Selection

Sociotropic and autonomous people differ in the domains they consider most relevant. Although there is little research relating dimension relevance and comparison selection, it is reasonable to assume that people make many comparisons in domains that are especially self-relevant (Tesser & Collins, 1988; Wood, 1989). I would expect, then, that sociotropes would make more comparisons in interpersonal domains, whereas autonomous people would make more comparisons in achievement domains.

Whereas depressive personality style may influence which dimensions the person compares on, depression itself may influence comparison direction--that is, whether the person compares with others who are better-off/superior (i.e., upward comparison) or with others who are worse-off/inferior (i.e., downward comparison). Wills (1981) hypothesized that depressed or low self-esteem people have a greater need for self-enhancement than people who are not depressed or who are high in self-esteem and that as a result, they will engage in more downward comparison. Although little research has examined social comparison among depressives, the relationship between self-esteem and social comparison has been studied extensively. Because depression and self-esteem are closely related (Kernis, Brockner, & Frankel, 1989; see Wood & Dodgson, 1996, for references), depression and self-esteem should be related to social comparison in similar ways.

Most selection studies of social comparison favor Wills's theory (e.g., Friend & Gilbert, 1973; Smith & Insko, 1987; Wilson & Benner, 1971): People low in self-esteem are more likely to select downward, or at least less upward, comparisons. Similar comparison preferences have been shown in depressed people (Gibbons, 1986, Study 1). Recently,

however, some researchers have presented evidence that challenges Wills's theory. Using a new method that assesses social comparison in everyday life, Wheeler and Miyake (1992) found that people high in self-esteem engaged in downward comparison more often than did people low in self-esteem. Furthermore, downward comparisons were associated with precomparison positive, rather than negative, affect: The better participants felt, the more likely they were to compare downward. Similarly, in a recent study, Swallow & Kuiper (1993, Study 1) found that as dysphoria increased, people were more likely to make comparisons that were more upward rather than downward.<sup>1</sup>

Although these findings contradict the deeply entrenched idea that low self-esteem and negative mood lead to downward comparison, they are consistent with other literatures. As Wheeler and Miyake noted, their findings agree with Taylor and Brown's (1988) conclusion that high self-esteem people engage in more self-enhancing strategies, as well as with associative network theories of mood and memory (see Bower, 1981; Blaney, 1986, for reviews). These theories emphasize that people harbor cognitions, particularly about the self, that are consistent with their moods. As a result, high self-esteem and nondepressed people, who tend to be especially happy, should make more self-enhancing downward comparisons than low self-esteem or depressed people.

#### Depressive Personality Styles, Depression, and the Impact of Comparisons

Traditionally, downward comparisons have been thought to be self-enhancing, whereas upward comparisons have been thought to be demoralizing (e.g., Morse & Gergen, 1970). Recent research, however, suggests that the affective consequences of comparison are not intrinsic to its direction, but rest instead on various moderating variables (Buunk,

Collins, Taylor, VanYperen, & Dakof, 1990; Major, Testa, & Bylsma, 1991; Wood & VanderZee, 1997), such that "either direction has its ups and downs" (Buunk et al., 1990, p. 1238). I propose that individual differences in depressive personality style and depression may moderate the affective consequences of upward and downward comparisons.

For sociotropic and autonomous individuals, comparison in personality-congruent domains should result in greater affective responding than comparison in noncongruent domains. This prediction is in line with work by Tesser (1986) indicating that people react more strongly to upward comparisons in domains high in self-relevance than in domains low in self-relevance (see also Bers & Rodin, 1984; Salovey & Rodin, 1984). Thus, the sociotropic university student is likely to feel worse when she compares herself to her popular roommate than when she compares herself with her studious, straight-A roommate, whereas the reverse would be true for an autonomous student.

How might depression moderate the affective consequences of social comparison? Swallow and Kuiper (1988) suggested that depression may increase the sensitivity of individuals to the affective nature of social comparison outcomes. Wills (1981, 1991) asserted that depressed people should feel better than nondepressed people after engaging in downward comparison because they are most in need of enhancement. Consistent with these ideas, depressed people have been found to be more responsive than nondepressed people to both negative and positive feedback (Pietromonaco, 1985; Weary et al., 1987). Thus, it seems likely that depressed people may respond more negatively to upward comparison information and more positively to downward comparison information than nondepressed people.

Although depression has not received much research attention as a moderator of social comparison impact, self-esteem has, and the evidence is generally consistent with my proposal for depression. That is, people low in self-esteem have been found to react to upward comparisons negatively (Buunk et al., 1990; Hemphill & Lehman, 1991) or not at all (Gibbons & Gerrard, 1989; Reis, Gerrard, & Gibbons, 1993), whereas people high in self-esteem have been found to react to upward comparisons positively (e.g., Buunk et al., 1990, Study 1; see Collins, 1996, for a review). Although mood does not always change in response to downward comparison (e.g., Wood, Giordano-Beech, Taylor, Michela, & Gaus, 1994, Study 1), when it does, it is typically threatened people who are also low in self-esteem who feel better after downward comparison (e.g., Aspinwall & Taylor, 1993, Study 1; Gibbons & Boney McCoy, 1991; see Gibbons, 1986, Study 2, for similar results in depressed people).

In the present study, I examine the social comparisons of sociotropic and autonomous university students, some of whom are dysphoric and some of whom are not dysphoric. I advance the following hypotheses and questions:

Comparison frequency. Participants will report more personality-congruent than personality-noncongruent comparisons. Because my method is similar to that of Wheeler and Miyake (1992), who found that high self-esteem people engaged in more downward comparisons than low self-esteem people, I predict that nondysphoric participants will report more downward comparisons than dysphoric participants.

Affective consequences. Participants will be more affected by comparisons in personality-congruent than in personality-noncongruent domains. Dysphoric participants will

feel worse after upward comparison and better after downward comparison than nondysphoric participants.

#### Examining the Validity of the Diary Method of Assessing Social Comparisons

How can these hypotheses be studied best? Wheeler and Miyake (1992) recently introduced an exciting method for studying social comparison processes naturalistically: the Rochester Social Comparison Record. Using this self-report diary, each time respondents make a comparison they record the dimension of comparison (e.g., academic, appearance), their relationship with the target of comparison (friend, stranger), the direction of comparison, and their pre- and postcomparison mood.

The social comparison diary offers many advantages over existing methods of studying social comparisons. For example, Brickman and Bulman (1977) criticized laboratory methods of studying social comparisons because they generally make it impossible for participants to avoid comparisons and because they often do not involve social interaction between the target and the comparer, making comparisons virtually painless. Furthermore, laboratory studies often require participants to make comparisons with complete strangers. In everyday life, people often make comparisons with people they know (Wheeler & Miyake, 1992), which may result in very different effects (Tesser, 1986). In addition, researchers often impose constraints on the comparison process, such as fixing the dimensions available for comparison, which may limit external validity (see Wood, 1996, for a review). The social comparison diary lacks these constraints. Furthermore, it may be less vulnerable to bias than some other naturalistic methods, such as questionnaires that obtain retrospective accounts of comparisons. The retrospective recall of comparisons

may be biased by the mood of respondents at the time of reporting, by their implicit theories, or by more recent events. Because the social comparison diary requires respondents to record each comparison as it occurs, these types of bias should be reduced (see Reis & Wheeler, 1991, for a review).

A method that captures the complex and dynamic nature of social comparison processes is very much needed, and the social comparison diary is unquestionably promising in this regard. I am concerned, however, that Wheeler and Miyake's method relies on self-report, which is susceptible to at least two types of bias: lack of awareness that a comparison has occurred and social desirability pressures (Wood, 1996). Social comparisons are often fleeting in nature. People may not be aware of having made comparisons, let alone be able to report them faithfully. Even when people are aware of having engaged in comparison, social desirability concerns may make them reluctant to admit to having done so. For example, people may underreport engaging in downward comparison because they may feel ashamed of using another's misfortune to boost their own spirits (cf. Wills, 1981). Because of these concerns, it is imperative that the validity of the social comparison diary be examined.

But how can one assess the validity of a social comparison measure? There is little precedent for doing so in the social comparison literature. One approach I take is to examine the relationship between individual difference measures that may correlate in predictable ways with comparison frequency and postcomparison mood. Second, I attempt to replicate Wheeler and Miyake's findings. Third, I made several refinements to Wheeler and Miyake's method that allow me to attempt to replicate past findings in the social

comparison literature. Sensible findings using the diary, including meaningful results concerning the comparisons of participants high in sociotropy, autonomy, or dysphoria, will be validating of the diary method as well.

One of Wheeler and Miyake's (1992) most provocative findings was that people engaged in downward comparison more when they were in a positive mood than when they were in a negative mood. This finding needs to be scrutinized because it may be an artifact of their study's method. That is, participants in Wheeler and Miyake's study rated both their precomparison and postcomparison mood after having engaged in a comparison. Such a retrospective appraisal of precomparison affect may be biased by a person's mood at the time he or she makes the rating (see Blaney, 1986). Thus, people in a good mood (perhaps due to downward comparison) may rate their precomparison mood positively. Although Wheeler and Miyake argued against this "affect-interference" explanation of their results, I wish to examine this possibility empirically. I asked participants to assess their mood twice a day independent of comparison activity, and I used these ratings as estimates of precomparison mood. Replication of Wheeler and Miyake's finding despite this change will make me more confident in their results, as well as in the validity of the diary method.

Finally, I refined the Rochester Social Comparison Record further by adding several questions, three of which I used to replicate previous findings in the social comparison literature. The first asked participants to rate how important the comparison dimension was to them because, as indicated above, people are likely to compare on and to be more affected by comparisons on dimensions that are particularly important to them (Tesser, 1986). The second question asked participants to rate how similar to the target they

perceived themselves to be in general. Past research has indicated that people tend to compare with others who are similar to them not only on the dimension of comparison itself, but more generally (e.g., in gender, academic major; see Wood, 1989, for a review). I also asked participants to state what motive prompted their comparison (e.g., self-evaluation, self-improvement, or self-enhancement) to examine whether different motives are associated with different comparison directions (see Wood, 1989, for a review). Convergence of results using the social comparison diary with past theory and research will substantiate further its usefulness for studying social comparisons in everyday life.

## Method

### Preparticipation Phase

Approximately 4 to 6 weeks prior to commencing participation in this study, introductory psychology students completed several measures in large group testing sessions. Among these measures were the Rosenberg Self-Esteem Scale (Rosenberg, 1965) and the Beck Depression Inventory (BDI; Beck, Rush, Shaw, & Emery, 1979), which will be described below, as well as the Revised Personality Style Inventory (PSI-II; Robins et al., 1994; see Appendix A). The PSI-II is a 48-item scale that assesses depressive vulnerability as outlined by Beck (1983) using two-24 item subscales: a Sociotropy subscale (e.g., "I get very uncomfortable when I'm not sure whether or not someone likes me") and an Autonomy subscale (e.g., "I feel badly about myself when I am not actively accomplishing things"). Respondents are asked to rate each item on a 6-point scale (strongly disagree (1) to strongly agree (6)).

The PSI-II was developed in response to criticism (e.g., Blaney & Kutcher, 1991) about the psychometric properties of the two traditional measures of depressive personality type: the Depressive Experiences Questionnaire (DEQ; Blatt, D'Afflitti, & Quinlan, 1978) and the Sociotropy-Autonomy Scale (SAS; Beck, Epstein, Harrison, & Emery, 1983). Robins and his colleagues (1994) reported that the PSI-II's subscales display high internal consistency (Cronbach's alpha = .88 to .90 for Sociotropy and .86 for Autonomy) and good temporal stability (5 to 13 week test-retest reliability of  $r = .80$  for Sociotropy and  $r = .69$  for Autonomy), and are relatively orthogonal to one another ( $r = .18$  and  $.21$  between the subscales). These researchers also presented evidence for the PSI-II's good discriminant and

convergent validity. For example, the Sociotropy subscale correlates highly ( $r = .84$ ) with the Revised DEQ (Welkowitz, Lish, & Bond, 1985) Dependency subscale, whereas the Autonomy subscale correlates only moderately with the Revised DEQ Self-Criticism subscale ( $r = .50$ ). The latter is desirable given evidence that the Self-Criticism scale is, to some extent, a measure of depressed affect rather than vulnerability (Blaney & Kutcher, 1991). The PSI-II's subscales also correlated only modestly with the Beck Depression Inventory (Robins et al., 1994;  $r = .20$  and  $.13$  for Sociotropy and  $.27$  and  $.20$  for Autonomy), which again is desirable for a scale purported to measure depressive vulnerability rather than depressive symptomatology.

Following Robins's (1990) suggestions, only individuals predominantly high in one depressive personality type were eligible for participation. Potential participants for the present study were classified as sociotropic if they scored above the median on the Sociotropy subscale (Median = 95) and below the median on the Autonomy subscale (Median = 84), and as autonomous if they scored more than 84 on the Autonomy subscale, less than 95 on the Sociotropy subscale, and their Autonomy scores exceeded their Sociotropy scores. Individuals who scored above or below the median on both subscales were excluded from participation.

### Participants

Introductory psychology undergraduates were recruited by telephone for participation in a diary study about daily experiences and mood, for which they received course credit. Of the 75 students who agreed to participate, 11 withdrew from the study prior to completion and two completed the daily mood records, but did not submit any social

comparison diaries.<sup>2</sup> Thus, the final sample consisted of 62 participants, 28 women and 34 men ranging in age from 18 to 26 years ( $M = 19.79$  years). Of these participants, 27 were classified as sociotropic and 35 were classified as autonomous.

## Materials

### Individual Difference Measures

To examine the validity of the social comparison diary, I searched the literature for individual difference variables that might be associated with social comparison processes. I discovered only a few such variables, which I assessed with the following five measures.

Self-esteem. In this study, self-esteem was assessed using the Rosenberg Self-Esteem Scale, a widely-used 10-item measure that has been shown to have good convergent and discriminant validity (Fleming & Courtney, 1984; see Appendix B). Items such as, "On the whole I am satisfied with myself," are rated on a 4-point scale (strongly agree (1) to strongly disagree (4)). A total self-esteem score was calculated by summing across all items, with higher scores indicating higher self-esteem.

Envy-proneness. Smith and his colleagues (Smith, Parrott, & Diener, 1991) have characterized envy-prone people as seeking out unflattering comparisons to confirm their low feelings of self-worth and their feelings of inferiority. These researchers found also that envy-proneness was related to envious responding to a superior stimulus person.

In this study, I used the Envy, Resentment, and Inferiority Scale (ERIS; Smith et al., 1991; see Appendix C), which consists of 21 items rated on 9-point scales ranging from -4 (very strongly disagree) to +4 (very strongly agree). The scale is divided into three subscales. The Envy subscale includes items such as "It somehow doesn't seem fair that

some people seem to have all the talent." and "Feelings of envy constantly torment me."

The Resentment subscale evaluates feelings of resentment, unfairness, and emotional pain resulting from social comparison through items such as "I resent it when some people seem to be able to breeze through hard tasks while I have to work long and hard." The Inferiority subscale measures feelings of inferiority, using items such as "The bitter truth is that I generally feel inferior to others." Higher total scores on all subscales indicate more intense feelings. The ERIS and its subscales have shown high internal consistency (alphas = .81 to .90) and good test-retest reliability ( $r_s = .80$  to  $.90$  over two weeks; Smith et al., 1991).

Self-Consciousness. I examined two subscales of the Self-Consciousness Scale (Fenigstein, Scheier, & Buss, 1975; see Appendix D), namely the Public Self-Consciousness and the Social Anxiety subscales. Public self-consciousness involves focusing on the self as a social object (e.g., "I usually worry about making a good impression"). Social anxiety refers to feelings of discomfort in the presence of others (e.g., "I feel anxious when I speak in front of a group"). People high in public self-consciousness have been shown to demonstrate an interest in comparing with others (Scheier & Carver, 1983, Experiment 3) and to be susceptible to situational standards for self-evaluation (Cash, Cash, & Butters, 1983). People low in social anxiety have been shown to engage in downward comparison more than people high in social anxiety (Cash et al., 1983).

The Self-Consciousness Scale consists of 23 items, each rated on a 5-point Likert scale (extremely uncharacteristic (0) to extremely characteristic(4)). The full scale and its subscales have demonstrated reasonable 2-week test-retest reliability ( $r_s = .73$  to  $.84$ ; Fenigstein et al., 1975).

Type A Personality. The Type A personality has been characterized as intense, hard-driving, and competitive, and individuals high in Type A have been found to show particular interest in upward comparison information (Gastorf, Suls, & Sanders, 1980; Matthews & Siegel, 1983). In this study, Type A behavior was assessed with the Jenkins Activity Survey, Form T, which is used with university students (JAS-T; Glass, 1977; see Appendix E). This measure includes 44 multiple-choice items, 21 of which are used to calculate an index of Type A/B behavior. High scores are considered to reflect Type A personality. The JAS-T has been shown to have good test-retest reliability, with only 9% of students changing A/B classification over a period from 2 weeks to 4 months (Glass, 1977).

Attention to Social Comparison Information. Attention to Social Comparison Information (ATSCI) is a subscale of the Concern for Appropriateness Scale (Lennox & Wolfe, 1984; see Appendix F), a 20-item scale derived from Snyder's (1974) Self-Monitoring Scale. The ATSCI subscale consists of 13 items (e.g., "When I am uncertain how to act in a social situation I look to the behavior of others for cues"). Each item is rated on a 6-point Likert scale (certainly, always untrue (0) to certainly, always true (5)). High scores have been associated with susceptibility to peer pressure (Johnson, 1989) and conformity (Bearden & Rose, 1990), but its relationship to social comparison processes has not yet been examined. The ATSCI has been shown to be internally consistent (alpha = .83 to .89) and to correlate as predicted with related constructs (Bearden & Rose, 1990).

#### Assessment of Dysphoria

Dysphoria level was assessed with the Beck Depression Inventory (BDI; Beck et al., 1979; see Appendix G), a 21-item self-report scale. The BDI has demonstrated high

reliability and validity (see Beck, Steer, & Garbin, 1988, for a review). According to guidelines established by Beck and his colleagues (1988), participants in this study who scored 9 or less on the BDI were classified as "nondysphoric" and those who scored 10 or more were classified as "dysphoric." To insure assessment of a recurrent or longstanding dysphoric state rather than transitory distress (see Kendall, Hollon, Beck, Hammen, & Ingram, 1987), I administered the BDI to participants both during the large, preparticipation testing sessions and again when they participated in this study. The correlation between BDI scores at pretest and participation was .70, with 11 participants who were dysphoric at pretest being classified as nondysphoric at participation. For all analyses, participants were classified as dysphoric or nondysphoric based on their BDI scores at the time of participation in this study.

#### Social Comparison Diary

Wheeler and Miyake's (1992) social comparison diary consists of a series of questions that assess, among other things, comparison dimension, the relationship of the participant to the comparison target, and pre- and postcomparison mood. For this study, I modified their diary by adding four new questions and making minor changes to several others (see Appendix H).

I added the following questions:

1. Participants were asked to rate, on a 6-point scale (not at all important (1) to very important (6)), "How important is this comparison dimension to you?"
2. Participants were asked to rate, using a 6-point scale (extremely similar (1) to extremely dissimilar (6)), "In general, how similar are you to the person with whom you

compared yourself?"

3. I assessed participants' motives for engaging in comparison by asking them, "Why did you compare yourself with this person?" Participants could choose from among five options: (a) I didn't intend to compare--it just happened, (b) to learn something from this person or to use this person as someone to model myself after (self-improvement), (c) to feel better about myself or my situation (self-enhancement), (d) to evaluate or measure myself on some dimension (self-evaluation), or (e) other.

4. Participants were asked "Is this a situation in which you were forced to make a social comparison or a situation in which you voluntarily chose to make a social comparison?" because Goethals (1986) has suggested that the forced/voluntary distinction should be addressed in social comparison research.

I also made minor modifications to the following questions:

1. I added "group" as a possible comparison target because people sometimes compare themselves with the average level of an entire group, such as a class, rather than with a specific individual.

2. I also added "reminded by something" to the diary's question about the sort of contact made with the comparison target, to be used when participants did not have direct contact with the target, but were somehow reminded of the target (e.g., during a conversation). In Wheeler and Miyake's (1992) study, such a mode of comparison would likely have been subsumed under the "Daythought" category.

3. I assessed comparison dimension using an open-ended question, rather than the multiple choices used by Wheeler and Miyake, so that I could examine whether their

categories are representative of the dimensions on which people make comparisons.

4. I modified the scale used to assess mood. I retained three adjective pairs from Wheeler and Miyake's diary (happy/sad, encouraged/discouraged, and not jealous/jealous<sup>3</sup>) and added four others (good mood/bad mood, competent/incompetent, accepted/rejected, and satisfied/dissatisfied). These new adjectives were chosen to measure global mood and self-esteem, as well as specific mood states hypothesized to be related to each of the two personality types (Zuroff & Mongrain, 1987). All mood items were rated on 6-point scales, with higher scores indicating more negative affect. I calculated average precomparison and postcomparison mood scores across all diary entries for each participant for use in analyses (Cronbach's alpha for these average mood scores was .91 for precomparison mood and .94 for postcomparison mood).

Finally, I asked participants to record all of their comparisons, rather than just the ones that were accompanied by a "psychological reaction" (as did Wheeler and Miyake, 1992), because I was interested in the full range of comparisons, rather than just those that produced mood changes (cf. Wood, 1996). This may make my test of mood effects more conservative than that of Wheeler and Miyake.

#### Daily Mood Records

In addition to reporting precomparison and postcomparison mood each time they engaged in a comparison, participants were also required to rate their mood "at the moment" twice each day (either at 10 a.m. and 4 p.m. or 12 p.m. and 6 p.m., depending on their schedules). These mood scales were identical to the one included in the social comparison diaries (see Appendix I). The average within-subject means of the seven mood items were

used in all analyses (Cronbach's alpha for the average within-subject mood ratings was .91 for the first and .93 for the second mood rating).

#### Postparticipation Questionnaire

The first 35 participants in the diary study were asked to complete a structured questionnaire upon completion of their participation to help me identify potential sources of inaccuracy and gain an understanding of how people experienced participation in the diary study (see Appendix J).

#### Procedure

Participants came into the laboratory where they completed a consent form, the BDI, and the individual difference measures described above (except the Rosenberg Self-Esteem Scale, which had been completed during the large testing sessions). Then, they participated in an interactive discussion on the nature of social comparisons, which was conducted by the researcher with individuals or with small groups of participants. As part of this discussion, participants were given instructions about how to complete the social comparison diaries, and they were given booklets containing blank diaries, daily mood records, and detailed written instructions concerning each question in the diary (see Appendix H). Participants were asked to complete one diary each time they compared their skills, achievements, opinions, or attributes with those of another person over the subsequent three weeks and to complete it as soon as possible after engaging in the comparison. They were also given a booklet of shortened "scratch pad" diaries to help them keep track of comparisons that they could not record in their diaries immediately.

Participants were encouraged to submit their completed diaries on a daily basis.

However, this was not mandatory, and the time between submissions for individual participants ranged from a day to a week. If a week had elapsed between submissions for any participant, he or she was contacted by telephone and reminded that more frequent submission was necessary. All participants were contacted at least once during their involvement in the study to address potential difficulties, and all were provided with a telephone number with which they could contact the researcher with questions. Following completion of their participation in the diary study, participants returned to the laboratory and were debriefed.

## Results

### Descriptive Statistics

Table 1 presents the means, standard deviations, and ranges of scores on the PSI-II, the Rosenberg Self-Esteem Scale, and the Beck Depression Inventory for sociotropic and autonomous participants.

Participants reported between 3 and 51 ( $M = 15.21$ ) comparisons over 5 to 25 ( $M = 19.56$ ) days of participation. Days of participation were defined as those days on which participants completed comparison diaries and/or mood records, with 89% of the sample participating on 20 or more days.

### Postparticipation Questionnaire

The questionnaire assessing the experience of participating in the study yielded the following results:

1. How time consuming was your participation in this study (not at all (1) to too much (7))?

$M = 3.67.$

2. How difficult did you find it to be aware that you were making a comparison (not at all (1) to too much (7))?

$M = 4.15.$

3. On average, how soon after making a comparison were you able to fill out a record form?

Within an hour--37%;

Within 6 hours--80%.

Table 1

Mean Scores of Sociotropic and Autonomous Participants on the Dysphoria, Self-Esteem, and Personality Measures

Measure	Predominant Personality Type	
	Sociotropic (n = 27)	Autonomous (n = 35)
BDI (range = 0 - 27)		
<u>M</u>	7.93	7.26
<u>SD</u>	5.64	6.46
Rosenberg Self-Esteem (range = 17 - 40)		
<u>M</u>	31.19	31.97
<u>SD</u>	4.63	5.95
PSI-II		
Sociotropy (range = 62 - 128)		
<u>M</u>	106.41 <sup>a</sup>	82.06 <sup>b</sup>
<u>SD</u>	9.20	9.09
Autonomy (range = 58 - 126)		
<u>M</u>	74.96 <sup>c</sup>	96.86 <sup>d</sup>
<u>SD</u>	7.34	10.40

Note. Means with different superscripts differ significantly,  $p < .01$ .

4. How difficult was it for you to remember to record your current mood twice a day (not at all (1) to too much (7))?

M = 3.76.

5. What did you find most difficult about the study?

Dropping off the forms every day--20%;

Filling out the forms was time consuming--6%;

Evaluating my mood--17%;

Being aware that I had made a comparison--20%;

Remembering to record my mood or comparisons--26%;

Other--9%.

#### Overview of Analyses

I present results pertaining to the reliability and validity of the social comparison diary first. Then, I review my attempts to replicate Wheeler and Miyake's (1992) results, as well as other findings in the social comparison literature. Finally, I present analyses concerning the moderating effects of depressive personality style and dysphoria on social comparison frequency and effects.

As described above, each participant recorded a different number of comparisons. Hence, I calculated within-subject correlations or means for use in all analyses. When analyses involve repeated measures, participants with missing data on one or more levels of the repeated measures variable(s) are excluded.

I used ANOVAs, rather than multiple regression analyses, despite cautions about the problems that may arise from dichotomizing continuous variables (e.g., Cohen, 1983;

Maxwell & Delaney, 1993). One problem is loss of power. A second problem is the inflation of Type I error rate when multiple continuous variables are dichotomized, as I did for the BDI and the PSI-II. However, this is less of a problem when the correlations between the dichotomized variables are low and when sample sizes are small. Given the size of my sample and the low to moderate correlations between the dichotomized independent variables (.30 between BDI and Sociotropy; .09 between BDI and Autonomy)<sup>4</sup>, the Type I error rate associated with dichotomization is quite small (approximately .06 to .08; see Maxwell & Delaney, 1993, p. 185). Moreover, the variables that I dichotomized (dysphoria level and personality type) have been conceptualized as consisting of distinct groups (e.g., for dysphoria, see Beck et al., 1988; for sociotropy/autonomy, see Beck, 1983, Blatt et al., 1982, and Robins, 1990). Finally, I believe ANOVA to be less troublesome than multiple regression in this case because, when several within-subject variables are included in multiple regression, appropriate error terms are difficult to determine and results are difficult to communicate.

#### Part I: Reliability of the Diary Method and Validation with Individual Difference Measures

My first goal was to examine the reliability and validity of the diary method as a measure of social comparison.

##### Reliability

Consistent with Wheeler and Miyake (1992), I assessed the reliability of the diary by correlating the number of comparisons each participant reported during the first five days of participation in the study (as defined above) with the number reported during the last five days. In my study, this reliability estimate was .74, which is identical to that reported by

Wheeler and Miyake. No difference was found between the frequency of comparisons reported on the first five and the last five days,  $M_s = 4.21$  and  $3.91$  comparisons per day, paired  $t(57) = 1.03$ , n.s.

Wheeler and Miyake's method of assessing reliability underestimates the diary's reliability in my study because it does not use the entire period of participation for each individual (which was, on average, 19.6 days). Thus, I computed a more accurate estimate of reliability by dividing the number of days that each individual participated in half and correlating the number of comparisons reported during the first half and the second half of each person's participation time. This method simulates split-half reliability. Correlations were computed for upward and downward comparisons separately and together, and they were adjusted for the full length of participation using the Spearman-Brown formula. The adjusted reliabilities were .84 for upward comparisons, .81 for downward comparisons, and .94 for all comparisons together.

#### Individual Differences and Social Comparison

I correlated the individual difference scores with social comparison frequency and postcomparison mood. Because of the paucity of research relating individual differences and social comparison processes, many of my predictions are quite speculative. Hence, this test of the diary's construct validity is very conservative.

Comparison frequency. Although I expected a correlation between self-esteem and comparison frequency, I was uncertain about its direction because some studies have found high self-esteem people to engage in downward comparison most frequently (e.g., Wheeler & Miyake, 1992) whereas others have found low self-esteem people to do so (e.g., Smith &

Insko, 1987). However, because my method was very similar to Wheeler and Miyake's, I expected to find results consistent with theirs. I also expected people higher in Public Self-Consciousness to make more upward comparisons than those lower in Public Self-Consciousness (Scheier & Carver, 1983), and people high in Social Anxiety to make fewer downward comparisons than those low in Social Anxiety (Cash et al., 1983). Finally, I predicted that Type A personalities would engage in more upward comparison than would those lower in Type A personality (Matthews & Siegel, 1983).

My predictions regarding envy-proneness and attention to social comparison information are especially tentative because they have not been examined previously. Because people with high scores on Attention to Social Comparison Information are concerned with acting "appropriately," they might show a propensity to make upward comparisons, as might people high in Envy, Resentment, and Inferiority because of their tendency to seek unflattering comparisons.

Effects of social comparisons. My strongest predictions regarding responses to social comparisons concern the self-esteem and the ERIS subscales. Although some researchers have found that people low in self-esteem benefit most from downward comparison and that people high in self-esteem benefit most from upward comparison (e.g., Aspinwall & Taylor, 1993, Study 1), Wheeler and Miyake found only that people higher in self-esteem were less negatively affected by upward comparisons than people lower in self-esteem; thus, I expect to replicate this finding. Based on Smith and his colleagues' (1991) findings, I expected higher scores on the ERIS and its subscales (particularly Envy and Resentment) to be associated with more negative mood following upward comparison.

My other predictions about mood effects are more tentative because they have received no previous research attention. I speculated that because of their concern about acting acceptably, individuals high in ATSCI might show greater affective responding to comparison information (i.e. more negative mood following upward comparison and more positive mood following downward comparison). A greater focus on one's performance relative to others, as evident in people high in Public Self-Consciousness and Social Anxiety, might also lead to greater affective consequences associated with both upward and downward comparison.

To examine these predictions, scores on each individual difference measure were correlated with the average number of comparisons reported by each participant per day of participation in the study (comparison frequency). Because the comparison frequencies were positively skewed, I subjected them to square root transformations prior to correlation (Howell, 1987). To examine the effects of comparison, I computed partial correlations between participants' individual difference scores and their average postcomparison mood, controlling for precomparison mood. All correlations were computed for upward and downward comparisons separately. Comparisons were categorized as upward or downward based on participants' ratings of their perceived similarity to the comparison target on the dimension of comparison, which they made using a 6-point Likert scale (I am inferior/worse/undesirable (1) to I am superior/better/desirable (6)). Upward comparisons were those for which the participant rated him- or herself to be "somewhat inferior" to "very inferior" to the target (ratings of 1 to 3), whereas downward comparisons were those for which the participant rated him- or herself to be superior to the target (ratings of 4 to 6).

As Table 2 indicates, two of my relatively strong predictions and all four of the tentative ones regarding comparison frequency were supported at least marginally significantly (four at  $p < .05$  and two at  $p < .10$ ). As predicted, people higher in ATSCI and all of the ERIS subscales reported engaging in more upward comparisons than people lower on these scales, and people higher in self-esteem reported making more downward comparisons than people lower in self-esteem. Furthermore, people higher in Social Anxiety reported making fewer downward comparisons than those lower in Social Anxiety. The prediction regarding Public Self-Consciousness was in the predicted direction, but not significant. The only strong prediction that completely failed to receive support concerned the correlation between JAS-T and upward comparison frequency. Furthermore, one unpredicted correlation was observed, with people higher in Inferiority reporting fewer downward comparisons than those lower in Inferiority.

Table 2 also shows that three of the four relatively strong predictions about the relationship between individual differences and mood were supported (two at  $p < .05$  and one at  $p < .10$ ). People higher in Resentment and Inferiority reported more negative mood after upward comparison than those lower on these scales, and people higher in self-esteem reported less negative mood after upward comparison than people lower in self-esteem. Of the six tentative predictions, only one was clearly supported: People higher in ATSCI reported more negative mood after upward comparison than those lower on ATSCI.

#### Conclusions from Individual Difference Results

Ten of the 18 correlations predicted relatively strongly or more tentatively between social comparison frequency or mood effects and individual difference measures were

Table 2

Correlations of Individual Difference Measures with Comparison Frequency and Postcomparison Mood as a Function of Comparison Direction

Individual Difference Measure	Comparison Frequency <sup>a</sup>		Postcomparison Negative Mood <sup>b</sup>	
	Upward (N=62)	Downward (N=62)	Upward (N=54)	Downward (N=61)
Rosenberg Self-Esteem (.89)	-.05	<u>.26**</u>	<u>-.33**</u>	.05
ERIS				
Envy (.85)	<u>.23*</u>	-.05	<u>.12</u>	.17
Resentment (.80)	<u>.26**</u>	-.13	<u>.24*</u>	.16
Inferiority (.85)	<u>.24**</u>	<u>-.33***</u>	<u>.43****</u>	.13
Self-Consciousness				
Public (.78)	<u>.16</u>	-.03	<u>.21</u>	<u>-.13</u>
Social Anxiety (.80)	-.05	<u>-.41****</u>	<u>.20</u>	<u>-.20</u>
JAS-T/Type A (.66)	<u>.06</u>	-.02	-.05	-.05
ATSCI (.85)	<u>.23*</u>	-.13	<u>.31**</u>	<u>-.15</u>

Note. Underlined correlations were predicted to be significant. Numbers in parentheses represent the internal consistency estimates (Cronbach alpha) calculated for each scale in this study.

<sup>a</sup>Frequencies were subjected to a square-root transformation prior to correlation.

<sup>b</sup>Correlations with postcomparison mood have precomparison mood partialled out.

\*p<.10. \*\*p<.05. \*\*\*p<.01. \*\*\*\*p<.001.

significant and in the predicted direction. Most of the other predicted correlations were in the predicted direction, although not of a significant magnitude. Only the prediction about Type A score (JAS-T) and frequency of upward comparison clearly failed to receive any support. It is interesting to note that the JAS-T had the lowest internal consistency of all the scales in this study (see Table 2).

Only one unpredicted correlation emerged, namely the negative correlation between Inferiority and frequency of downward comparison. This relationship is sensible as high Inferiority may result from engaging in few downward comparisons (as well as many upward comparisons), and high Inferiority may make it difficult to perceive others as inferior to the self.

Even though many of my predictions were very tentative due to the paucity of previous research relating individual differences to social comparison processes, many of them were supported. These findings lend support to the construct validity of the social comparison diary.<sup>5</sup>

### Part 2: Replication of Findings from the Social Comparison Literature

My second method of assessing the validity of the diary was to attempt to replicate Wheeler and Miyake's findings, as well as past findings in the social comparison literature regarding comparison importance, target similarity, and comparison motives.

#### Replication of Wheeler and Miyake (1992)

Participants' responses to the open-ended question about the dimension on which they compared were categorized by two raters, who were blind to each participant's gender and scores on all individual difference measures, into one of 11 categories: the eight choices

offered in Wheeler and Miyake's diary [academic matter, personality, abilities (other than academic and social skills), lifestyle (not related to wealth), social skills, physical appearance, wealth (money and other things), and opinion], as well as relationships (a category that I added a priori because of its relevance to some of the hypotheses to be tested later), substance use (e.g., alcohol and tobacco; a category that was added post hoc), and "other" (for comparisons that did not easily fit into any of the other categories). The interrater agreement for this coding scheme, as assessed by the percentage of agreement between the two raters' independent codings of a sample of 110 responses, was 86%.

A summary of the comparisons reported by participants in this study and in Wheeler and Miyake's study is presented in Table 3. My findings are remarkably similar to theirs. Like Wheeler and Miyake, I found that participants in this study compared most frequently with same-sex targets whom they considered to be close or ordinary friends and whom they perceived to be fairly similar to themselves on the dimension of comparison. Comparison occurred most often via social interaction with the target, and the most common dimension of comparison was academics, although participants also frequently compared their personalities, physical appearance, lifestyles, and abilities. Table 3 also reports t-tests of sex differences to allow comparison with Wheeler and Miyake's findings.

Precomparison affect ratings and direction of comparison. What prompts downward comparisons--negative affect, as Wills (1981) predicted, or positive affect, as Wheeler and Miyake (1992) found? I categorized precomparison mood ratings into positive (1 to 3) and negative (4 to 6) mood states. All participants reported making comparisons when they were in a positive mood: 50 made both upward and downward comparisons, 9 made upward

Table 3

Percentage of Social Comparisons for Men, Women, and Men and Women Combined in the Present Study and in Wheeler and Miyake's (W&M) 1992 Study

Variable	Men <sup>a</sup>		Women		Combined	
	W&M (n=39)	Current (n=34)	W&M (n=55)	Current (n=28)	W&M (n=94)	Current (n=62)
Target sex						
Same sex	71	73	68	75	69	74
Opposite sex	23	17	24	18	23	18
Mixed sex	4	1	7	1	6	1
Unknown	2	8	1	5	2	7
Situation (contact)						
Interaction	46	49	51	47	49	48
Visual	21	13	22	21*	21	17
Daythought	17	12	11**	7	13	10
Brief contact	9	11	9	11	9	11
Telephone	7	6	7	5	7	5
Reminded#	-	8	-	9	-	9
Situation (choice)						
Voluntary	-	74	-	78	-	76
Forced	-	26	-	22	-	24
Dimension						
Academic	25	34	27	27	26	31
Personality	14	15	15	12	14	13
Appearance	12	8	16*	30**	14	18
Lifestyle	14	4	11	4	12	4
Abilities	14	16	12	9**	13	13
Social skills	8	3	6	4	7	4
Wealth	5	3	4	2	4	3
Opinion	4	2	2**	1	3	2
Relationships	1	10	2	5*	1	8
Eating habits	0	-	2**	-	1	-
Substance use	-	1	-	2	-	1
Uncategorized	4	3	4	4	4	3
Relationship						
Close friend	31	33	31	23*	31	29
Ordinary friend	27	20	26	24	26	22
Acquaintance	19	12	19	15	19	13
Stranger	15	9	15	10	15	10
Family member	1	2	4**	6*	3	4
Imaginary person	3	1	2	1	2	1
Boy/girlfriend	1	-	2	-	1	-

Table 3 (continued)

Variable	Men <sup>a</sup>		Women		Combined	
	W&M (n=39)	Current (n=34)	W&M (n=55)	Current (n=28)	W&M N=94)	Current (N=62)
Relationship (continued)						
Famous person	2	3	0**	3	1	2
Roommate	-	1	-	1	-	1
Self	-	5	-	7	-	6
Group	-	12	-	9	-	11
Other	0	1	2	1	1	1
Similarity level (on dimension of comparison) <sup>b</sup>						
Target superior	18	16	17	20	17	18
Target same	56	52	58	52	57	52
Target inferior	26	32	25	28	25	30
Similarity level (in general)						
Very dissimilar	-	30	-	29	-	29
Neither	-	47	-	42	-	45
Very similar	-	24	-	29	-	26
Importance						
Not very	-	14	-	15	-	14
Moderately	-	35	-	33	-	34
Very	-	51	-	53	-	52
Motive						
Unintended	-	38	-	31	-	35
Evaluation	-	35	-	39	-	37
Improvement	-	11	-	10	-	11
Enhancement	-	11	-	15	-	13
Other/Combination	-	5	-	4	-	5

Note. Wheeler & Miyake's percentages are based on 23.5 comparisons per participant over 13.1 days (1.8 comparisons/day), whereas those from the present study are based on 15.2 comparisons per participant over 19.6 days (0.8 comparisons/day). All percentages have been rounded to the nearest whole number.

<sup>a</sup>Because of the large number of t-tests for sex differences and the often marginal levels of significance, they should be interpreted with caution, \* $p < .10$ . \*\* $p < .05$ .

<sup>b</sup>Miyake and Wheeler's percentages were presented on a scale from 1 (target superior) to 7 (target inferior). For purposes of comparison with the scale used in this study (1-2=superior, 3-4=same, 5-6=inferior), Wheeler and Miyake's percentages were summed across each of their levels (1-2=superior, 3-5=same, 6-7=inferior). In subsequent analyses, targets in this study were categorized into only two categories, as explained in the text.

comparisons only, and 3 made downward comparisons only. Only 38 participants reported making comparisons when in a negative mood: 13 compared in both directions, 13 compared upwards only, and 12 compared downwards only.

Comparison frequencies associated with each mood state were then subjected to square root transformations and were analyzed in a 2 x 2 (Precomparison Mood x Comparison Direction) ANOVA, with repeated measures on both variables. The expected Precomparison Mood x Direction interaction was significant,  $F(1, 61) = 16.03, p < .001$ . Simple effects analyses revealed that when participants rated their precomparison mood as positive, they reported engaging in more downward than upward comparisons (raw  $M_s = .41$  downward comparisons versus  $.25$  upward comparisons per day, square root transformed  $M_s = .59$  versus  $.43$ ),  $F(1, 61) = 18.84, p < .001$ .<sup>6</sup> No difference in comparison direction was observed when participants were in a negative mood, raw  $M_s = .05$  for both upward and downward comparisons. These findings are consistent with those reported by Wheeler and Miyake.<sup>7</sup>

Inclusion of adjectives such as loved/unloved and competent/incompetent in the mood scale may tap into aspects of self-evaluation other than pure mood, and changes in mood are not necessarily accompanied by changes in self-evaluation (Suls, 1986). I re-ran this analysis using only the mood adjectives included in Wheeler and Miyake's (1992) diary (happy/sad, encouraged/discouraged). Again, a significant Precomparison Mood x Comparison Direction interaction emerged,  $F(1, 61) = 11.48, p = .001$ , with participants engaging in more upward than downward comparisons when in a positive mood (raw  $M_s = .39$  versus  $.24$  comparisons per day, square root transformed  $M_s = .58$  versus  $.42$ ), and an

approximately equal number of upward and downward comparisons when in a negative mood (raw  $M_s = .06$  upward and  $.07$  downward comparisons per day).

A possible limitation of these findings could be the biasing of precomparison mood ratings by postcomparison mood. Wheeler and Miyake acknowledged that such affect-interference would be more likely as the interval between a comparison and its being recorded increased. They did not assess this interval; however, in the present study, only 37% of participants reported recording their comparisons within an hour of their occurrence. To assess the seriousness of the affect-interference bias, I asked participants to report their moods twice daily at predetermined times, and to indicate the exact time at which these ratings were made. On average, these alternate precomparison mood ratings were completed 3.25 hours prior to comparisons, and they correlated  $.67$  and  $.63$  with diary ratings of pre- and postcomparison mood. (The correlation between pre- and postcomparison diary mood ratings was  $.81$ .)

I conducted the ANOVAs just reported again, this time using the mood rating from the daily diary closest in time to and preceding each comparison as the measure of precomparison mood. Despite this conservative change, in the ANOVA with the full 7-item mood composite, the Precomparison Mood x Direction interaction again emerged as significant,  $F(1, 60) = 9.53$ ,  $p = .003$ , with simple effects analyses indicating greater downward comparison when participants indicated, up to several hours prior to comparison, being in a positive mood (raw  $M_s = .50$  downward versus  $.37$  upward comparisons per day). Main effects similar to those observed in the previous analysis also emerged. An ANOVA of the happy/encouraged mood composite yielded similar results,  $F(1, 60) = 4.72$ ,

$p = .034$  for the Mood x Direction interaction (raw  $M_s = .30$  downward and  $.20$  upward comparisons per day when participants were in a positive mood; raw  $M_s = .05$  upward and downward comparisons per day when participants were in a negative mood). Thus, precomparison mood effects do not appear to be artifacts of the retrospective reporting of precomparison mood.

Self-esteem and comparison direction. Another provocative finding by Wheeler and Miyake (1992) was that higher self-esteem was associated with a greater propensity to compare downwards. As reported in Table 2, I replicated this finding,  $r(61) = .26$ ,  $p = .046$ .

Effects of comparison on affect. To examine mood effects associated with comparison direction, I entered participants' average pre- and postcomparison mood scores (7-item composite) into a 2 x 2 (Pre/Postcomparison Time x Comparison Direction) ANOVA, with repeated measures on both variables. This analysis revealed a significant interaction between comparison direction and time of mood measurement,  $F(1, 52) = 47.19$ ,  $p < .001$ . Consistent with Wheeler and Miyake (1992), upward comparisons were associated with an increase in negative mood,  $M_s = 2.68$  to  $3.27$ ,  $F(1, 101) = 86.79$ ,  $p < .001$ . However, unlike Wheeler and Miyake, I did not find a significant decrease in negative mood as assessed by my 7-item mood scale after downward comparisons,  $M_s = 2.51$  to  $2.43$ ,  $F(1, 101) = 1.47$ , n.s. When I analyzed Wheeler and Miyake's happy/encouraged composite alone, however, the Time x Direction interaction was significant,  $F(1, 52) = 29.52$ ,  $p < .001$ , with mood improving significantly after downward comparison, ( $M_s = 2.76$  to  $2.59$ ,  $F(1, 101) = 6.47$ ,  $p = .014$ ) and deteriorating significantly after upward comparison ( $M_s = 2.85$  to  $3.34$ ,  $F(1, 101) = 35.84$ ,  $p < .001$ ).

I conducted these ANOVAs again using the alternate mood ratings from participants' daily mood records. A significant Time x Direction interaction again emerged for the full mood composite,  $F(1, 49) = 29.39, p < .001$ , with simple effects analyses showing mood worsening after upward comparison,  $M_s = 2.65$  to  $3.24, F(1, 98) = 42.91, p < .001$ , but improving little after downward comparison,  $M_s = 2.53$  to  $2.42, F(1, 98) = 1.51, n.s.$  The Time x Direction interaction was also obtained for the happy/encouraged mood composite,  $F(1, 49) = 17.30, p < .001$  ( $M_s = 2.80$  to  $3.27$  for upward comparison,  $F(1, 98) = 24.74, p < .001$ , and  $M_s = 2.67$  to  $2.56$  for downward comparison,  $F(1, 98) = .98, n.s.$ ).

Conclusions from replication of Wheeler and Miyake (1992). My findings concerning the patterns of comparisons reported by university students are remarkably similar to those reported by Wheeler and Miyake. I also replicated, to a large extent, Wheeler and Miyake's findings concerning the association between comparison direction and precomparison affect, self-esteem, and mood effects. Finally, my findings suggest that Wheeler and Miyake's results regarding precomparison mood were not an artifact of postcomparison mood.

#### Replication of Other Findings from the Social Comparison Literature

Importance of the comparison dimension. I predicted that people would compare most often in dimensions they identified as important and that such comparisons would have the most impact on their moods. On average, participants rated the dimensions on which they compared to be quite important to them, average within-subject  $M = 4.24$  (95% confidence interval =  $4.06$  to  $4.42$ ). Upward and downward comparisons did not differ in their importance ratings, paired  $t(52) = 1.07, n.s.$  Furthermore, as evident from Table 3,

participants reported that over half (52%) of their comparisons were on dimensions they considered to be very important, while a smaller percentage were on dimensions of moderate (34%) or low (14%) importance.

I assessed the relationship between dimension importance and affective responding by first computing within-subject partial correlations between ratings of importance and postcomparison mood for upward and downward comparisons separately, controlling for the influence of precomparison mood. Then, the across-sample averages of these partial correlations were tested for their difference from zero. A significant partial correlation emerged between dimension importance and postcomparison mood for upward comparisons, average  $r = .32$ ,  $t(36) = 4.92$ ,  $p < .001$ , with upward comparison on more important dimensions being related to more negative postcomparison mood than upward comparison on less important dimensions. No such association emerged for downward comparisons, average  $r = -.05$ ,  $t(45) = 0.78$ ,<sup>8</sup> which is not surprising given that Pleban and Tesser (1981) have suggested that the effects of downward comparison are less influenced by dimension relevance than are the effects of upward comparison. A test of homogeneity of the  $z'$ -transformed within-subject partial correlations for downward comparisons (Cohen & Cohen, 1983) suggested that importance and mood were not correlated to the same degree in different individuals in the sample,  $\chi^2(43) = 62.34$ ,  $p < .05$ , with some participants showing an improvement of mood and others showing a worsening of mood with increasing importance of the comparison dimension.

General similarity to the target. In keeping with past studies, I predicted that participants would choose to compare most often with others who were similar to

themselves on various dimensions, not just the one under comparison, and that comparisons with similar persons would have more impact than comparisons with dissimilar persons.

On average, participants rated the targets with whom they compared as moderately similar to themselves in general,  $M = 3.45$  (95% confidence interval = 3.28 to 3.62). The preference for a moderately similar target is also evident from Table 3, which shows that participants reported making most of their comparisons with others who were moderately similar to themselves in a general sense (45%) and fewer comparisons with targets considered to be very similar or very dissimilar ( $M_s = 29\%$  and  $26\%$ , respectively). Upward and downward comparison targets did not differ in their general similarity ratings, paired  $t(52) = 0.20$ , n.s.

The relationship between perceived general similarity of the target to the self and comparison effects was examined in the same manner as I used for dimension importance. The observed partial correlations suggest that the more similar the target was perceived to be to the self, the better participants felt following downward comparison, average  $r = .14$ ,  $t(45) = 2.56$ ,  $p < .05$ . No association was discovered for upward comparison, average  $r = .02$ ,  $t(36) = 0.21$ , n.s. A test of the homogeneity of the z'-transformed within-subject partial correlations for upward comparisons revealed that general similarity and postcomparison mood were not correlated to the same degree in each participant,  $\chi^2(29) = 51.77$ ,  $p < .01$ , with the correlations being approximately equally divided between those that were positive and those that were negative.<sup>9</sup>

Thus, people tend to engage in comparison with others who are similar to themselves on dimensions other than the one of interest. However, increasing target

similarity seems to be associated with greater affective responding in the predicted direction only for downward comparisons, such that greater similarity is associated with better mood after comparison.

Self-reported motive for comparison and comparison direction. Three main motives for engaging in social comparison have been identified: self-evaluation, self-improvement, and self-enhancement. Generally speaking, these motives have been thought to lead to similar comparisons, upward comparisons, and downward comparisons, respectively (Wood, 1989). As indicated in Table 3, participants reported that almost two-thirds (61%) of their comparisons were motivated by one of these three reasons. For the rest of their comparisons, participants either could not identify a motive (35%), or they indicated comparing for a combination of reasons (4%) or for reasons other than those provided (0.6%).

To assess whether different motives are associated with different comparison directions, I entered participants' mean direction ratings (as assessed by the question asking participants whether they perceived themselves to be inferior or superior to the target) into an ANOVA with repeated measures on comparison motive. This analysis was significant,  $F(2, 62) = 30.79, p < .001$ . Consistent with social comparison theory and research, participants rated comparisons used for enhancement purposes as being the most downward,  $M = 4.63$  (95% confidence interval = 4.32 to 4.93), and those for self-improvement motives as the most upward, although only slightly so,  $M = 3.11$  (95% confidence interval = 2.77 to 3.45); (recall that higher scores indicate increasing downwardness). Comparisons for self-evaluation were rated almost directly in the center of the 6-point scale used to assess

direction.  $M = 3.59$  (95% confidence interval = 3.30 to 3.88), indicating that on average, they were neither upward nor downward.<sup>10</sup> Paired t-tests between consecutive means revealed differences between all pairs,  $t(31) = 4.98$ ,  $p < .001$  for self-enhancement and self-evaluation, and  $t(31) = 2.86$ ,  $p = .008$  for self-improvement and self-evaluation.

Conclusions from Replication of Findings from the Social Comparison Literature. I replicated many previous findings from the social comparison literature in a naturalistic context: (a) mood worsens more as the importance of an upward comparison increases, (b) people compare most frequently with others who are similar to themselves on dimensions other than the one under comparison, and (c) for downward comparisons, the more similar the target, the better people feel after comparison. Although not explicitly examined in previous research, I also expected and found that individuals compare most frequently in dimensions that are important to them. Finally, I found that people reported comparing in different directions for different reasons. Consistent with past research in which motives have been inferred from comparison direction, participants in my study indicated comparing with inferior others for self-enhancement, slightly superior others for self-improvement, and similar others for self-evaluation.

My ability to replicate these previous findings, as well as those of Wheeler and Miyake, along with the evidence I presented of the diary's reliability and association with individual difference measures, make me confident about the utility of the social comparison diary for studying naturally occurring social comparisons.

### Part 3: Depressive Personality Style, Dysphoria, and Comparison Processes

I turn now to assessing the association between depressive personality style, dysphoria, and social comparison frequency in different domains, as well as the affective consequences of comparisons.

To test the congruency hypotheses proposed earlier, the 11 comparison dimensions were regrouped into two new categories, an Achievement domain and an Interpersonal domain, which were derived conceptually to reflect the domains of particular salience to each depressive personality type (Beck, 1983; Blatt et al., 1982). Comparisons about academic matters (e.g., grades), abilities (e.g., skiing skills), wealth (e.g., income), and lifestyle (e.g., time spent travelling) were selected to represent the Achievement domain, whereas comparisons related to personality (e.g., thoughtfulness), social skills (e.g., conversation skills), physical appearance (e.g., weight), and relationships (e.g., having a partner) were selected to represent the Interpersonal domain. Three categories (opinion, substance use, and other) were excluded from the new groupings because they did not fit either personality type. For each participant, comparison dimensions were classified as personality-congruent when they matched his or her personality type (i.e., when sociotropic participants made interpersonally-related comparisons or autonomous participants made achievement-related comparisons) and as personality-noncongruent when personality type and comparison dimension were not matched.

#### Depressive Personality, Dysphoria, and Comparison Selection

I predicted that participants would report more personality-congruent than personality-noncongruent comparisons. I also anticipated a relationship between dysphoria

and comparison direction. Although findings concerning this relationship are inconsistent in the literature, given my earlier reported finding that individuals higher in self-esteem made more downward comparisons than individuals lower in self-esteem and the significant correlation between self-esteem and BDI scores in my sample ( $r = -.58$ ), I expected nondysphoric participants to engage in more downward comparisons than dysphoric participants.

The frequency of comparison (number of comparisons per day) in each direction and dimension was calculated for each participant, subjected to a square root transformation, and entered into a 2 x 2 x 2 (Personality Congruency x Comparison Direction x Dysphoria Group) ANOVA, with repeated measures on congruency and direction.<sup>11</sup> The predicted main effect for congruency was found to be significant,  $F(1, 60) = 3.91$ ,  $p = .05$ , but it was qualified by an interaction between congruency and dysphoria level,  $F(1, 60) = 7.36$ ,  $p = .009$ . Means are presented in Table 4. Simple effects analyses within dysphoria groups revealed a significant congruency effect only among dysphoric participants,  $F(1, 60) = 14.40$ ,  $p < .001$ , who reported comparing more frequently in personality-congruent than noncongruent domains.

As expected, the predicted Dysphoria x Direction interaction was also significant,  $F(1, 60) = 12.28$ ,  $p = .001$ . Means are presented in Table 5. Simple effects analyses revealed that nondysphoric participants reported making more downward than upward comparisons per day,  $F(1, 60) = 41.34$ ,  $p < .001$ , whereas dysphoric participants compared with approximately equal frequency in each direction. Furthermore, consistent with my findings for self-esteem, nondysphoric participants made more downward comparisons than

Table 4

Raw and Square Root Transformed (Sqrt) Frequency of Comparison in Personality-Congruent and Personality-Noncongruent Domains as a Function of Dysphoria Group

Dysphoria Group	Comparison Domain	
	Congruent	Noncongruent
Nondysphoric ( $n = 46$ )		
Raw		
<u>M</u>	.38	.44
<u>SD</u>	.27	.33
Sqrt		
<u>M</u>	.74	.79
<u>SD</u>	.33	.41
Dysphoric ( $n = 16$ )		
Raw		
<u>M</u>	.43	.19
<u>SD</u>	.36	.16
Sqrt		
<u>M</u>	.80	.50
<u>SD</u>	.39	.31

Note: Raw frequencies are expressed in number of comparisons per day.

Table 5

Raw and Square Root Transformed (Sqrt) Frequency of Upward and Downward Comparison as a Function of Dysphoria

Dysphoria Group	Comparison Direction	
	Upward	Downward
Nondysphoric (n = 46)		
Raw		
<u>M</u>	.29	.53
<u>SD</u>	.31	.27
Sqrt		
<u>M</u>	.59	.93
<u>SD</u>	.42	.32
Dysphoric (n = 16)		
Raw		
<u>M</u>	.34	.28
<u>SD</u>	.31	.23
Sqrt		
<u>M</u>	.69	.61
<u>SD</u>	.33	.33

Note: Raw frequencies are expressed in number of comparisons per day.

did dysphoric participants,  $F(1, 106) = 30.50, p < .001$ .

Although the interaction involving all three variables (Personality Congruency x Comparison Direction x Dysphoria Group) was not significant,  $F(1, 60) < 1$ , analyses were performed separately for upward and downward comparisons because they were predicted and to allow comparison with the mood effects that I report later. For upward comparisons, the interaction between dysphoria and congruency was significant,  $F(1, 60) = 7.34, p = .009$ , with simple effects analyses within dysphoria groups revealing that dysphoric, but not nondysphoric, participants reported more congruent than noncongruent upward comparisons (raw  $M_s = .24$  versus  $.10$ , square root transformed  $M_s = 0.43$  versus  $0.26$ ),  $F(1, 60) = 7.36, p < .01$ . Dysphoric participants also made more congruent upward comparisons than did nondysphoric participants (raw  $M_s = 0.24$  versus  $0.13$ , square root transformed  $M_s = 0.43$  versus  $0.28$ ),  $F(1, 102) = 4.91, p < .05$ . No significant differences between groups were found for downward comparisons, except that nondysphoric participants made more downward comparisons than did dysphoric participants, as reported above.<sup>12</sup>

Finally, to examine whether one or both depressive personality styles contributed to the congruency effects discovered, I also ran the full model analysis with the congruency variable separated into its  $2 \times 2$  (Depressive Personality x Comparison Dimension) components. The  $2 \times 2 \times 2 \times 2$  (Personality x Dysphoria x Dimension x Direction) ANOVA on the square root transformations of comparison frequency revealed a Personality x Dysphoria x Dimension interaction,  $F(1, 58) = 8.75, p = .004$ , as expected, and as can be seen in Table 6. Simple effects analyses within each Dysphoria x Personality group revealed that dysphoric sociotropic and dysphoric autonomous participants both reported comparing

Table 6

Raw and Square Root Transformed (Sqrt) Comparison Frequency as a Function of Dysphoria, Depressive Personality Group, and Comparison Dimension

Dysphoria and Personality Group	Comparison Domain	
	Relationship	Achievement
Nondysphoric		
Sociotropic ( $n = 20$ )		
Raw		
<u>M</u>	.32	.48
<u>SD</u>	.16	.21
Sqrt		
<u>M</u>	.70	.91
<u>SD</u>	.26	.24
Autonomous ( $n = 26$ )		
Raw		
<u>M</u>	.41	.42
<u>SD</u>	.40	.33
Sqrt		
<u>M</u>	.69	.76
<u>SD</u>	.49	.38
Dysphoric		
Sociotropic ( $n = 7$ )		
Raw		
<u>M</u>	.60	.27
<u>SD</u>	.46	.21
Sqrt		
<u>M</u>	.97	.61
<u>SD</u>	.43	.39
Autonomous ( $n = 9$ )		
Raw		
<u>M</u>	.13	.29
<u>SD</u>	.09	.20
Sqrt		
<u>M</u>	.42	.67
<u>SD</u>	.21	.31

Note: Raw frequencies are expressed in number of comparisons per day.

more frequently in congruent than noncongruent domains.  $F(1, 58) = 9.00, p < .01$  and  $F(1, 58) = 5.80, p < .05$ , respectively. Furthermore, nondysphoric sociotropes compared less frequently in congruent than noncongruent domains.  $F(1, 58) = 8.60, p < .01$ . Thus, both dysphoric sociotropic and dysphoric autonomous individuals contributed to the observed congruency effect. Once again, this pattern was observed for upward, but not downward, comparisons.

#### Depressive Personality, Dysphoria, and the Impact of Comparisons

Earlier I presented results indicating that mood effects depend on comparison direction. With the inclusion of depressive personality styles and dysphoria into the analysis, however, I predicted that these mood effects would be qualified. Specifically, I predicted that comparison direction would continue to determine whether mood changes would be negative or positive, but that participants would be more affected by comparisons in personality-congruent than in personality-noncongruent domains, and that dysphoric participants would experience greater changes in affect than nondysphoric participants.

Average mood change scores (i.e., the difference between postcomparison and precomparison mood ratings on all 7 items) were computed for each participant and used as dependent variables in all mood analyses. Difference scores were used rather than repeated measures on pre- and postcomparison mood to avoid complicating the interpretation of interactions further by the addition of another within-subject variable and because mood change was the variable of interest. Analyses conducted using the repeated measures, however, produced identical results.

Mood change scores were entered in a 2 x 2 x 2 (Personality Congruency x

Comparison Direction x Dysphoria Group) mixed-model ANOVA, with repeated measures on congruency and direction. Given the within-subjects nature of the design, only participants who engaged in upward and downward comparisons in both congruent and noncongruent domains were included in the full analyses, reducing the sample size to only 33 out of the original 62 participants.

As in previous analyses, the main effect for Direction was significant,  $F(1, 31) = 32.28$ ,  $p < .001$ , with mood being worse after upward comparison than after downward comparison,  $M_s = .56$  versus  $-.12$ . The expected Congruency x Dysphoria interaction was also significant,  $F(1, 31) = 4.30$ ,  $p = .047$ ; however, it was qualified by a marginally significant Congruency x Dysphoria x Direction interaction,  $F(1, 31) = 3.35$ ,  $p = .077$ , which is of greater interest because it was predicted. Means are presented in Table 7. Simple effects analyses within Direction x Dysphoria groups revealed that only dysphoric participants felt worse after personality-congruent upward comparisons than personality-noncongruent upward comparisons,  $F(1, 31) = 5.69$ ,  $p = .023$ . However, dysphoric participants also felt worse than nondysphoric participants after congruent comparisons,  $F(1, 31) = 6.45$ ,  $p = .016$ . No congruency effect was evident for downward comparisons or for nondysphoric participants who made upward comparisons.<sup>13,14</sup>

To increase the sample size somewhat, upward and downward comparisons were analyzed separately in two 2 x 2 (Personality Congruency x Dysphoria Group) mixed-model ANOVAs, with repeated measures on congruency. Forty participants engaged in both congruent and noncongruent upward comparisons, and 46 participants engaged in congruent and noncongruent downward comparisons. For upward comparisons, the predicted

Table 7

Precomparison and Postcomparison Mood and Mood Change as a Function of Dysphoria, Comparison Direction, and Comparison Congruency

Comparison Direction and Dysphoria Group	Comparison Domain	
	Congruent	Noncongruent
Upward Comparisons		
Nondysphoric ( $n = 24$ )		
Precomparison	2.40	2.55
Postcomparison	2.83	3.16
Difference	.43	.61
<u>SD</u>	.48	.68
Dysphoric ( $n = 9$ )		
Precomparison	2.60	3.03
Postcomparison	3.51	3.48
Difference	.91	.45
<u>SD</u>	.51	.44
Downward Comparisons		
Nondysphoric ( $n = 24$ )		
Precomparison	2.47	2.32
Postcomparison	2.26	2.26
Difference	-.21	-.06
<u>SD</u>	.70	.28
Dysphoric ( $n = 9$ )		
Precomparison	2.35	2.37
Postcomparison	2.19	2.38
Difference	-.16	.01
<u>SD</u>	.61	.66

Note. Higher values represent more negative mood.

Congruency x Dysphoria interaction was significant,  $F(1, 38) = 4.12, p = .049$ . Simple effects analyses revealed that congruent upward comparisons were associated with greater worsening of mood for dysphoric than nondysphoric participants,  $M_s = .92$  versus  $.43, F(1, 38) = 6.20, p = .017$ . Dysphoric participants also showed greater worsening of mood when they made congruent than noncongruent upward comparisons,  $M_s = .92$  versus  $.60$ , but this difference was not significant,  $F(1, 38) = 2.37, p = .132$ . No significant effects emerged for downward comparison.<sup>15</sup>

To assess which personality group contributed to the congruency effect for upward comparisons, a 2 x 2 x 2 (Depressive Personality x Comparison Dimension x Dysphoria Group) ANOVA, with repeated measures on personality type and comparison dimension, was conducted on mood change scores for upward comparisons. The three-way interaction emerged as significant,  $F(1, 36) = 3.97, p = .054$ . Means are presented in Table 8. Although an informal examination of these means suggests that both dysphoric sociotropic and dysphoric autonomous people felt worse after personality-congruent than personality-noncongruent comparisons and nondysphoric people experienced the opposite effect, none of these differences emerged as significant, all  $p_s > .10$ . A significant difference did emerge, however, between dysphoric and nondysphoric sociotropes who made personality-congruent (relationship) comparisons, with dysphorics experiencing a greater increase in negative mood than nondysphorics,  $F(1, 70) = 3.92, p = .05$ .<sup>16</sup>

Table 8

Precomparison and Postcomparison Mood and Mood Change for Upward Comparisons as a Function of Dysphoria Group, Depressive Personality Group, and Comparison Dimension

	Comparison Domain	
	Relationship	Achievement
Nondysphoric		
Sociotropic ( $n = 13$ )		
Precomparison	2.36	2.38
Postcomparison	2.77	2.92
Difference	.41	.54
<u>SD</u>	.60	.77
Autonomous ( $n = 14$ )		
Precomparison	2.72	2.82
Postcomparison	3.43	3.27
Difference	.71	.45
<u>SD</u>	.70	.28
Dysphoric		
Sociotropic ( $n = 6$ )		
Precomparison	2.51	2.94
Postcomparison	3.56	3.59
Difference	1.05	.65
<u>SD</u>	.96	.57
Autonomous ( $n = 7$ )		
Precomparison	2.91	2.83
Postcomparison	3.48	3.65
Difference	.57	.82
<u>SD</u>	.61	.66

Note. Higher values represent more negative mood.

## Discussion

I set out to address two questions in this research: 1) Is the social comparison diary valid for studying social comparisons in everyday life? and 2) Do people who have depressive personality styles or who are dysphoric make particular types of social comparisons or experience particular social comparison effects?

### Validity of the Diary Method

Much of what we know about social comparison processes has come from laboratory research, but the external validity of such studies has been questioned (Brickman & Bulman, 1977; Wood, 1996). A naturalistic method of studying social comparisons can overcome this problem, and it can also be used to answer questions that cannot be asked in the laboratory. For example, rather than looking at which comparisons people select from the options researchers make available or seeing which comparisons of the researcher's choosing have impact, researchers can look at which comparisons people make naturally and how these comparisons affect their mood.

Wheeler and Miyake (1992) introduced a promising method of capturing social comparisons in an unconstrained manner, but its reliance on self-report caused me to be concerned about its validity. To address the diary's validity, I showed that comparison frequency and postcomparison mood assessed with the diary were associated in predictable ways with individual difference measures. I also found that many of my results concerning frequency and types of comparisons were remarkably similar to those of Wheeler and Miyake, despite differences between our samples (I used a Canadian sample of individuals identified as either sociotropic or autonomous and therefore vulnerable to depression) and

our methods (I used a different measure of mood, and I assessed comparison dimensions in an open-ended manner).

Because of the fleeting nature of many social comparisons and social desirability pressures (Wood, 1996), it is unlikely that the diary captures all comparisons in which people engage. However, the types of comparisons recorded in my respondents' diaries were consistent with past research. That is, I found that people compared most often with others who were similar to themselves on dimensions other than the one under comparison, that downward comparisons had more impact on mood as the target increased in similarity, and that upward comparisons had more impact as the comparison dimension increased in self-relevance. I also found that people compared most often on self-relevant dimensions, which is consistent with Tesser's (1986) theory and with Wheeler and Miyake's (1992) contention that, although all comparisons may not be recorded in the diary, those that are recorded are likely to be important ones. Finally, I discovered that people were able to report the motives they perceived to be driving their comparisons and that they generally compared in different directions for different reasons: Comparisons for self-improvement were the most upward, those for self-enhancement were the most downward, and those for self-evaluation were lateral (neither upward nor downward). This pattern is consistent with previous research (see Wood, 1989, for a review), as well as with more recent laboratory studies in which respondents have been asked to report their motives for comparison (Helgeson & Mickelson, 1995; Wayment & Taylor, 1995).

Traditionally, social comparison researchers have not explicitly attempted to validate their measures. The absence of such attempts may well have contributed to the current

difficulty in interpreting some measures and to the use of measures that may not reflect social comparison at all (Wood, 1996). My results indicate that validation of social comparison measures is possible.

#### Comparisons in Laboratory Studies Versus Everyday Life

My results point to some similarities and differences between the social comparisons people make in everyday life, as recorded in their diaries, and those that are typically presented in laboratory studies. Consistent with typical laboratory comparisons, I found that participants in my study compared most often with same-sexed targets and in academically-related domains. However, whereas I found that in everyday life social comparisons were often made voluntarily, in the laboratory they are often forced (e.g., by showing participants another person's score on a similar task). I also found that in their everyday lives people compared most often with close friends through direct contact with them, whereas in the laboratory participants are often presented with strangers as comparison targets, and they make comparisons without having direct contact with those targets. Finally, in their daily lives, people compared most often on dimensions that were high in self-relevance and with targets who were similar to themselves. Most laboratory studies do not assess these variables.

Some of these discrepancies between comparisons in the laboratory and in everyday life may not be as large as they appear. For example, forced comparisons may be reported less often than voluntary ones in the diary because they are more likely to be unfavorable and thus, subject to social desirability pressures. Respondents also may be less aware of comparisons that they do not consciously choose to make. Other differences between

everyday and laboratory comparisons, however, may limit the external validity of laboratory studies. For example, the use of perhaps unimportant dimensions for comparison (e.g., line tracing: Hokoda, Fincham, & Diener, 1989) may result in people making comparisons with a different frequency or in a different direction than they might if the dimensions were high in self-relevance. Indeed, researchers may undermine their own attempts to show effects of comparisons if they use dimensions low in self-relevance, strangers as targets (who are less likely to be perceived as similar to the self), or comparisons made without direct contact with the target because such comparisons are less likely to be painful (Brickman & Bulman, 1977; Major et al., 1991; Tesser, 1986). Perhaps the puzzling inconsistencies in the literature concerning affective consequences of social comparison (see Aspinwall & Taylor, 1993; Wood et al., 1994) may stem in part from the use of such comparisons in some studies. I also found confusing results when I attempted to study the congruency hypothesis in the laboratory (Giordano & Wood, 1992; Giordano, 1993). In these studies, only sociotropes showed any hint of a congruency effect, but the results were inconsistent. The discrepancy between the findings of my diary and laboratory studies may have been contributed to by the differences between laboratory and naturalistic comparisons described above (e.g., my use of comparisons that are less likely to produce strong affective consequences and the constraints I imposed on the comparison domain).

#### Who Makes and Who Benefits from Downward Comparisons?

A widely held belief in social comparison theory is that people who are low in dispositional self-esteem or who are experiencing low subjective well-being will compare downward for purposes of self-enhancement (Wills, 1981). My findings, like those of

Wheeler and Miyake (1992), however, showed the opposite: People higher in self-esteem reported engaging in downward comparisons more than did people lower in self-esteem. I also found that nondysphoric people appeared to make more downward comparisons than did dysphoric people. Similarly, as Wheeler and Miyake showed, my respondents were more likely to make downward comparisons when they were in a good mood than when they were in a bad mood. Wheeler and Miyake pointed out that in the diary, both precomparison and postcomparison mood are rated after comparisons are made and hence, ratings of precomparison mood may be biased by postcomparison affect. However, I found this effect even when I used an unbiased proxy of precomparison mood.

Why would individuals make more downward comparisons when they are in a positive mood, high in self-esteem, or nondysphoric than when they are in a negative mood, low in self-esteem, or dysphoric? After all, people need enhancement most when they are feeling bad, not when they are feeling good. One possible explanation for this finding is methodological. In my study, as in Wheeler and Miyake's, comparison direction was determined by participants' postcomparison ratings of their perceived superiority or inferiority to the target. I do not know whether participants chose to compare in the direction reported; I know only that after comparing, they concluded that they were inferior or superior. It is possible that dysphoric people wanted to make more downward comparisons (for self-enhancement), as Wills's theory predicts, but that after comparing they discovered themselves to be inferior to the target and thus, they reported making an upward comparison.<sup>17</sup> It is also possible that dysphoric and low self-esteem people were not truly inferior to their comparison targets, but only perceived themselves to be. Because dysphoric

moods often lead to more negative assessments of the self than of others (e.g., Kuiper & McCabe, 1985), I would expect dysphoric and low self-esteem people to have trouble rating themselves as superior to others on comparative rating measures (Wood & Taylor, 1991).

Respondents' ratings, then, may have been biased by their mood or feelings of self-worth. Although I believe that my use of ratings are more likely than general comparative ratings to reflect true comparison processes (see Footnote 1; Wood, 1996), I recognize that they may be influenced by such biases. It is important to note, however, that other researchers, using measures other than comparative ratings, also have recently challenged Wills's prediction that people low in self-worth are especially likely to engage in downward comparison. Using comparison selection measures, Swallow and Kuiper (1993, Study 1) showed that as dysphoria increased, upward comparisons increased, and two other selection studies have not found differences between high and low self-esteem people (Helgeson & Taylor, 1993; Helgeson & Mickelson, 1995). In addition, people with low self-esteem also reported that they used more upward comparisons for self-evaluation than did high self-esteem people (Wayment & Taylor, 1995). Furthermore, a recent study using a selection measure has challenged Wills's prediction concerning threat. Buunk (1995) found that disabled people doing relatively well were especially likely to seek downward comparison.

Hence the question remains as to why people who are feeling good rather than bad sometimes make downward comparisons. Wheeler and Miyake turned to associative network theories of memory and emotion (e.g., Bower, 1981) for an explanation. Research has demonstrated that current affective states can influence attention to, interpretation of, and selective recall of mood-consistent information (Blaney, 1986; Forgas, Bower, &

Moylan, 1990). Thus, people who are in a good mood may pay attention to or deliberately make comparisons that make them feel good--which are often downward--whereas people in a negative mood may make more deflating upward comparisons.

Another possibility is that low self-esteem people lack a self-serving bias (Taylor & Brown, 1988), or that individuals seek out information that is consistent with, and validating of, their positive or negative self-concepts (e.g., Helgeson & Mickelson, 1995; Swann, Stein-Seroussi, & Giesler, 1992). Hence, people who feel good about themselves may seek downward comparisons because they support their positive self-views; people who are low in self-esteem may confirm their self-views through comparisons with others who are superior.

Even though individuals whose subjective well-being is threatened may not be especially likely to engage in downward comparison, Wills's theory may still be partly correct if threatened people are the most likely to benefit from the downward comparisons that they do make. My findings, as well as those of Wheeler and Miyake, however, were again discrepant with Wills's theory: Self-esteem was not associated with people's responses to downward comparison. These findings are consistent, however, with recent studies that have found mood changes in response to downward comparison to occur under much narrower conditions than those described by Wills (e.g., Aspinwall & Taylor, 1993; Gibbons & Boney McCoy, 1991; Reis et al., 1993).

Although I and others have failed to find evidence to support Wills's theory, some laboratory studies have shown that people who are threatened make comparisons that are more downward, or at least less upward, than people who are not threatened (e.g.,

Hakmiller, 1966; Smith & Insko, 1987). Although such comparisons may not be truly downward relative to the self (Wheeler & Miyake, 1992), they were more downward than those of nonthreatened people, which conflicts with my findings and those of Wheeler and Miyake. Thus, it may not be time to pronounce Wills's theory dead, but clearly more work is needed to understand the conditions under which it does and does not hold. Social comparison theorists have recently argued for attending to other moderators besides threat and dispositional self-esteem for determining the impact of social comparison (Buunk et al., 1990; Major et al., 1991) and the selection of comparison targets (Wood & VanderZee, 1997). The present results suggest that a few such moderators are depressive personality style and congruency of the comparison dimension, as well as dysphoria.

#### Moderators of Social Comparison Processes: Dysphoria and Personality-Congruency

In my examination of depressive personality styles and dysphoria as moderators of social comparisons, I predicted that sociotropes would make more social comparisons concerning interpersonal relationships and that such comparisons would have special impact on them, whereas autonomous people would make more comparisons concerning achievement and such comparisons would have special impact on them. I also predicted that these effects would be stronger for people who were already dysphoric rather than just vulnerable to depression, as sociotropic and autonomous people are presumed to be.

These predictions were generally supported. Respondents made more comparisons in personality-congruent than personality-noncongruent domains, although this was true only for those who were already dysphoric and mainly for upward comparisons. Furthermore, the effects of social comparison on mood were moderated by personality-congruency and by

whether individuals were dysphoric or not. Although everyone reported feeling worse after upward comparisons, only dysphoric people felt worse when these comparisons were congruent than when they were noncongruent. I am not surprised to find a congruency effect for upward comparisons and not downward comparisons. After all, the congruency model refers only to negative experiences, and upward comparisons, with their tendency to make people feel bad, resemble negative events, whereas downward comparisons are often self-enhancing.

These results have implications for both the social comparison and sociotropy/autonomy literatures. First, my study suggests that social comparisons in everyday life have real, immediate consequences for mood, whereas previous studies, except for Wheeler and Miyake, have relied on retrospective reporting of consequences or general comparative ratings. In addition, my results are consistent with recent theorizing about the importance of moderators of social comparison effects (e.g., Buunk et al., 1990; Major et al., 1991). Moreover, my findings suggest that personality variables moderate social comparison processes, and as I explained when I tentatively examined individual difference variables in my validity section, little social comparison research has empirically linked personality differences and social comparison. Such variables may help to solve some of the mysteries in the literature about the effects of social comparison.

These findings also speak to the sociotropy/autonomy literature in several ways. First, my evidence for a congruency effect among autonomous people as well as sociotropic people was unusual, given the frequent absence of congruency effects in autonomous individuals in past research (see Neitzel & Harris, 1990, for a review). This finding may be

attributable to my use of a new and purportedly better measure of autonomy--the PSI-II (Robins et al., 1994). Second, my diary method differed from most previous studies of the congruency hypothesis. I assessed the occurrence of life events as they occurred, rather than retrospectively; I examined the congruency hypothesis for relatively minor, rather than major, life events; and I assessed immediate affective responding to naturally-occurring events, rather than depression symptoms at a later point in time or immediate responses to hypothetical situations.

This approach proved fruitful. My results suggest that these personality styles have consequences in the everyday lives of those who hold them, at least if they are dysphoric. That is, once dysphoric, people experience and react to social comparisons differently, depending on whether they are sociotropic or autonomous. These findings lend credence to the idea that sociotropy and autonomy are important personality dimensions, which is an idea that has been challenged (Coyne & Whiffen, 1995). Whether these results support the vulnerability aspect of the sociotropy/autonomy construct is an issue I turn to next.

#### Sociotropy and Autonomy: Depressive Vulnerabilities or Symptoms?

My finding of congruency effects among dysphoric, but not nondysphoric people is common in the depressive personality literature (e.g., Hammen, Ellicott, & Gitlin, 1989; Hammen & Goodman-Brown, 1990; Robins, 1990, Study 2; Robins & Block, 1988), but it is troubling. If sociotropy and autonomy are truly vulnerability factors, and not just concomitants or symptoms of dysphoria, one should find evidence of a congruency effect among nondysphoric individuals as well. Granted, my lack of a nonvulnerable control group precludes me from knowing whether vulnerable nondysphorics differ from nonvulnerable

nondysphorics in their comparison processes. My nondysphoric participants probably did not differ markedly from nonvulnerable individuals, however, because I replicated most of Wheeler and Miyake's findings, which were produced by individuals who were not selected for vulnerability to depression. Research on depressive self-schemas has similarly failed to show differences between nondepressed people who do and who do not hold such self-schemas in their vulnerability to depression following stressful life events (e.g., Hammen, Marks, deMayo, & Mayol, 1985).

In an attempt to make sense of such findings, Persons and Miranda (1992) proposed a mood-congruency explanation, whereby dysfunctional attitudes, attributions, or schemas are stable characteristics, but one's ability to report them depends on one's current mood. People are best able to report the contents of negative schemas when they are dysphoric. Consistent with this idea is Beck's (1987) more recent description of sociotropy and autonomy as vulnerabilities that may remain latent until activated by matching negative experiences.

Although such a mood-state congruency model would help explain why I found congruency effects for dysphoric people only, I see two problems with it. One is that this idea is difficult to falsify (cf. Coyne & Gotlib, 1983). Second, if vulnerabilities are latent until activated by dysphoria, I should not have been able to identify any sociotropic or autonomous personalities among nondysphoric individuals. They should not have had access to their vulnerable cognitions--that is, unless they were all in a bad mood while completing the PSI-II, which is highly unlikely. I would need to assume that although nondysphorics may have access to their vulnerable attitudes, these attitudes do not influence information-

processing (i.e., sensitivity to congruent information) until they are activated by dysphoric mood or negative events. A similar distinction has been proposed by other researchers (e.g., Kuiper & Olinger, 1986), who have found that both depressed and nondepressed individuals may hold dysfunctional attitudes, but that only depressed individuals display evidence of negative self-schema content.

Although my findings raise doubts about depressive personality styles as vulnerabilities to depression onset, such personalities may still confer vulnerability to depression-maintenance by feeding depressive symptoms once they appear (see Kuiper, Olinger, and MacDonald (1988) and Teasdale (1983) for a discussion of schemas related to depression-onset versus depression-maintenance).

#### Limitations of the Study

Several cautions are warranted in the interpretation and generalization of my results in addition to those already mentioned. First, because I studied undergraduate students who were dysphoric, I cannot generalize my results to clinically depressed individuals, whose depressive symptoms may be not only quantitatively, but also qualitatively different (e.g., Coyne & Gotlib, 1983). Second, because comparisons were not manipulated, I do not know whether, if all my participants had been exposed to identical relationship and achievement comparisons, sociotropic people would still have been most affected by the former and autonomous people by the latter. My findings point only to people's reactions to the idiosyncratic comparisons that they noticed, selected to make, or selected to report.

Thus, the unconstrained nature of the social comparison diary is both an asset and a liability. Although it allows researchers to answer questions that cannot be asked in the

laboratory, it may be susceptible to biases from lack of awareness and social desirability. Future social comparison research would benefit, therefore, from the examination of hypotheses using both laboratory and diary methods in a complementary fashion.

### Conclusions

My results support the validity of structured social comparison diaries for assessing comparisons people make in everyday life. Using such a diary, I found that dysphoric people tended to engage in upward comparisons that were congruent with their depressive vulnerabilities, which were the very comparisons that were most damaging to them. Furthermore, people tended to engage in comparisons that were consistent with their mood, such that when they were in a negative mood, they tended to make comparisons that would perpetuate it. These processes may play a role in maintaining the negative self-evaluations and negative mood that are central to depression.

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## Appendix A

### Personality Style Inventory (PSI-II)

Here are a number of statements about personal characteristics. Please read each one carefully, and indicate whether you agree or disagree, and to what extent, by circling a number.

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
1. I often put other people's needs before my own.	1	2	3	4	5	6
2. I tend to keep other people at a distance.	1	2	3	4	5	6
3. I find it difficult to be separated from people I love.	1	2	3	4	5	6
4. I am easily bothered by other people making demands of me.	1	2	3	4	5	6
5. I am very sensitive to the effects I have on the feelings of other people.	1	2	3	4	5	6
6. I don't like relying on others for help.	1	2	3	4	5	6
7. I am very sensitive to criticism by others.	1	2	3	4	5	6
8. It bothers me when I feel that I am only average and ordinary.	1	2	3	4	5	6
9. I worry a lot about hurting or offending other people.	1	2	3	4	5	6
10. When I'm feeling blue, I don't like to be offered sympathy.	1	2	3	4	5	6

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
11. It is hard for me to break off a relationship even if it is making me unhappy.	1	2	3	4	5	6
12. In relationships, people are often too demanding of one another.	1	2	3	4	5	6
13. I am easily persuaded by others.	1	2	3	4	5	6
14. I usually view my performance as either a complete success or a complete failure.	1	2	3	4	5	6
15. I try to please other people too much.	1	2	3	4	5	6
16. I don't like people to invade my privacy.	1	2	3	4	5	6
17. I find it difficult if I have to be alone all day.	1	2	3	4	5	6
18. It is hard for me to take instructions from people who have authority over me.	1	2	3	4	5	6
19. I often feel responsible for solving other people's problems.	1	2	3	4	5	6
20. I often handle big decisions without telling anyone else about them.	1	2	3	4	5	6
21. It is very hard for me to get over the feelings of loss when a relationship has ended.	1	2	3	4	5	6

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
22. It is hard for me to have someone dependent on me.	1	2	3	4	5	6
23. It is very important to me to be liked or admired by others.	1	2	3	4	5	6
24. I feel badly about myself when I am not actively accomplishing things.	1	2	3	4	5	6
25. I feel I have to be nice to other people.	1	2	3	4	5	6
26. It is hard for me to express admiration of affection.	1	2	3	4	5	6
27. I like to be certain that there is somebody close I can contact in case something unpleasant happens to me.	1	2	3	4	5	6
28. It is difficult for me to make a long-term commitment to a relationship.	1	2	3	4	5	6
29. I am too apologetic to other people.	1	2	3	4	5	6
30. It is hard for me to open up and talk about my feelings and other personal things.	1	2	3	4	5	6
31. I am very concerned with how people react to me.	1	2	3	4	5	6

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
32. I have a hard time forgiving myself when I feel I haven't worked up to my potential.	1	2	3	4	5	6
33. I get very uncomfortable when I'm not sure whether or not someone likes me.	1	2	3	4	5	6
34. When making a big decision, I usually feel that advice from others is intrusive.	1	2	3	4	5	6
35. It is hard for me to say "no" to other people's requests.	1	2	3	4	5	6
36. I resent it when people try to direct my behavior or activities.	1	2	3	4	5	6
37. I become upset when something happens to me and there's nobody around to talk to.	1	2	3	4	5	6
38. Personal questions from others usually feel like an invasion of my privacy.	1	2	3	4	5	6
39. I am most comfortable when I know my behavior is what others expect of me.	1	2	3	4	5	6
40. I am very upset when other people or circumstances interfere with my plans.	1	2	3	4	5	6
41. I often let people take advantage of me.	1	2	3	4	5	6

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
42. I rarely trust the advice of others when making a big decision.	1	2	3	4	5	6
43. I become very upset when a friend breaks a date or forgets to call me as planned.	1	2	3	4	5	6
44. I become upset more than most people I know when limits are placed on my personal independence and freedom.	1	2	3	4	5	6
45. I judge myself based on how I think others feel about me.	1	2	3	4	5	6
46. I become upset when others try to influence my thinking on a problem.	1	2	3	4	5	6
47. It is hard for me to let people know when I am angry with them.	1	2	3	4	5	6
48. I feel controlled when others have a say in my plans.	1	2	3	4	5	6

## Appendix B

### Rosenberg Self-Esteem Scale

Please think about each question and rate the degree to which you agree or disagree with each one.

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

Appendix C

Envv. Resentment, and Inferiority Scale

Please indicate how much you agree or disagree with each of the following statements by marking the number from the scale below that comes closest to your view.

- 4 = very strongly agree
- 3 = strongly agree
- 2 = moderately agree
- 1 = slightly agree
- 0 = neither agree nor disagree
- 1 = slightly disagree
- 2 = moderately disagree
- 3 = strongly disagree
- 4 = very strongly disagree

Please be open and honest in your responses.

1.    \_\_\_    I really don't care about how others compare to me.
2.    \_\_\_    In a way, it hardly seems fair that some people are born smarter or better-looking than others.
3.    \_\_\_    On the whole, I am satisfied with my abilities compared to others.
4.    \_\_\_    I feel envy almost every day.
5.    \_\_\_    I resent the fact that some people have the money to buy all the things they want.
6.    \_\_\_    Feelings of inferiority have rarely bothered me.
7.    \_\_\_    When I feel envy, I usually feel it in an intense way.
8.    \_\_\_    I resent it when some people seem to be able to breeze through hard tasks while I have to work long and hard.
9.    \_\_\_    The bitter truth is that I generally feel inferior to others.
10.   \_\_\_    Feelings of envy constantly torment me.
11.   \_\_\_    I have at least one thing that I am really good at compared to others.
12.   \_\_\_    It is so frustrating to see some people succeed so easily.
13.   \_\_\_    Envious feelings have been a real problem for me.

14. — As much as I have longed to be really good at something compared to other people, it never happens.
15. — Compared to most people, I have it pretty good.
16. — For me, envy is not a strong emotion.
17. — Not comparing well with other people is emotionally painful.
18. — No matter what I do, envy always seems to plague me.
19. — I am troubled by feelings of inadequacy.
20. — It somehow doesn't seem fair that some people seem to have all the talent.
21. — Frankly, the success of my neighbors kind of makes me resent them.

Appendix D

Self-Consciousness Scale

For each statement below, indicate how characteristic it is of you by circling the appropriate number.

1. I'm always trying to figure myself out.

0 1 2 3 4  
extremely extremely  
uncharacteristic characteristic

2. I'm concerned about my style of doing things.

0 1 2 3 4  
extremely extremely  
uncharacteristic characteristic

3. Generally, I'm not very aware of myself.

0 1 2 3 4  
extremely extremely  
uncharacteristic characteristic

4. It takes me time to overcome my shyness in new situations.

0 1 2 3 4  
extremely extremely  
uncharacteristic characteristic

5. I reflect about myself a lot.

0 1 2 3 4  
extremely extremely  
uncharacteristic characteristic

6. I'm concerned about the way I present myself.

0 1 2 3 4  
extremely extremely  
uncharacteristic characteristic

7. I'm often the subject of my own fantasies.

0 1 2 3 4  
extremely extremely  
uncharacteristic characteristic

8. I have trouble working when someone is watching me.
- 0 1 2 3 4  
 extremely uncharacteristic extremely characteristic
9. I never scrutinize myself.
- 0 1 2 3 4  
 extremely uncharacteristic extremely characteristic
10. I get embarrassed very easily.
- 0 1 2 3 4  
 extremely uncharacteristic extremely characteristic
11. I'm self-conscious about the way I look.
- 0 1 2 3 4  
 extremely uncharacteristic extremely characteristic
12. I don't find it hard to talk to strangers.
- 0 1 2 3 4  
 extremely uncharacteristic extremely characteristic
13. I'm generally very attentive to my inner feelings.
- 0 1 2 3 4  
 extremely uncharacteristic extremely characteristic
14. I usually worry about making a good impression.
- 0 1 2 3 4  
 extremely uncharacteristic extremely characteristic
15. I'm constantly examining my motives.
- 0 1 2 3 4  
 extremely uncharacteristic extremely characteristic

16. I feel anxious when I speak in front of a group.
- |                               |   |   |   |                             |
|-------------------------------|---|---|---|-----------------------------|
| 0                             | 1 | 2 | 3 | 4                           |
| extremely<br>uncharacteristic |   |   |   | extremely<br>characteristic |
17. One of the last things I do before I leave my house is look in the mirror.
- |                               |   |   |   |                             |
|-------------------------------|---|---|---|-----------------------------|
| 0                             | 1 | 2 | 3 | 4                           |
| extremely<br>uncharacteristic |   |   |   | extremely<br>characteristic |
18. I sometimes have the feeling that I'm off somewhere watching myself.
- |                               |   |   |   |                             |
|-------------------------------|---|---|---|-----------------------------|
| 0                             | 1 | 2 | 3 | 4                           |
| extremely<br>uncharacteristic |   |   |   | extremely<br>characteristic |
19. I'm concerned about what other people think of me.
- |                               |   |   |   |                             |
|-------------------------------|---|---|---|-----------------------------|
| 0                             | 1 | 2 | 3 | 4                           |
| extremely<br>uncharacteristic |   |   |   | extremely<br>characteristic |
20. I'm alert to changes in my mood.
- |                               |   |   |   |                             |
|-------------------------------|---|---|---|-----------------------------|
| 0                             | 1 | 2 | 3 | 4                           |
| extremely<br>uncharacteristic |   |   |   | extremely<br>characteristic |
21. I'm usually aware of my appearance.
- |                               |   |   |   |                             |
|-------------------------------|---|---|---|-----------------------------|
| 0                             | 1 | 2 | 3 | 4                           |
| extremely<br>uncharacteristic |   |   |   | extremely<br>characteristic |
22. I'm aware of the way my mind works when I work through a problem.
- |                               |   |   |   |                             |
|-------------------------------|---|---|---|-----------------------------|
| 0                             | 1 | 2 | 3 | 4                           |
| extremely<br>uncharacteristic |   |   |   | extremely<br>characteristic |
23. Large groups make me nervous.
- |                               |   |   |   |                             |
|-------------------------------|---|---|---|-----------------------------|
| 0                             | 1 | 2 | 3 | 4                           |
| extremely<br>uncharacteristic |   |   |   | extremely<br>characteristic |

Appendix E

The Jenkins Activity Survey  
Form T

Please answer the questions on the following pages by marking the answers that are true for you. Each person is different, so there are no "right" or "wrong" answers. Just circle the letter corresponding to the ONE best answer.

1. Do you ever have trouble finding time to get your hair cut or styled?
  - a) Never
  - b) Occasionally
  - c) Almost always
  
2. Does university "stir you into action"?
  - a) Less often than most university students
  - b) About average
  - c) More often than most university students
  
3. Is your everyday life filled mostly by:
  - a) Problems needing solution
  - b) Challenges needing to be met
  - c) A rather predictable routine of events
  - d) Not enough things to keep me interested or busy
  
4. Some people live a calm, predictable life. Others find themselves often facing unexpected changes, frequent interruptions, inconveniences or "things going wrong". How often are faced with these minor (or major) annoyances or frustrations?
  - a) Several times a day
  - b) About once a day
  - c) A few times a week
  - d) Once a week
  - e) Once a month or less
  
5. When you are under pressure or stress, do you usually:
  - a) Do something about it immediately
  - b) Plan carefully before taking any action
  
6. Ordinarily, how rapidly do you eat?
  - a) I'm usually the first one finished
  - b) I eat a little faster than average
  - c) I eat at about the same speed as most people
  - d) I eat more slowly than most people

7. Has your spouse or some friend ever told you that you eat too fast?
- a) Yes, often
  - b) Yes, once or twice
  - c) No, no one has told me this
8. How often do you find yourself doing more than one thing at a time, such as working while eating, reading while dressing, figuring out problems while driving?
- a) I do two things at once whenever practical
  - b) I do this only when I'm short of time
  - c) I rarely or never do more than one thing at a time
9. When you listen to someone talking, and this person takes too long to come to the point, do you feel like hurrying him or her along?
- a) Frequently
  - b) Occasionally
  - c) Almost never
10. How often do you actually "put words in his/her mouth" in order to speed things up?
- a) Frequently
  - b) Occasionally
  - c) Almost never
11. If you tell your spouse or a friend that you will meet them somewhere at a definite time, how often do you arrive late?
- a) Once in a while
  - b) Rarely
  - c) I am never late
12. Do you find yourself hurrying to get places even when there is plenty of time?
- a) Often
  - b) Occasionally
  - c) Rarely or never
13. Suppose you are to meet someone at a public place (street corner, building lobby, restaurant) and the other person is already 10 minutes late. Will you:
- a) Sit and wait
  - b) Walk about while waiting
  - c) Usually carry some reading matter or writing paper so you can get something done while waiting
14. When you have to "wait in line", such as at a restaurant, a store, or the post office, do you:
- a) Accept it calmly
  - b) Feel impatient, but do not show it
  - c) Feel so impatient that someone watching could tell you were restless
  - d) Refuse to wait in line, and find ways to avoid such delays

15. When you play games with young children about 10 years old, how often do you purposely let them win?
- a) Most of the time
  - b) Half the time
  - c) Only occasionally
  - d) Never
16. Do most people consider you to be:
- a) Definitely hard-driving and competitive
  - b) Probably hard-driving and competitive
  - c) Probably more relaxed and easy going
  - d) Definitely more relaxed and easy going
17. Nowadays, do you consider yourself to be:
- a) Definitely hard-driving and competitive
  - b) Probably hard-driving and competitive
  - c) Probably more relaxed and easy going
  - d) Definitely more relaxed and easy going
18. How would your spouse (or closest friend) rate you?
- a) Definitely hard-driving and competitive
  - b) Probably hard-driving and competitive
  - c) Probably more relaxed and easy going
  - d) Definitely more relaxed and easy going
19. How would your spouse (or best friend) rate your general level of activity?
- a) Too slow. Should be more active.
  - b) About average. Is busy much of the time.
  - c) Too active. Needs to slow down.
20. Would people who know you well agree that you take your work too seriously?
- a) Definitely yes
  - b) Probably yes
  - c) Probably no
  - d) Definitely no
21. Would people who know you well agree that you have less energy than most people?
- a) Definitely yes
  - b) Probably yes
  - c) Probably no
  - d) Definitely no

22. Would people who know you well agree that you tend to get irritated easily?
- a) Definitely yes                      c) Probably no  
b) Probably yes                        d) Definitely no
23. Would people who know you well agree that you tend to do most things in a hurry?
- a) Definitely yes                      c) Probably no  
b) Probably yes                        d) Definitely no
24. Would people who know you well agree that you enjoy "a contest" (competition) and try hard to win?
- a) Definitely yes                      c) Probably no  
b) Probably yes                        d) Definitely no
25. Would people who know you well agree that you get a lot of fun out of your life?
- a) Definitely yes                      c) Probably no  
b) Probably yes                        d) Definitely no
26. How was your "temper" when you were younger?
- a) Fiery and hard to control  
b) Strong, but controllable  
c) No problem  
d) I almost never got angry
27. How is your "temper" nowadays?
- a) Fiery and hard to control  
b) Strong, but controllable  
c) No problem  
d) I almost never get angry
28. When you are in the midst of studying and someone interrupts you, how do you usually feel inside?
- a) I feel O.K. because I work better after an occasional break  
b) I feel only mildly annoyed  
c) I really feel irritated because most such interruptions are unnecessary.

29. How often are there deadlines in your courses? (If deadlines occur irregularly, please circle the closest answer below).
- a) Daily or more often
  - b) Weekly
  - c) Monthly
  - d) Never
30. Do these deadlines usually:
- a) Carry minor pressure because of their routine nature?
  - b) Carry considerable pressure, since delay would upset things a great deal?
31. Do you ever set deadlines or quotas for yourself in courses or other things?
- a) No
  - b) Yes, but only occasionally
  - c) Yes, once per week or more often
32. When you have to work against a deadline, is the quality of your work:
- a) Better?
  - b) Worse?
  - c) The same? (Pressure makes no difference).
33. In school, do you ever keep two projects moving forward at the same time by shifting back and forth rapidly from one to the other?
- a) No, never
  - b) Yes, but only in emergencies
  - c) Yes, regularly
34. Do you maintain a regular study schedule during vacations such as Thanksgiving, Christmas, and Easter?
- a) Yes
  - b) No
  - c) Sometimes
35. How often do you bring your work home with you at night or study materials related to your courses?
- a) Rarely or never
  - b) Once a week or less often
  - c) More than once a week

36. How often do you go to the university when it is officially closed (such as nights or weekends)? If this is not possible, check here \_\_\_\_.
- a) Rarely or never
  - b) Occasionally (less than once a week)
  - c) Once or more a week
37. When you find yourself getting tired while studying, do you usually:
- a) Slow down for a while until your strength comes back
  - b) Keep pushing yourself at the same pace in spite of the tiredness
38. When you are in a group, do the other people tend to look to you to provide leadership?
- a) Rarely
  - b) About as often as they look to others
  - c) More often than they look to others
39. Do you make yourself written lists of "things to do" to help you remember what needs to be done?
- a) Never
  - b) Occasionally
  - c) Frequently

IN EACH OF THE FOLLOWING QUESTIONS, PLEASE COMPARE YOURSELF WITH THE AVERAGE STUDENT AT YOUR UNIVERSITY. PLEASE CIRCLE THE MOST ACCURATE DESCRIPTION.

40. In the amount of effort put forth, I give:
- a) Much more effort
  - b) A little more effort
  - c) A little less effort
  - d) Much less effort
41. In sense of responsibility, I am:
- a) Much more responsible
  - b) A little more responsible
  - c) A little less responsible
  - d) Much less responsible
42. I find it necessary to hurry:
- a) Much more of the time
  - b) A little more of the time
  - c) A little less of the time
  - d) Much less of the time

43. In being precise (careful about detail), I am:

- a) Much more precise
- b) A little more precise
- c) A little less precise
- d) Much less precise

44. I approach life in general:

- a) Much more seriously
- b) A little more seriously
- c) A little less seriously
- d) Much less seriously



7. Although I know myself, I find that others do not know me.
- 0 1 2 3 4 5  
 certainly, always false certainly, always true
8. I try to pay attention to the reactions of others to my behaviour in order to avoid being out of place.
- 0 1 2 3 4 5  
 certainly, always false certainly, always true
9. I find that I tend to pick up slang expressions from others and use them as part of my own vocabulary.
- 0 1 2 3 4 5  
 certainly, always false certainly, always true
10. Different situations can make me behave like very different people.
- 0 1 2 3 4 5  
 certainly, always false certainly, always true
11. I tend to pay attention to what others are wearing.
- 0 1 2 3 4 5  
 certainly, always false certainly, always true
12. The slightest look of disapproval in the eyes of a person with whom I am interacting is enough to make me change my approach.
- 0 1 2 3 4 5  
 certainly, always false certainly, always true
13. Different people tend to have different impressions about the type of person I am.
- 0 1 2 3 4 5  
 certainly, always false certainly, always true

14. It's important to me to fit in to the group I'm with.
- 0                      1                      2                      3                      4                      5  
 certainly,                                                                                                                                                                          
 always false                                                                                                                                                                          
 certainly,                                                                                                                                                                          
 always true
15. My behaviour often depends on how I feel others wish me to behave.
- 0                      1                      2                      3                      4                      5  
 certainly,                                                                                                                                                                          
 always false                                                                                                                                                                          
 certainly,                                                                                                                                                                          
 always true
16. I am not always the person I appear to be.
- 0                      1                      2                      3                      4                      5  
 certainly,                                                                                                                                                                          
 always false                                                                                                                                                                          
 certainly,                                                                                                                                                                          
 always true
17. If I am the least bit uncertain as to how to act in a social situation, I look to the behaviour of others for cues.
- 0                      1                      2                      3                      4                      5  
 certainly,                                                                                                                                                                          
 always false                                                                                                                                                                          
 certainly,                                                                                                                                                                          
 always true
18. I usually keep up with clothing style changes by watching what others wear.
- 0                      1                      2                      3                      4                      5  
 certainly,                                                                                                                                                                          
 always false                                                                                                                                                                          
 certainly,                                                                                                                                                                          
 always true
19. I sometimes have the feeling that people don't know who I really am.
- 0                      1                      2                      3                      4                      5  
 certainly,                                                                                                                                                                          
 always false                                                                                                                                                                          
 certainly,                                                                                                                                                                          
 always true
20. When in a social situation, I tend not to follow the crowd, but instead behave in a manner that suits my particular mood at the time.
- 0                      1                      2                      3                      4                      5  
 certainly,                                                                                                                                                                          
 always false                                                                                                                                                                          
 certainly,                                                                                                                                                                          
 always true

## Appendix G

### Beck Depression Inventory

On this questionnaire are groups of statements. Please read each group of statements carefully. Then pick out the statement in each group which best describes the way you have been feeling the past week, including today. If several statements in the group seem to apply equally well, indicate each one. Be sure to read all the statements in each group before making your choice.

1.     A. I do not feel sad.  
       B. I feel sad.  
       C. I am sad all of the time and I can't snap out of it.  
       D. I am so sad or unhappy that I can't stand it.
  
2.     A. I am not particularly discouraged about the future  
       B. I feel discouraged about the future.  
       C. I feel I have nothing to look forward to.  
       D. I feel that the future is hopeless and that things cannot improve.
  
3.     A. I do not feel like a failure.  
       B. I feel like I have failed more than the average person.  
       C. As I look back on my life, all I can see is a lot of failures.  
       D. I feel I am a complete failure as a person.
  
4.     A. I get as much satisfaction out of things as I used to.  
       B. I don't enjoy things the way I used to.  
       C. I don't get real satisfaction out of things anymore.  
       D. I am dissatisfied or bored with everything.
  
5.     A. I don't feel particularly guilty.  
       B. I feel guilty a good part of the time.  
       C. I feel quite guilty most of the time.  
       D. I feel guilty all of the time.
  
6.     A. I don't feel I am being punished.  
       B. I feel I may be punished.  
       C. I expect to be punished.  
       D. I feel I am being punished.
  
7.     A. I don't feel disappointed in myself.  
       B. I am disappointed in myself.  
       C. I am disgusted with myself.  
       D. I hate myself.
  
8.     A. I don't feel that I am any worse than anybody else.  
       B. I am critical of myself for my weaknesses and mistakes.  
       C. I blame myself all the time for my faults.  
       D. I blame myself for everything bad that happens.

9. A. I don't have any thoughts of killing myself.  
B. I have thought of killing myself, but I would not carry them out.  
C. I would like to kill myself.  
D. I would kill myself if I had the chance.
10. A. I don't cry anymore than usual.  
B. I cry more now than I used to.  
C. I cry all the time now.  
D. I used to be able to cry, but now I can't cry even though I want to.
11. A. I am not more irritated now than I ever am.  
B. I get annoyed or irritated more easily than I used to.  
C. I feel irritated all the time now.  
D. I don't get irritated at all by the things that used to irritate me.
12. A. I have not lost interest in other people.  
B. I am less interested in other people than I used to be.  
C. I have lost most of my interest in other people.  
D. I have lost all of my interest in other people.
13. A. I make decisions about as well as I ever could.  
B. I put off making decisions more than I used to.  
C. I have greater difficulty in making decisions than before.  
D. I can't make decisions at all anymore.
14. A. I don't feel I look any worse than I used to.  
B. I am worried that I am looking old or unattractive.  
C. I feel that there are permanent changes in my appearance that make me look unattractive.  
D. I believe that I look ugly.
15. A. I can work about as well as before.  
B. It takes extra effort to get started at doing something.  
C. I have to push myself very hard to do anything.  
D. I can't do any work at all.
16. A. I can sleep as well as usual.  
B. I don't sleep as well as I used to.  
C. I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.  
D. I wake up several hours earlier than I used to and cannot get back to sleep.
17. A. I don't get more tired than usual.  
B. I get tired more easily than I used to.  
C. I get tired from doing almost anything.  
D. I am too tired to do anything.

18. A. My appetite is no worse than usual.  
B. My appetite is not as good as it used to be.  
C. My appetite is much worse than now.  
D. I have no appetite at all anymore.
19. A. I haven't lost much weight, if any lately.  
B. I have lost more than 5 pounds.  
C. I have lost more than 10 pounds.  
D. I have lost more than 15 pounds.
20. I am purposely trying to lose weight by eating less:  
A. yes  
B. no
21. A. I am no more worried about my health than usual.  
B. I am worried about physical problems such as aches and pains, upset stomach, or constipation.  
C. I am very worried about physical problems and it's hard to think of much else.  
D. I am so worried about my physical problems that I cannot think about anything else.
22. A. I have not noticed any recent change in my interest in sex.  
B. I am less interested in sex now.  
C. I am much less interested in sex now.  
D. I have lost my interest in sex completely.

## Appendix H

### Social Comparison Diary

#### Instructions

We all make many social comparisons each day. We may see someone, for example, playing the piano and we may compare our own piano-playing skills with the pianist's. Or we may hear of someone on t.v. who has become wealthy and compare our financial situation to his or hers. Or we may notice that a friend has a certain physical or personality attribute which we like or dislike, and we may again find ourselves comparing. In each case we are making a social comparison, that is, we are comparing our skills, achievements, opinions or attributes with those of other people.

For the next three weeks, you will be keeping a diary of the social comparisons which you make in your own day-to-day life. Whenever you find yourself engaging in a comparison with someone else, you will record the date and time of the comparison on one of the diary sheets and answer the series of questions which you will find on each sheet. You may engage in a comparison because you truly want to compare yourself with another person, or you may find that the comparison has been forced upon you. A record should be kept of all such comparisons.

At first, it may be difficult for you to realize that you are making a comparison, since many times we compare ourselves without even being aware of it. After a couple of days, however, you should find that you are more sensitive of the comparisons you make and you will find it easier to observe and record your own comparisons. It is very important that you try your best to record each and every comparison situation so that we may get as clear and accurate a picture as possible of the types of social comparisons that people make every day. It is also important that you fill in a social comparison record as soon as possible after making a comparison. If this is not possible, jot down the time of the comparison and a brief note which will help you to fill out the record when you eventually are able to. Social comparison diary records for the preceding day must be submitted daily to the box outside of PAS Room 3027. Comparisons which occur on Friday, Saturday and Sunday may be submitted together on the following Monday.

In order to make the diary-keeping task as easy as possible, we have included the following section which should clarify what is meant by each question asked. If any questions remain after reading these instructions, or at any time during your diary-keeping, please feel free to contact me (Cathy) at 725-8821.

### Question 1

Is this an instance when you were forced to compare yourself with another person, or did you voluntarily choose to compare yourself? Sometimes we can't avoid comparing ourselves with others because, for example, someone else points out our relative standing to another person. On the other hand, sometimes we seek out comparisons of our own will because we want to compare ourselves with others.

### Question 2

With whom did you compare yourself (or who could you have compared yourself with)?

Give the person's initials and gender (male or female).

### Question 3

What relationship do you have with the person to whom you compared yourself?

A **close friend** would be someone you feel close to, for example, someone in whom you confide.

An **ordinary friend** is someone with whom you may socialize on occasion, but with whom you do not have a very close relationship.

An **acquaintance** is someone whom you may know by name, and may exchange niceties, but with whom you rarely do something social.

A **stranger** would be someone whom you have never met or spoken to, but whom you may see, for example, one day while walking on campus or down the street.

An **imaginary person** may be a character in a novel or on television, or some fabricated person who possesses certain general qualities.

Sometimes we make comparisons not with one other person, but with a **group** of people who possess common attributes or qualities. For example, we compare ourselves with other students in general, or with a sports team to which we belong, or with members of an ethnic or cultural group to which we do or do not belong. However, if comparisons are made with individual members of a group, each comparison should be recorded separately.

At other times we may compare **ourselves** to the way we were at some other point in our lives. For example, we may compare our skills in some sport, such as skiing, with our skills in that area when we first began skiing.

#### Question 4

What sort of contact did you have with the comparison person?

A **social interaction** would consist of a face-to-face conversation or engaging together in an activity.

A **brief contact** might consist of saying hello and asking a person how he or she is doing when you meet on the street.

A **visual contact** would involve just seeing the person, but not making any sort of verbal contact with him or her.

A **daythought** would involve thinking about the comparison person without seeing or interacting with the person.

**Being reminded** of the comparison person might occur, for example, when someone brings his or her name up, or when you see his or her name posted on a list of grades.

#### Question 5

On what dimension did you compare yourself with the person?

That is, what exactly did you compare? Was it piano-playing ability? Grades? Appearance? Wealth? Relationships? Personality characteristics?

#### Question 6

How important is this comparison dimension to you?

That is, how important is it that you do well in this area, or that you do (or do not) possess this characteristic?

#### Question 7

Why did you compare yourself with this person?

People make comparisons for many reasons, and sometimes for more than one reason. What was the most important reason for this particular comparison?

#### Question 8

How similar do you consider yourself to be to the person with whom you compared on the dimension of comparison?

Do you consider yourself to be better off or worse off, inferior or superior than the comparison person?

Question 9

In general, how similar are you to the person with whom you compared?

That is, taking into account all that you know about the person besides information about the comparison dimension, how similar do you perceive yourself to be to this person?

Questions 10 & 11

It is often difficult to assess how we felt before making a comparison once we've already made one. However, try to recall as accurately as possible how you felt just prior to and just after making the comparison.

Question 12

Briefly describe what happened that made you engage in the comparison. Where were you? What were you doing?



5. On what dimension did you compare yourself with this person?

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6. How important is this comparison dimension to you?

1	2	3	4	5	6
not at all important					very important

7. Why did you compare yourself with this person?

- I didn't intend to compare; it just happened
- to learn something from this person or to use this person as someone to model myself after
- to feel better about myself or my situation
- to evaluate or measure myself on some dimension
- Other (specify) \_\_\_\_\_

8. How similar are you to the person on the dimension of comparison?

I am:					
1	2	3	4	5	6
inferior worse undesirable					superior better desirable

9. In general, how similar are you to the person with whom you compared yourself?

I am:					
1	2	3	4	5	6
extremely similar					extremely dissimilar

10. Just before comparison I was feeling:

Happy	1	2	3	4	5	6	Sad
Good mood	1	2	3	4	5	6	Bad mood
Encouraged	1	2	3	4	5	6	Discouraged
Not Jealous/ Not Envious	1	2	3	4	5	6	Jealous/ Envious
Accepted/ Loved	1	2	3	4	5	6	Rejected/ Unloved
Satisfied with self	1	2	3	4	5	6	Dissatisfied with self
Competent	1	2	3	4	5	6	Incompetent
Other (specify)	_____						

11. After making the comparison I felt:

Happy	1	2	3	4	5	6	Sad
Good mood	1	2	3	4	5	6	Bad mood
Encouraged	1	2	3	4	5	6	Discouraged
Not Jealous/ Not Envious	1	2	3	4	5	6	Jealous/ Envious
Accepted/ Loved	1	2	3	4	5	6	Rejected/ Unloved
Satisfied with self	1	2	3	4	5	6	Dissatisfied with self
Competent	1	2	3	4	5	6	Incompetent
Other (specify)	_____						

13. Describe the circumstances that lead to you make the comparison with this person.

Appendix I

Daily Mood Record

Subject Number \_\_\_\_\_

Date \_\_\_\_\_

For each pair of adjectives below, please circle the number which best describes how you were feeling at the times specified.

Morning \_\_\_\_\_ a.m.

Happy	1	2	3	4	5	6	Sad
Good mood	1	2	3	4	5	6	Bad mood
Encouraged	1	2	3	4	5	6	Discouraged
Not Jealous/ Not Envious	1	2	3	4	5	6	Jealous/ Envious
Accepted/ Loved	1	2	3	4	5	6	Rejected/ Unloved
Satisfied with self	1	2	3	4	5	6	Dissatisfied with self
Competent	1	2	3	4	5	6	Incompetent

Evening \_\_\_\_\_ p.m.

Happy	1	2	3	4	5	6	Sad
Good mood	1	2	3	4	5	6	Bad mood
Encouraged	1	2	3	4	5	6	Discouraged
Not Jealous/ Not Envious	1	2	3	4	5	6	Jealous/ Envious
Accepted/ Loved	1	2	3	4	5	6	Rejected/ Unloved
Satisfied with self	1	2	3	4	5	6	Dissatisfied with self
Competent	1	2	3	4	5	6	Incompetent



7. Would a beeper have made it easier for you to remember to record your current mood or would it have been too disruptive or intrusive?
8. What did you find most difficult about the study?
9. What did you find most enjoyable about the study?
10. What kept you involved in the study?
11. What would you change about the study?
12. Knowing what you know now, would you still have agreed to participate in the study?
13. Was there anything you would have liked to know before agreeing to participate in the study?

OTHER COMMENTS:

## Endnotes

<sup>1</sup>Other studies that have used comparative ratings--in which respondents rate themselves relative to others--have also been interpreted as opposing Wills's (1981) theory, in that people who are high in self-esteem or not depressed rate themselves as superior to others to a stronger degree than do nondepressed or low self-esteem people (e.g., Campbell, 1986; see Wood & Taylor, 1991, for a review). Such ratings have been interpreted as suggesting that people who feel good about themselves tend to compare themselves with people who are inferior--that is, to make downward comparisons. However, Wood (1996) has argued that comparative ratings often may not reflect any social comparison process; people may rate themselves relative to others without even considering those other people. For example, high self-esteem people's ratings may reflect their good feelings about themselves or a general heuristic that they are "better than average" (Alicke, Klotz, Breitenbecher, Yurak, & Vredenburg, 1995), rather than a true consideration of the people they are rating themselves against.

Although Wheeler and Miyake's (1992) method also involved ratings of the self relative to the comparison target, Wood (1996) argued that ratings of the type they used are much more likely to reflect true comparison processes than the general comparative ratings described above. In Wheeler and Miyake's study, respondents rated themselves after they had compared themselves with another person or persons, and for each rating they identified their specific comparison target, the comparison dimension, and several other features of the comparison. In contrast, in the typical comparative rating study, the context is abstract rather than tied to any specific comparison, which leaves more room for biases, heuristics,

and the like to operate, and which does not require participants to truly think about other people.

<sup>2</sup>Using a series of 2-tailed t-tests, I compared participants who failed to complete the study to those who did complete it. No significant differences emerged in BDI, Sociotropy, Autonomy, or Rosenberg Self-Esteem scores (all  $p$ s n.s.). However, more autonomous ( $n = 11$ ) than sociotropic ( $n = 2$ ) and more male ( $n = 9$ ) than female ( $n = 4$ ) participants failed to complete the study.

<sup>3</sup>Jealous/not jealous appeared in an earlier version of Wheeler and Miyake's diary and were not included in the version published in 1992.

<sup>4</sup>The correlations in the large testing groups from which participants were selected were .32 to .38 for Sociotropy and BDI, and .27 to .42 for Autonomy and BDI.

<sup>5</sup>I also assessed mood effects by computing partial correlations using only the average on the adjective pairs in Wheeler and Miyake's (1992) diary: happy/sad and encouraged/discouraged. Results similar to those obtained with the full 7-item composite emerged, with one exception: Average happy/encouraged ratings associated with downward comparisons correlated significantly with each of the ERIS subscales ( $r$ s = .31, .24, and .28 for Envy, Resentment, and Inferiority, respectively). People higher in Envy, Resentment, and Inferiority were less happy/encouraged after making downward comparisons than people lower on these subscales. These correlations were unpredicted and are somewhat surprising. Perhaps individuals high in these characteristics are so plagued by feelings of inferiority that they do not believe that their superiority to others will be longlasting. Further research is needed to clarify the nature of this association.

<sup>6</sup>Simple effects analyses were conducted between upward and downward comparisons within each precomparison mood group. Here and in subsequent simple effects analyses, differences were tested using error terms derived from the full model and pooled according to the Welch-Satterthwaite solution (as presented in Howell, 1987). Degrees of freedom were adjusted according to this solution as well.

<sup>7</sup>The main effects for Direction,  $F(1, 61) = 9.56, p = .003$ , and for Precomparison mood,  $F(1, 61) = 134.45, p < .001$ , were also significant. Participants indicated making more downward than upward comparisons and making more comparisons when in a positive mood than when in a negative mood.

<sup>8</sup>Noting that distributions of within-subject correlations tend to violate the assumption of normality required by the t-statistic, Michela (1986) suggested subjecting within-subject correlations to Fisher's r-to-z' transformations. For the present correlations, the distribution was fairly normal, and thus results using z'-transforms were very similar to those using the untransformed correlations (average  $r' = .40$  and  $-.10$  for upward and downward comparisons, respectively).

<sup>9</sup>Again, analyses using the z'-transformed data produced very similar results, average  $r' = .05$  and  $.17$  for upward and downward comparisons, respectively.

<sup>10</sup>Inclusion of Dysphoria Group as a between-subjects variable in this analysis revealed no interaction with Motive,  $F(2, 60) = 1.62, n.s.$

<sup>11</sup>I first conducted analyses for congruent and noncongruent comparisons only (i.e., collapsing across depressive personality style and comparison dimension as indicated), rather than the full  $2 \times 2 \times 2 \times 2$  (Depressive Personality x Comparison Dimension x

Comparison Direction x Dysphoria Group) analyses to prevent the loss of power that would result from dividing the already small group of dysphorics further. However, when significant results are found, the full analyses are reported to help determine which depressive personality group(s) contribute(s) to the observed effects.

<sup>12</sup>All analyses were also computed using the untransformed data. These produced very similar results.

<sup>13</sup>Could the mood changes revealed in this analysis be accounted for by group differences in precomparison mood? To assess this possibility, a 2 x 2 x 2 (Personality Congruency x Direction x Dysphoria) ANOVA of precomparison mood, with repeated measures on congruency and direction, was conducted. This analysis revealed only a significant effect for direction,  $F(1, 31) = 7.86$ ,  $p = .009$ . Individuals reported being in a more negative mood prior to engaging in upward comparisons than downward comparisons,  $M_s = 2.57$  versus 2.38. However, no significant interactions were revealed, suggesting that group differences in mood change scores were not due to precomparison mood differences between the groups.

<sup>14</sup>I re-ran the previously reported comparison frequency analysis using only the 33 participants included in the mood change analyses and found very similar effects. That is, the Dysphoria x Congruency interaction was significant,  $F(1, 31) = 6.36$ ,  $p = .017$ , and simple effects analyses within dysphoria groups again revealed a significant congruency effect only among dysphoric participants,  $M_s = .92$  versus  $.70$ ,  $F(1, 31) = 5.46$ ,  $p = .026$ .

<sup>15</sup>Once again, analyses of precomparison mood revealed no significant main effects or interactions, suggesting that groups did not differ significantly in mood prior to comparison.

<sup>16</sup>The 2 x 2 x 2 (Personality Congruency x Comparison Direction x Dysphoria Group) ANOVA of the happy/encouraged composite yielded a significant main effect for Direction only,  $F(1, 30) = 31.77$ ,  $p < .001$ . Upward comparisons were associated with a greater negative mood change than were downward comparisons,  $M_s = .48$  versus  $-.24$ .

<sup>17</sup>My data suggest that this is not very likely because the comparisons reported by nondysphoric and dysphoric participants as being for self-enhancement purposes were equally downward.