



## In good company? A multi-study, multi-level investigation of the effects of coworker relationships on employee well-being

Lauren S. Simon \*, Timothy A. Judge, Marie D.K. Halvorsen-Ganepola

University of Florida, Warrington College of Business, P.O. Box 117165, Gainesville, FL 32611-7165, USA

### ARTICLE INFO

#### Article history:

Received 21 January 2010

Available online 10 February 2010

#### Keywords:

Coworker satisfaction

Job satisfaction

Well-being

Agreeableness

Spillover

Experience-sampling methodology

### ABSTRACT

Two multi-level studies were conducted to examine the effects of attitudes towards coworkers on daily well-being. Study 1 linked daily levels of coworker satisfaction to job satisfaction and life satisfaction and examined the extent to which job satisfaction mediated the relationship between coworker satisfaction and life satisfaction among 33 government employees. Study 2 replicated and extended Study 1 by examining the extent to which agreeableness moderated the relationships between daily levels of coworker satisfaction and job and life satisfaction among an occupationally diverse sample of 79 employees. Results revealed that coworker satisfaction varied significantly from day to day and was positively related to job and life satisfaction. Further, job satisfaction partially mediated the relationship between daily coworker satisfaction and life satisfaction. Finally, agreeableness moderated the relationship between coworker satisfaction and job and life satisfaction, such that daily levels of these variables were more contingent on coworker satisfaction for agreeable individuals.

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### 1. Introduction

The most influential conceptualization of the elements of job satisfaction was provided by Smith, Kendall, and Hulin (1969). In that work, which described the conceptual and methodological underpinnings of the Job Descriptive Index (JDI), Smith et al. (1969) posited five job satisfaction facets: work, supervision, coworkers, pay, and promotion opportunities. Though research has investigated each of these job satisfaction facets, some have attracted more attention than others. The focus on work satisfaction is particularly noteworthy in that, of the facets of job satisfaction, it has the highest correlation with overall job satisfaction. Hulin and Judge (2003) noted, “Work satisfaction is the facet of job satisfaction that correlates most strongly with overall satisfaction, and is the facet with the strongest correlations with outcomes” (p. 262).

This is not to suggest, of course, that job satisfaction researchers consider other facets irrelevant. The topic of coworker attitudes, broadly construed, has been considered in scores of studies. In understanding past research on coworkers and job attitudes, however, it is necessary to make a distinction between studies on the effect of coworkers on job satisfaction, and studies concerning coworker satisfaction, defined as one’s affective responses and cognitive evaluations toward his or her coworkers (Smith et al., 1969), *per se*. As for the impact of coworkers on job attitudes, in a major integrative effort of this literature, Chiaburu and Harrison (2008) meta-analytically grouped coworker behaviors into two categories—antagonism (e.g., social undermining) and support (e.g., social support)—finding that both correlated with job satisfaction ( $\rho = -.30$  and  $\rho = .40$ , respectively). Thus, it appears clear that coworker behavior matters to job satisfaction (and other work attitudes).

In terms of the second area—studies of coworker satisfaction *per se*—the literature is much smaller in size and scope. A PsycINFO search of the terms “coworker satisfaction” or “co-worker satisfaction” produces only 13 articles with either

\* Corresponding author. Fax: +1 352 392 6020.

E-mail address: [lauren.simon@cba.ufl.edu](mailto:lauren.simon@cba.ufl.edu) (L.S. Simon).

term in its title. Such a search, of course, does not fully account for all articles that include coworker satisfaction, and indeed, in terms of recent research (i.e., research in the past decade) on coworker satisfaction, there have been noteworthy studies where coworker satisfaction is a focal variable. Most of the recent research on coworker satisfaction considers it as a dependent variable, as predicted by variables such as telework (Golden, 2007), organizational politics (Fedor, Maslyn, Farmer, & Bettenhausen, 2008), the interaction between job insecurity and participation in decision-making (Probst, 2005), and personality similarity between employee and coworkers (Liao, Joshi, & Chuang, 2004). Some, albeit fewer, studies consider coworker satisfaction as an independent variable. For example, Bishop and Scott (2000) found that coworker satisfaction predicted team commitment, and Avery, McKay, and Wilson (2007) investigated the degree to which age similarity impacts the effect of coworker satisfaction on engagement.

Given the yield from past research on coworkers and job satisfaction, and coworker satisfaction *per se*, it is important to ask: What is missing, and why is the topic of coworker satisfaction important?

Considering the latter question first, recently, organizational behavior scholars have argued for a greater focus on interpersonal relationships at work (Chiaburu & Harrison, 2008). To some extent, this reflects a desire to harvest the fruits yielded by “relationship science” (Berscheid, 1999) in social psychology. Evidence is accumulating, for example, that social relationships are an important predictor of well-being (Demir & Weitekamp, 2007), including health and longevity (Giles, Glonek, Luszcz, & Andrews, 2005). In part, the calls for more research on work relationships may also reflect the role that positive social interactions are thought to play in individual work engagement (Heaphy & Dutton, 2008). And in part, these calls may reflect perceived trends in how work is organized—less in terms of narrowly specified tasks and duties and more in terms of teams and relationships (Grant, 2007). If relationships are critical to understanding affective reactions to work, then it is important that we know as much as possible about coworker attitudes. Some of this work might be focused on what leads to positive interactions with coworkers. Other work might focus on the outcomes of attitudes toward coworkers. This leads to our answer to the second question: What is missing in the literature?

We are aware of little evidence on the degree to which coworker satisfaction is important to overall job satisfaction and, more globally, to life satisfaction. It is true that the Chiaburu and Harrison (2008) quantitative review is noteworthy for its linking coworker behavior to job satisfaction (and other work outcomes), but this does not (nor did it purport to) consider coworker satisfaction *per se*, nor does it link coworker behavior or satisfaction to employee well-being more broadly. How important is coworker satisfaction to overall job satisfaction, and to life satisfaction? The aforementioned research, significant and important though it is, does not provide answers to this question.

Another void in the literature concerns the issue of moderators of the effect of coworker satisfaction on overall satisfaction and well-being. Though the Avery et al. (2007) study is noteworthy in investigating a moderator (age similarity) of the impact of coworker satisfaction on engagement, we are aware of no research which has investigated the degree to which coworker satisfaction might be differentially important based on the employee’s personality. If intrinsic job characteristics are more satisfying to individuals who place value on growth, learning, and challenge in their work (high growth need strength; Fried & Ferris, 1987), then it follows that individuals who value positive, harmonious relationships with others will be especially affected by their attitudes toward their coworkers.

Accordingly, the purpose of the present study is to link coworker satisfaction to overall job satisfaction and to life satisfaction, and to investigate the degree to which overall job satisfaction mediates the potential coworker satisfaction–life satisfaction relationship. We also investigate the degree to which agreeableness moderates the effect of coworker satisfaction on job and life satisfaction, with the expectation that the effects are stronger for agreeable individuals. In testing these propositions, we follow recent trends in job affect research (e.g., Ilies, Wilson, & Wagner, 2009; Sonnentag, Binnewies, & Mojza, 2008) by using experience-sampling methodology (ESM), where satisfaction varies within (intra-individual) individuals. We are aware of no past research that has studied coworker satisfaction using an ESM design. Moreover, we test our propositions with multiple studies. In the next section of the paper, we introduce our conceptual model, and provide support for the hypotheses embedded within.

## 1.1. Theory and hypotheses

### 1.1.1. Direct effects of coworker satisfaction on job satisfaction and life satisfaction

Our conceptual model is displayed in Fig. 1. As shown in the figure, we first link coworker satisfaction directly to job satisfaction, defined as “a pleasurable or positive emotional state resulting from an appraisal of one’s job or job experiences” (Locke, 1976, p. 1300). Though research at the inter-individual level has proven fruitful, we measure each of the attitudinal constructs in this study at the intra-individual (i.e., daily) level. Recent research has emphasized the importance of examining job satisfaction (e.g., Hulin & Judge, 2003; Ilies & Judge, 2002; Judge & Ilies, 2004) and life satisfaction (e.g., Reis, Sheldon, Gable, Roscoe, & Ryan, 2000) within-individuals, presumably because these attitudes are affected by situations and thus vary from day to day. This perspective is consistent with Affective Events Theory (AET; Weiss & Cropanzano, 1996) in recognizing the role of situational influences (i.e., work events and the work environment) on employees’ affect, cognitions, and behaviors. In line with this thinking, because interpersonal relationships are complex, the nature of interactions with one’s coworkers is also likely to vary, and thus so too should one’s subjective evaluations regarding them.

It has long been recognized that employees’ satisfaction with their coworkers is an important component of their satisfaction with their jobs, as indicated by the number of measures of job satisfaction (e.g., the JDI; Smith et al., 1969; the Job Satisfaction Survey; Spector, 1985; and the Minnesota Satisfaction Questionnaire; Weiss, Dawis, England, & Lofquist, 1967)



Fig. 1. Hypothesized model.

that include a measure of coworker satisfaction. This is hardly surprising, given that, when employees rate what they find most desirable in a job, they often include some aspect of relationships in their answer (Omnia Group, 2001). Several explanations help to make clear why within-individual coworker satisfaction may be directly linked to within-individual overall job satisfaction. Most salient, Locke's (1976) value-percept model proposes that individuals' values, defined as "that which one acts to gain and/or keep" (Locke, 1976, p. 1304), determine what satisfies them on the job. Coworker satisfaction is thus expected to be linked to job satisfaction, presumably because it is a valued job feature. One benefit of having positive interpersonal relationships with coworkers is heightened access to social support (e.g., Cunningham & Barbee, 2000). Both affective (e.g., friendliness) and instrumental (e.g., task-directed helping) coworker support is strongly related to job satisfaction ( $\rho = .40$  and  $\rho = .28$ , respectively; Chiaburu & Harrison, 2008). Among other afforded benefits, such support can buffer the effects of stressful events, thereby decreasing the adverse effects of stressors on one's job attitudes (e.g., Terry, Nielsen, & Perchard, 1993).

Individuals who are satisfied with their coworkers are also likely to befriend them (Sias & Cahill, 1998), and workplace friendship is positively related to job satisfaction (Morrison, 2004). Friendship can lead to job satisfaction through increasing opportunities for interpersonal capitalization, the process of sharing and celebrating positive news with others (Langston, 1994). Specifically, if friendships are generally characterized by sharing of confidences, it seems likely that individuals who are friends will be more willing to share good news. Likewise, friends may be more willing to respond positively to one another's capitalization attempts, due to the emotional contagion engendered by each other's happiness (Bemis, 2009). Increases in interpersonal capitalization attempts and the positive responses yielded by such attempts provide further opportunity to extract affective benefits from positive events, and can thereby amplify levels of daily positive affect and job satisfaction (Simon, Judge, & Erez, 2008).

**Hypothesis 1a.** Within-individuals, coworker satisfaction is positively related to job satisfaction.

The benefits of being satisfied with one's coworkers are also likely to "spillover" onto life satisfaction. Thus, as shown in Fig. 1, we examine the direct effect of coworker satisfaction on life satisfaction, defined by Shin and Johnson (1978) as "a global assessment of a person's quality of life according to [his] chosen criteria" (p. 478). Spillover can be affective, cognitive, or behavioral in nature (Lambert, 1990) and is the phenomenon wherein an individual's experiences at work affect him or her outside of work, and vice versa (Bolger, DeLongis, Kessler, & Wethington, 1989). Consistent with this view, we argue that many of the same mechanisms that explain the coworker satisfaction–job satisfaction link are also likely to result in spillover from coworker satisfaction to life satisfaction (e.g., Gable, Reis, Impett, & Asher, 2004; Hamilton, 2007). The buffering effects of socially supportive coworkers, for example, are likely to extend beyond the workplace to increase various aspects of individuals' psychosocial health including burnout, stress, and anxiety (Humphrey, Nahrgang, & Morgeson, 2007). Likewise, workplace friendships can facilitate enjoyable leisure activities shared with others. Banner and LaVan (1985) found, for instance, that individuals' coworker satisfaction is related to satisfaction with their leisure time social activities. Increased opportunities for social leisure activities may result in further opportunities for interpersonal capitalization, which has also been linked to life satisfaction (Gable et al., 2004).

**Hypothesis 1b.** Within-individuals, coworker satisfaction is positively related to life satisfaction.

### 1.1.2. The mediating role of job satisfaction

The process of spillover is also likely to operate through job satisfaction. Thus, in Fig. 1, we model job satisfaction as a mediator of the coworker satisfaction–life satisfaction relationship. We have already identified a number of processes through which coworker satisfaction is linked to job satisfaction, and job satisfaction has been demonstrated to be strongly related to life satisfaction both at the between ( $\rho = .44$ ; Michel, Mitchelson, Kotrba, LeBreton, & Baltes, 2009) and within-individual levels (e.g., Heller, Watson, & Ilies, 2006). Job satisfaction may exert influence on life satisfaction through affective mechanisms, as daily levels of positive affect at work have been shown to predict daily levels of positive affect at home (Judge & Ilies, 2004). Mood congruency effects (e.g., Ilies & Judge, 2002), wherein emotions are proposed to facilitate access

to similarly valenced memories and cognitions (Blaney, 1986), offer another, albeit related explanation. Specifically, the positive affect likely experienced by one who is satisfied with his or her job should facilitate the experience of positive cognitions regarding one's life, and thus one's life satisfaction. In sum, because we have argued that coworker satisfaction influences life satisfaction not only through job satisfaction but through alternative mechanisms such as leisure opportunities and social support, we hypothesize partial mediation of the coworker satisfaction–life satisfaction relationship through job satisfaction.

**Hypothesis 2.** Within-individuals, the relationship between coworker satisfaction and life satisfaction is partially mediated by job satisfaction.

### 1.1.3. The moderating role of agreeableness

Though we argue that daily coworker satisfaction both directly and indirectly influences daily life satisfaction, the effects of coworker satisfaction on job satisfaction and life satisfaction are likely to be more pronounced for some individuals than for others. One of the strengths of Locke's (1976) value-percept model is that it accounts for the role of individual differences in the determinants of job satisfaction (Judge & Klinger, 2007). That is, though there is likely to be some degree of consistency regarding what constitutes a valued job feature, the strength of individuals' values differs, and thus, so too should the between-individual determinants of job satisfaction. The job characteristics model (Hackman & Oldham, 1975, 1976) also implicitly implicates values as influencing the relationship between job features and job satisfaction. Particularly, it is proposed that, relative to individuals who do not value personal growth (i.e., individuals with low growth need strength), individuals with high growth need strength will be more positively influenced by intrinsically motivating job characteristics. The abovementioned individual differences, may, in part, be attributable to personality traits. Specifically, personality traits shape individuals' values (Judge & Cable, 1997), which, in turn, affect the determinants of individuals' job satisfaction. Consistent with the logic of the aforementioned models and the notion that personality is related to individual values, and as shown in Fig. 1, we argue that the personality trait of agreeableness moderates the relationship between coworker satisfaction and job satisfaction. Because agreeable individuals are altruistic, warm, generous, and cooperative (Costa & McCrae, 1992) and value harmonious relationships (Barrick, Stewart, & Piotrowski, 2002), they should be more likely than disagreeable individuals to be affected by coworker satisfaction.

Agreeable individuals are also more likely to select themselves into environments of an interpersonal nature, thereby potentially increasing the salience of coworker relationships as a determinant of their overall job satisfaction. Schneider's attraction–selection–attrition framework (1987) suggests that individuals gravitate toward work environments possessing characteristics consonant with their own. Consistent with this view, Judge and Cable (1997) found that agreeable job seekers were more attracted to organizations with supportive and team-oriented cultures than were less agreeable individuals and that attraction to an organization was positively related to job offer acceptance. Further, once on the job, agreeable individuals are more likely to help—and are less likely to harm—coworkers, regardless of the favorability of the work environment (Colbert, Mount, Harter, Barrick, & Witt, 2004; Ilies, Scott, & Judge, 2006; Witt, Kacmar, Carlson, & Zivnuska, 2002). This constellation of behaviors may, in the long term, result in the formation of acquaintances and friendships that serve to bolster even further the incidence of interpersonal interaction at work.

A final explanation as to why agreeableness might moderate the coworker satisfaction–job satisfaction relationship has to do with the manner in which agreeable individuals process information. Mischel and Shoda's (1995, 1998) cognitive–affective system theory of personality conceives traits to be related to information processing mechanisms. Though little is known regarding which traits might be related to such processing dynamics, there is at least some work that sheds light on this issue. In a series of laboratory studies, Tobin, Graziano, Vanman, and Tassinari (2000) examined individual differences in emotional information processing and found that agreeable individuals experienced more emotion in situations consequential for relationships. Such heightened experienced emotional intensity during interpersonal interaction is likely to increase the extent to which attitudes towards one's coworkers can meaningfully influence overall job attitudes.

**Hypothesis 3.** Agreeableness moderates the within-individual relationship between coworker satisfaction and job satisfaction, such that the relationship is more strongly positive for those who are more agreeable.

The final link discussed in Fig. 1 portrays agreeableness as a moderator of the relationship between coworker satisfaction and life satisfaction. Echoing values-based theories of job satisfaction, Oishi, Diener, Suh, and Lucas (1999) propose the “value-as-moderator” model of life satisfaction, whereby the determinants of life satisfaction vary according to individuals' salient values. In empirically testing their model using a daily diary methodology, Oishi et al. (1999) found that individuals' values differed and that values moderated the extent to which domain satisfactions influenced overall daily satisfaction. Particularly relevant for our study is the finding that satisfaction with social interactions mattered more in predicting overall daily satisfaction for individuals who valued benevolence. Additionally, as with job satisfaction, increased social interaction at work through prosocial behavior and self-selection into jobs with social features as well as heightened emotional experiences in interpersonal situations are each likely to increase the relevance of daily coworker attitudes for daily life satisfaction among those who are agreeable.

**Hypothesis 4.** Agreeableness moderates the within-individual relationship between coworker satisfaction and life satisfaction, such that the relationship is more strongly positive for those who are more agreeable.

## 1.2. Method overview

Two studies were conducted in order to test our hypotheses. In Study 1, we examined the within-individual relationships between coworker satisfaction and job satisfaction and coworker satisfaction and life satisfaction, as well as whether job satisfaction might mediate the relationship between coworker satisfaction and life satisfaction. Study 2 replicated and extended these findings by examining the extent to which the within-individual relationships between coworker satisfaction and job satisfaction and coworker satisfaction and life satisfaction were moderated by agreeableness. The methodology and results of each study are described below.

## 2. Study 1

### 2.1. Method

#### 2.1.1. Participants and procedure

Potential participants were 300 employees of various state agencies in the Southeastern United States whose names were randomly selected from a publicly available database. The final sample represented a variety of industries including law, accounting, and agriculture. Roughly half (49%) of the participants were female and all had been employed full-time by the state for at least six months. The study took place over the course of a two-week period in April during which no major holidays occurred.

In order to recruit potential participants, we emailed a detailed description of the study as well as a request for voluntary participation to each of the randomly selected state employees. Interested individuals were instructed to reply to the email, and, in response, were provided with study instructions, a random identification number, and a link to the website hosting the survey. Of the initial 300 individuals invited to volunteer for the study, 49 agreed to participate and started the study.

To collect the data, an experience-sampling methodology (ESM) was used, in which participants were asked to complete a survey each business day for two weeks. An email containing a link to the daily survey was sent to participants every afternoon at 4:15 PM. The daily survey consisted of measures asking participants to complete items about their satisfaction with their coworkers, job, and life. To compensate participants for their time, an honorarium was awarded to those who fully completed the study, and a partial honorarium was offered to those who started but did not finish the study.

Usable data were available for 33 participants. A participant's data were considered usable if he/she completed at least three daily surveys. Because usable data were available for 33 participants, the maximum number of observations for each variable measured was 330. Across each of these daily variables, our dataset included 249 observations.

#### 2.1.2. Measures

For each measure, participants were asked to rate items on a 1 (*disagree strongly*) to 5 (*agree strongly*) response scale.

**Coworker satisfaction.** Coworker satisfaction was assessed with a three-item measure. Participants were asked to "Indicate your feeling today by placing the appropriate number on the line preceding that item." The first two items were adapted from Spector's (1985) Job Satisfaction Survey and read, "Today, I liked the people I work with very much," and "Today, I enjoyed my coworkers," whereas the third item was adapted from the Minnesota Satisfaction Questionnaire (Weiss et al., 1967) and read, "Today, I felt very friendly toward my coworkers." Cronbach's alpha for this scale, pooled over the time intervals, was  $\alpha = .95$ .

**Job satisfaction.** Consistent with prior ESM studies (e.g., Heller et al., 2006), job satisfaction was assessed using a modified five-item version of Brayfield and Rothe's (1951) measure. Instructions for this measure were identical to those used for the coworker satisfaction measure. Sample items included "Today, I felt satisfied with my job," "Today, I feel enthusiastic about my job," and "Today, I feel that I like my job better than the average worker does." Cronbach's alpha for this scale, pooled over the time intervals, was  $\alpha = .93$ .

**Life satisfaction.** We measured life satisfaction using the five-item Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985). Items were adapted slightly so that they referred to daily, rather than general, levels of life satisfaction. The same instructions used for the coworker and job satisfaction measures were also used for the life satisfaction measure. Sample items were "Today, in most ways my life was close to my ideal," "Today, the conditions of my life were excellent," and "I was satisfied with my life today." Cronbach's alpha for this scale, pooled over the time intervals, was  $\alpha = .92$ .

## 3. Results

### 3.1. Appropriateness of hierarchical linear modeling

Because daily measures of coworker satisfaction, job satisfaction, and life satisfaction were nested within-individuals, in order to test our hypotheses, hierarchical linear models (Bryk & Raudenbush, 1992; Snijders & Bosker, 1999) were estimated using HLM 6 (Raudenbush, Bryk, & Congdon, 2005). However, prior to testing the hypothesized models, null models—consisting only of intercepts and no predictors—were estimated so as to examine the extent to which variance in each of the Level 1 variables was partitioned within and between-individuals. If the Level 1 variables do not substantially fluctuate

**Table 1**

Variance components of null models for Level 1 variables.

Variable	Variance within ( $\rho^2$ )	Variance between ( $\tau_{00}$ )	Percent within
<i>Study 1</i>			
Coworker satisfaction	.26	.65**	28.57
Job satisfaction	.36	.73**	33.03
Life satisfaction	.33	.78**	29.73
<i>Study 2</i>			
Coworker satisfaction	.43	.48**	47.25
Job satisfaction	.37	.57**	39.36
Life satisfaction	.45	.62**	42.06

Note.  $\rho^2$  = within-individual variance in variable.  $\tau_{00}$  = between-individual variance in variable. Percent variability within-individual is computed as:  $\frac{\rho^2}{(\rho^2 + \tau_{00})}$ .  
 \*\*  $p < .01$  (two-tailed).

within-individuals, then there ceases to be within-individual variation to explain, and thus, hierarchical linear modeling is unnecessary. Table 1 reports the between- and within-individual variance components for coworker satisfaction, job satisfaction, and life satisfaction. As shown in the table, 28.57% of the variance in coworker satisfaction is within-individual, 33.03% of the variance in job satisfaction is within-individual and 29.73% of the variance in life satisfaction is within-individual. Additionally, significant ( $p < .01$ ) between-individual variance existed for each Level 1 variable. In sum, the null model results suggest that there is sufficient within-individual variance to explain and that hierarchical linear modeling is appropriate for testing the study hypotheses.

### 3.2. Tests of hypotheses

Means, standard deviations, and between- and within-individual correlations among Study 1 variables are reported in Table 2. Daily scores on within-individual measures were aggregated across the two-week time period to calculate between-individual correlations. To calculate within-individual correlations, we standardized the HLM regression coefficients obtained by regressing a single predictor on a single criterion. Both between- and within-individual correlations among coworker satisfaction and job satisfaction ( $r_{\text{within}} = .38$ ,  $p < .01$ ;  $r_{\text{between}} = .68$ ,  $p < .01$ ) and coworker satisfaction and life satisfaction ( $r_{\text{within}} = .45$ ,  $p < .01$ ;  $r_{\text{between}} = .64$ ,  $p < .01$ ) were positive and significant, offering preliminary support for Hypothesis 1a and Hypothesis 1b.

Using HLM, we further tested Hypothesis 1 by entering coworker satisfaction as a predictor of job satisfaction and life satisfaction. It is important to note that we centered all of the within-individual variables relative to each individual's per-

**Table 2**

Means, standard deviation, and intercorrelations among Study 1 variables.

Variable	<i>M</i>	<i>SD</i>	1	2	3
1. Coworker satisfaction	4.13	.93	–	.38**	.45**
2. Job satisfaction	3.88	1.00	.68**	–	.54**
3. Life satisfaction	3.27	1.05	.64**	.62**	–

Note. Correlations below the diagonal represent between-individual (aggregated) correlations ( $n = 33$ ). Correlations above the diagonal represent within-individual correlations and were calculated by standardizing the regression coefficient obtained in HLM analyses between one predictor and one criterion ( $n = 249$ ).

\*\*  $p < .01$  (two-tailed).

**Table 3**

Hierarchical linear modeling results of coworker satisfaction as a predictor of job and life satisfaction.

Parameter	Job satisfaction			Life satisfaction		
	<i>B</i>	<i>SE</i>	<i>T</i> -value	<i>B</i>	<i>SE</i>	<i>T</i> -value
<i>Study 1</i>						
Intercept, $B_{00}$	3.78**	.15	24.87**	3.19**	.16	20.42**
Coworker satisfaction, $B_{10}$	0.37**	.11	3.53**	0.46**	.08	5.90**
<i>Study 2</i>						
Intercept, $B_{00}$	3.67**	.09	42.10**	3.46**	.09	37.81**
Coworker satisfaction, $B_{10}$	0.47**	.05	9.93**	0.51**	.05	10.59**

Note. *B*, unstandardized regression coefficient. *SE*, standard error.

\*\*  $p < .01$  (two-tailed).

**Table 4**

Hierarchical linear modeling results of coworker satisfaction and job satisfaction as predictors of life satisfaction.

Parameter	Life satisfaction (Study 1)			Life satisfaction (Study 2)		
	<i>B</i>	<i>SE</i>	<i>T</i> -value	<i>B</i>	<i>SE</i>	<i>T</i> -value
Intercept, $B_{00}$	3.18**	.16	20.42**	3.46**	.09	37.76**
Job satisfaction $B_{10}$	0.42**	.07	5.84**	0.63**	.05	12.64**
Coworker satisfaction $B_{20}$	0.27**	.07	4.24**	0.21**	.04	5.77**

Note. *B*, unstandardized regression coefficient. *SE*, standard error.

\*\*  $p < .01$  (two-tailed).

sonal mean score (Hofmann, Griffin, & Gavin, 2000). By doing so, Level 1 HLM coefficients can be interpreted as reflecting strictly within-individual variation in coworker satisfaction, job satisfaction, and life satisfaction. As shown in Table 3, coworker satisfaction was significantly and positively related to both job satisfaction ( $B_{10} = .37, p < .01$ ) and life satisfaction ( $B_{10} = .46, p < .01$ ). Thus, Hypothesis 1a and Hypothesis 1b are fully supported.

Hypothesis 2 suggested partial mediation of the coworker satisfaction–life satisfaction relationship through job satisfaction. Consistent with Judge, Woolf, and Hurst (2009), to test this hypothesis we adapted Baron and Kenny's (1986) mediational approach by using it in conjunction with HLM. According to Baron and Kenny's (1986) logic, the following four conditions must occur in order to conclude that mediation of the proposed relationship exists: (a) coworker satisfaction must be significantly related to life satisfaction; (b) coworker satisfaction must be significantly related to job satisfaction; (c) job satisfaction must be significantly related to life satisfaction; and (d) the effect size depicting the relationship between coworker satisfaction and life satisfaction must be reduced when job satisfaction is controlled.

The first and second steps of the mediational criteria were supported when testing Hypothesis 1a and Hypothesis 1b. To assess whether the remainder of the abovementioned criteria were met, an equation was specified whereby job satisfaction and coworker satisfaction were entered simultaneously at Level 1. The results of these analyses are reported in Table 4 and show that each of the remaining mediational criteria were fulfilled. In particular, job satisfaction was positively and significantly related to life satisfaction ( $B_{10} = .42, p < .01$ ), and the effects of coworker satisfaction on life satisfaction remained significant, but were reduced, when job satisfaction was controlled. Thus, in support of Hypothesis 2, results suggest that job satisfaction partially mediated the relationship between coworker satisfaction and life satisfaction. Specifically, job satisfaction mediated 41.3% of the association between coworker satisfaction and life satisfaction.

## 4. Study 2

### 4.1. Method

#### 4.1.1. Participants and procedure

In order to recruit participants, an advertisement containing a brief description of the study content and requirements was posted on a community website (see [www.craigslist.org/about/sites](http://www.craigslist.org/about/sites)) for five Southeastern cities and two Midwestern cities. In order to be eligible for the study, it was required that participants be employed full-time. Participation was limited to the first 100 qualified registrants, who represented a variety of industries including finance, hospitality, and manufacturing and worked full-time. The study took place over the course of a two-week period in October during which no major holidays occurred.

The online advertisement requested that interested individuals email the first author to receive an email containing a detailed description of the study. Those who remained interested in participating after receiving the email were asked to send a reply containing their phone number and their availability to engage in a brief telephone conversation with the researchers. During the phone call, potential participants were read a script containing detailed study information, including the study procedure and payment process. Additionally, these individuals were asked to provide information regarding the occupation in which they worked and their typical work hours. In closing the phone calls, the researchers answered participants' remaining questions, reminded them of the study start date, and thanked them for their time.

As in Study 1, an ESM design was used, in which participants were asked to complete a daily survey over the course of a two-week period. An additional survey containing a measure of agreeableness was also included, while coworker satisfaction, job satisfaction, and life satisfaction were assessed using the daily survey. Surveys were linked with four-digit identification numbers provided to participants during the study registration period. The design of Study 2 differed slightly from that used in Study 1 in that daily surveys were emailed to participants at 3:00 PM, rather than 4:15 PM, and in that daily surveys were administered on weekends, in addition to weekdays.

Seventy-nine participants provided usable data. Consistent with Study 1, data were considered usable if participants completed at least three daily surveys, along with the additional agreeableness measure. Out of a maximum 790 observations for each study variable, 731 were provided. Honorariums were awarded to participants who fully or partially completed the study.

#### 4.1.2. Measures

Coworker satisfaction, job satisfaction, and life satisfaction were assessed with the same measures used in Study 1. The reliabilities (Cronbach's alpha, pooled over the time periods) of these measures were,  $\alpha = .95$ ,  $\alpha = .97$ , and  $\alpha = .95$ , respectively. To assess agreeableness we used nine items from the Big Five Inventory (John, Donahue, & Kentle, 1991). Sample items included "I like to cooperate with others," "I am helpful and unselfish with others," and "I tend to find fault with others" (reverse scored). Cronbach's alpha for this measure was  $\alpha = .78$ .

### 5. Results

Means, standard deviations, and correlations among Study 2 variables are reported in Table 5. Consistent with the findings of Study 1, coworker satisfaction was positively correlated with job satisfaction ( $r_{\text{within}} = .54$ ,  $p < .01$ ;  $r_{\text{between}} = .77$ ,  $p < .01$ ) and life satisfaction ( $r_{\text{within}} = .55$ ,  $p < .01$ ;  $r_{\text{between}} = .78$ ,  $p < .01$ ) at both the between- and within-individual levels of analysis. Before proceeding with HLM analyses, we again estimated null models to assess whether sufficient within-individual variance existed to be explained. The results of these analyses are reported in Table 1 and show that a substantial proportion of the variance in Level 1 variables is within-individual. Thus, the use of HLM is appropriate in testing our hypotheses.

The findings in Study 2 replicated those of Study 1. Specifically, when using the same model described in Study 1, Hypothesis 1a and Hypothesis 1b were supported. The results of these analyses are reported in Table 3. Results for Hypothesis 2 (see Table 4) were also replicated using the same model and mediational logic as in Study 1; job satisfaction mediated 58.82% of the association between coworker satisfaction and life satisfaction.

Hypotheses 3 predicted that agreeableness would moderate the relationship between coworker satisfaction and job satisfaction. To test this hypothesis, an additional model was estimated, in which coworker satisfaction was entered at Level 1, agreeableness was entered as a Level 2 predictor of the Level 1 intercept, and agreeableness was entered as a predictor of the slope between coworker satisfaction and job satisfaction. As shown in Table 6, agreeableness positively predicted the strength of the relationship between coworker satisfaction and job satisfaction ( $B_{11} = .20$ ,  $p < .05$ ). Fig. 2a also depicts the form of this interaction graphically for individuals one standard deviation above and below the mean on agreeableness. Although the relationship between coworker satisfaction and job satisfaction was positive for individuals low and high on agreeableness, the relationship was significantly stronger for those high in agreeableness, suggesting that coworker satisfaction is more important to job satisfaction for agreeable individuals.

Lastly, in Hypothesis 4, we predicted that agreeableness would moderate the relationship between coworker satisfaction and life satisfaction. To test this hypothesis, life satisfaction replaced job satisfaction as the outcome variable for the same model used to test Hypothesis 3. The results of this model are shown in Table 6. As hypothesized, agreeableness positively predicted the slope of the relationship between coworker satisfaction and life satisfaction ( $B_{11} = .20$ ,  $p < .05$ ). A plot of this interaction (see Fig. 2b) for individuals one standard deviation above and below the mean on agreeableness revealed that

**Table 5**  
Means, standard deviations, and intercorrelations among Study 2 variables.

	<i>M</i>	<i>SD</i>	1	2	3
1. Coworker satisfaction	3.96	.94	–	.54**	.55**
2. Job satisfaction	3.67	.96	.77**	–	.71**
3. Life satisfaction	3.47	1.03	.78**	.89**	–
4. Agreeableness	4.20	.52	.38**	.34**	.37**

Note. Correlations below the diagonal represent between-individual (aggregated) correlations ( $n = 79$ ). Correlations above the diagonal represent within-individual correlations and were calculated by standardizing the regression coefficient obtained in HLM analyses between one predictor and one criterion ( $n = 731$ ).

\*\*  $p < .01$  (two-tailed).

**Table 6**  
Relationship of coworker satisfaction and agreeableness and their interaction in predicting job and life satisfaction.

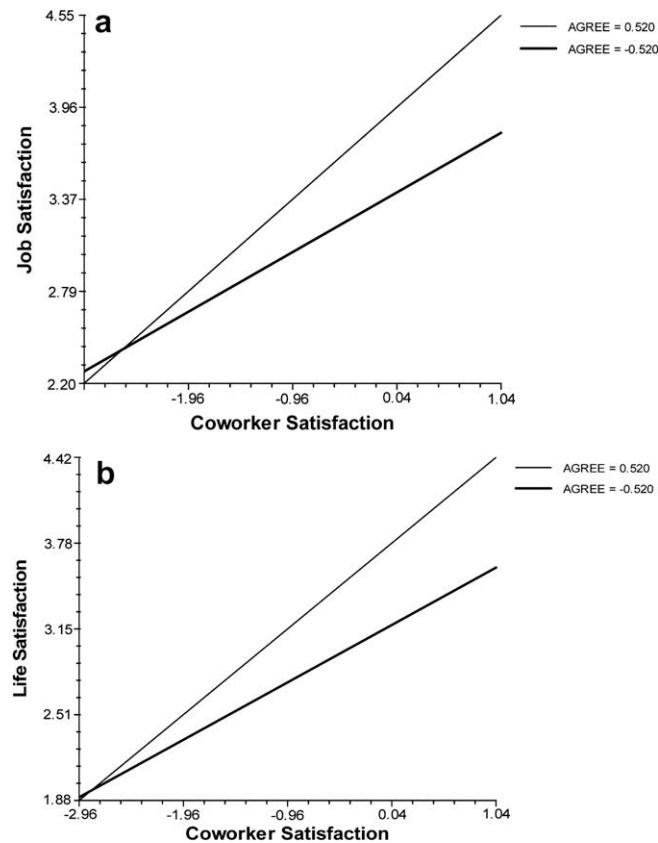
Parameter	Job satisfaction			Life satisfaction		
	<i>B</i>	<i>SE</i>	<i>T</i> -value	<i>B</i>	<i>SE</i>	<i>T</i> -value
Intercept, $B_{00}$	3.67**	.08	44.83**	3.46**	.09	40.62**
Agreeableness, $B_{01}$	0.51**	.18	2.80**	0.57**	.19	3.04**
Coworker satisfaction, $B_{10}$	0.48**	.05	9.96**	0.53**	.05	9.87**
Coworker satisfaction $\times$ Agree, $B_{11}$	0.20*	.08	2.49*	0.20*	.09	2.29*

Note. *B*, unstandardized regression coefficient. *SE*, standard error. Agree, agreeableness.

\*  $p < .05$  (two-tailed).

\*\*  $p < .01$  (two-tailed).





**Fig. 2.** (a) Agreeableness as a moderator of the within-individual relationship between coworker satisfaction and job satisfaction. (b) Agreeableness as a moderator of the within-individual relationship between coworker satisfaction and life satisfaction.

the nature of this relationship mirrored that of the relationship between coworker satisfaction and job satisfaction; both less and more agreeable individuals exhibited a positive relationship between coworker satisfaction and life satisfaction, but the strength of this relationship was enhanced for those who were more agreeable.

## 6. Discussion

Social relationships are an important part of everyday life. As noted by Frone (2000), “Humans are, by their very nature, social beings. We are born into families and eventually become members of larger collectives, such as schools, churches, and work organizations” (p. 246). We depend on others to help us make sense of our environment, to provide advice, and to share information. Moreover, contrary to their typical treatment by psychologists “as instrumental means to extrinsic, non-social ends, or as constraints on the satisfaction of individual desires” (Fiske, 1992, p. 689), relationships are often valued ends in and of themselves (Gersick, Bartunek, & Dutton, 2000). Work—where we spend the majority of our waking hours—is fertile ground for the development of both instrumental and friendly social bonds. The establishment of these social bonds with coworkers becomes ever more likely as organizations increasingly employ team-based models (Cohen & Bailey, 1997) that heighten the need for social interaction in order to accomplish interdependent goals (Hodson, 2004).

Though it is clear that both work and interpersonal relationships are vital to our well-being, compared to research examining other job attitudes, surprisingly little has focused explicitly on attitudes towards coworkers (i.e., coworker satisfaction). Research that has examined coworker satisfaction has done so exclusively at the between-individual level. Yet, within-individual analyses are likely to provide a finer lens through which to view individuals’ attitudes towards their colleagues, as relationships are complex, often involving some blend of conflict, social support, help, and harm (Gersick et al., 2000). Thus, our social interactions and subsequent evaluations of them are likely to vary from day to day.

Consistent with this logic, we conducted two studies examining daily variability in coworker satisfaction. As expected, a substantial portion of the variance in coworker satisfaction (28.57% in Study 1 and 47.25% in Study 2) was within-individual. Additional analyses revealed that daily variation in coworker satisfaction was not merely transient error; within-individual changes in coworker satisfaction positively predicted changes in both job and life satisfaction and job satisfaction partially mediated the relationship between coworker satisfaction and life satisfaction. Finally, given its emphasis on interpersonal

relationships (Graziano, Jensen-Campbell, & Hair, 1996), we examined whether agreeableness moderated the relationships between daily coworker satisfaction and job and life satisfaction. The results of these analyses revealed that daily levels of work and overall well-being were more contingent on coworker satisfaction for agreeable individuals.

### 6.1. Implications for theory

The abovementioned findings have several implications for theory. First, provided individuals' evaluations of their interpersonal work environments coincide with objective properties of their relationships, partial mediation of the coworker satisfaction–life satisfaction relationship through job satisfaction is inconsistent with segmentation models wherein experiences in one domain (e.g., work) are independent of experiences in another domain (e.g., Hart, 1999; Warr, 1999). Instead, at least where workplace relationships are concerned, our results lend support to spillover models whereby situational features of one domain influence life satisfaction not only indirectly through evaluations of the focal domain, but also potentially through other work and non-work mechanisms (e.g., Edwards, Cockerton, & Guppy, 2007).

By demonstrating that evaluations of workplace relationships are especially significant determinants of job satisfaction and life satisfaction for individuals who are agreeable, our study also informs values-based theories of job satisfaction and overall well-being. Locke's (1976) value-percept model of job satisfaction posits that individuals are satisfied with their jobs when valued outcomes are provided. Thus, when individuals evaluate their job satisfaction, features of the job that are important are weighted more heavily than less important features. A framework similar to the value-percept model has been proposed regarding life satisfaction. According to the "value-as-moderator" model (Oishi et al., 1999), pertinent values influence the determinants of life satisfaction for individuals. Though the main effects of coworker satisfaction on job and life satisfaction support the notion that most individuals value coworker satisfaction, previous research has shown that agreeable individuals specifically strive for (and thus likely value) communion (Barrick et al., 2002). If this finding holds true for the current sample, that daily coworker satisfaction more strongly predicted daily job and life satisfaction for agreeable individuals is consistent with both the value-percept and value-as-moderator models and provides further evidence that personality can be instrumental in identifying individuals' valued job features.

Finally, the aforementioned moderating role of agreeableness also has implications for Mischel and Shoda's (1995, 1998) cognitive–affective system theory of personality. Though personality may predict behavior across situations, Mischel and Shoda (1995, 1998) argue that important information is lost when the influence of situational factors, or within-individual variation, is overlooked. According to their model, personality traits can be linked to information processing dynamics (e.g., encodings, beliefs, self-regulatory plans) that are sensitive to situational stimuli. However, little is known about how information processing dynamics correspond to personality traits. Our finding that the relationships between daily coworker satisfaction and daily work and overall well-being tend to be stronger for agreeable individuals demonstrates that agreeable individuals' cognitive–affective processing systems may be especially sensitive to interpersonal stimuli. For less agreeable individuals, the cognitive–affective processing system may be more responsive to other classes of stimuli.

### 6.2. Limitations and future research

As with all research, the results of this study should be interpreted with its limitations in mind. One limitation of our study is its reliance on self-report measures. Given the rigors of ESM and our study's focus on attitudinal constructs that reflect internal perceptions, we thought the use of self-reported measures was appropriate. However, the exclusive use of self-report measures allows for the possibility that our results are influenced by common method variance (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). This concern may be somewhat mitigated by participants having provided multiple ratings of each attitudinal construct and by the centering of Level 1 variables around individuals' mean scores. Such centering removes many between-individual differences that can bias responses.

A second limitation of our study is that we do not directly measure why agreeableness moderates the coworker satisfaction–job satisfaction and coworker satisfaction–life satisfaction relationships. Our explanations focus largely on cognitive, emotional, and values-based mechanisms. Yet, other, albeit related, mechanisms likely exist. Taylor (2006), for example, proposes a "tend and befriend" model of affiliative responses to stress that may provide a more physiologically-based explanation. According to this model, humans not only react to stress with "fight or flight" responses, but also possess an affiliative system that generates an appetitive desire to form and maintain social bonds (i.e., to "tend and befriend"). Specifically, when faced with certain (especially social) stressors, the release of the hormone oxytocin acts as a biomarker indicating that social resources are necessary, essentially prompting individuals to engage in affiliative behavior. When affiliative efforts elicit a positive reaction (e.g., friendly or supportive social interaction), psychological and biological stress responses are attenuated, whereas negative reactions exacerbate these stress responses. This affiliative system is thought to be beneficial from an evolutionary perspective, because humans are not particularly fast or strong compared to other animal species. Thus, rather than fleeing or fighting in response to danger, humans may be at least as adept at protecting themselves by forming groups (Taylor & Gonzaga, 2007). As evidence for the existence of this affiliative system accumulates, it would be interesting for future research to link it to agreeableness. If this system is particularly sensitive among the agreeable, then agreeable individuals should be physiologically (and thus mentally) more reactive to certain social stressors such as lack of social support. Such a finding would seem consistent with the results of this study.

A final limitation of this study involves the inability to determine whether participants considered their supervisors or subordinates to be coworkers. That is, although the items used to measure coworker satisfaction specifically reference coworkers, we cannot be certain that participants referred strictly to peers. Research in the social support, conflict, and job attitudes literatures has proposed that relationships with supervisors and coworkers differentially affect outcomes (e.g., Ng & Sorensen, 2008). Though arguments for this line of thinking vary, one broad explanation posits that, because supervisors are viewed by employees as representing the organization, properties of relationships with supervisors associate more strongly with organizational outcomes (e.g., job satisfaction, organizational commitment), whereas properties of relationships with peers associate more strongly with psychological outcomes (e.g., depression, self-esteem, somatic symptoms; Frone, 2000). Some empirical evidence exists in support of this view (Frone, 2000; Ng & Sorensen, 2008). Given these and other findings of differential patterns of peer and non-peer relationships with outcomes (e.g., Chiaburu & Harrison, 2008; Kinicki, McKee-Ryan, Schriesheim, & Carson, 2002), future research should measure relationships with peers, supervisors, and subordinates for a more thorough understanding of their consequences.

### 6.3. Practical implications

Our findings show that coworker satisfaction strongly influences individuals' satisfaction with their jobs and their lives. Though important in their own right, these attitudes are also related to a number of outcomes that are valuable to employers, including job performance, discretionary behavior, employee health, absenteeism, and turnover (for reviews see Judge, Hulin, & Dalal, in press; Warr, 1999). Thus, managers are well-advised to establish environments conducive to enhancing coworkers' evaluations of one another. How might one undertake such an effort? Findings from two recent meta-analyses examining antecedents of coworker satisfaction suggest an answer. Humphrey, Nahrgang, and Morgeson (2007) identified opportunities to receive feedback from others ( $\rho = .65$ ) and social support ( $\rho = .64$ )—defined as opportunities for friendships and for receiving advice or assistance—as the two most influential predictors of coworker satisfaction. Similarly, Kinicki et al. (2002) found group cohesiveness ( $\rho = .45$ ) to be the strongest predictor of coworker satisfaction; though there were several other significant antecedents, including communication quality ( $\rho = .27$ ) and group goal arousal ( $\rho = .32$ ). By focusing on the aforementioned antecedents, managers are likely to facilitate the formation of work environments in which coworkers are satisfied with one another and, subsequently, their jobs and lives.

Additionally, it is also worth mentioning that returns on efforts to increase coworker satisfaction through positively altering features of the work environment will likely extend to other domains, given that social job characteristics predict important work-related outcomes. This is true even when motivational job characteristics (e.g., skill variety, task identity) are controlled. Specifically, Humphrey et al. (2007) found that social job characteristics (e.g., interdependence, feedback from others, social support, interaction outside the organization) explained an additional 9% of the variance in subjective performance, 24% of the variance in turnover intentions, 17% of the variance in job satisfaction, 40% of the variance in organizational commitment, and 18% of the variance in role perception outcomes after controlling for motivational job characteristics. Thus, all things considered, there is little doubt that efforts to create a positive interpersonal work environment will be lucrative from both employee well-being and organizational performance perspectives.

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