

## Linking Goal Progress to Subjective Well-Being at Work: The Moderating Role of Goal-Related Self-Efficacy and Attainability

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Although goal progress is often hypothesized to be positively linked to well-being, existing research points to an inconsistent relationship and suggests that potential moderators need to be examined. This longitudinal study investigated whether 2 aspects of goal cognition—goal attainability and self-efficacy—influence the relationship between goal progress and well-being (viz., job satisfaction and emotional exhaustion) in a sample of 172 nurses. Work goal progress was not directly associated with well-being. Rather, the link between goal progress and well-being was moderated by goal cognition. Individuals who started off with unfavorable goal cognitions but who managed to achieve goal progress reported an increase in well-being, compared with those who had favorable goal cognitions and similar rates of progress. Progress appears to have compensated for low initial goal cognition in the prediction of well-being, and high initial goal cognition appears to have undermined this predictive relationship. Also, goal progress was associated with an increase in self-efficacy and goal attainability from Time 1 to Time 2. Results are discussed in relation to goal theories and the concept of self-correcting goal cycles.

*Keywords:* goal progress, self-efficacy, goal attainability, job satisfaction, emotional exhaustion.

In recent years, substantial research has been focused on the putative causal associations between motivational processes, particularly goals, and resultant feelings of satisfaction and emotional health (Carver & Scheier, 1998; Emmons, 1999; Pomaki & Maes, 2002). In particular, the manner in which goals are cognitively framed and organized (goal cognition) has been found to aid predictions of well-being across several contexts, including the work setting (even after accounting for the effect of well-established work stressors; cf., Pomaki, Maes, & ter

Doest, 2004). Perceptions of goal progress have also been associated with well-being (for a meta-analysis, see Koestner, Lekes, Powers, & Chicoine, 2002), albeit not consistently (Judge, Bono, Erez, & Locke, 2005; Wiese, 2007; Wiese & Freund, 2005). Although discernible progress on valued goals may well be expected to yield an increased sense of satisfaction or well-being in a direct and fairly stable fashion, inconsistent findings to date suggest that the goal pursuit process is complex, multiply determined, and sensitive to subtle contextual and methodological influences (Grant, Little, & Phillips, 2007).

One possible explanation for the inconsistent findings across studies of goal progress and well-being is that support seems to come mainly from studies that feature samples of college students (in fact, all the studies included in the Koestner et al., 2002, meta-analysis drew from college samples), for whom goal progress is likely to take place within a comparatively short period of time (e.g., a few weeks to a maximum of one semester) and for whom the assessment of well-being is temporally close to actual goal attainment (thus capturing short-term emotional elation). By contrast, employee samples may manifest a larger variety of delayed goals, and the assessment of

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their perceived well-being may not routinely coincide with goal attainment.

A second possibility is that the variable relationship between goal progress and well-being may be explained by the moderating effects of patterns of goal cognition (Wiese & Freund, 2005). Goal-relevant cognition and goal progress have been theorized to be systematically interrelated (D. H. Ford, 1987). Support has been found for the moderating role of such goal-framing dimensions as intergoal conflict (Kehr, 2003), perceived goal importance (Harris, Daniels, & Briner, 2003), and perceived goal difficulty (Wiese & Freund, 2005) on the relationship between goal progress and well-being.

In light of both of these interpretive possibilities, in the present study we specifically sought to ascertain in a sample of employees (nurses) whether two dimensions of goal cognition influence the way in which goal progress is connected to well-being over a period of 1 year. The two types of goal-centered cognition that provided the centerpiece for the present study were perceptions of goal attainability and of self-efficacy. Goal attainability refers to the belief that a particular outcome is (or is not) subject to constraints that render it situationally unattainable. Goal-relevant self-efficacy is defined as the evaluation or expectancy that one possesses the personal capabilities to carry through with courses of action that will facilitate the successful pursuit of personally meaningful goals (Bandura, 1997).

### Self-Efficacy

Perhaps the most studied aspect of human self-regulation in applied psychology, self-efficacy has proven to be a robust predictor of affect and performance over time and across diverse settings (Ambrose & Kulik, 1999; Bandura, 1997; Karoly, Boekaerts, & Maes, 2005). Specifically, social-cognitive theory proposes that individuals with favorable perceptions of their own ability to pursue a goal tend to invest effort in the initial and sustained pursuit of goals they value and persevere in the face of obstacles (Bandura & Locke, 2003; Franco, Bennett, & Kanfer, 2002). Insofar as negative outcomes are concerned, goal-related self-efficacy has been found to be inversely associated with depression in student samples (Karoly & Ruehlman, 1995), community samples (Lecci, Karoly, Ruehlman, & Lanyon, 1996), and employee samples (Pomaki, ter Doest, & Maes, 2006); with pain in student samples (Karoly & Lecci, 1997) and community samples (Karoly, Okun, Ruehlman, & Pugliese, 2008); and

with burnout in employee samples (Leithwood, Menzies, Jantzi, & Leithwood, 1996).

### Goal Attainability

Because contemporary goal theories have proposed and demonstrated that, in many instances, the outcome of motivational strivings is tied not so much to the content of a goal (what one wants) but to the ways the goal is subjectively appraised (see Karoly, 1999), the appraisal process has been the subject of increasing research effort. The appraisal dimension of attainability, although not as widely assessed as self-efficacy, has been found to be associated with several important outcomes such as satisfaction with life (Christiansen, Backman, Little, & Nguyen, 1999), affective well-being (Ingledeu, Wray, Markland, & Hardy, 2005), and job satisfaction in employee samples (Maier & Brunstein, 2001), as well as with subjective well-being in students (Brunstein, 1993). The goal attainability construct is particularly important because it touches upon the contextual constraints or exigencies that have been hypothesized to influence the potential for self-efficacy beliefs to affect action (see M. E. Ford, 1992). As Bandura (1997) has noted, "The exercise of personal agency over the direction of one's life varies depending on the nature and modifiability of the environment" (p. 163). Notably, the study of when and how the environment is seen to constrain the exercise of personal agency has not kept pace with our understanding of self-efficacy's role in goal striving.

We contend that the effects of goal self-efficacy on well-being can be better understood by taking into consideration perceptions of goal attainability. For example, as Maier and Brunstein (2001) reported, goal attainability changed the way employees' goal commitment was prospectively related to well-being. Specifically, goal commitment had the largest impact on well-being when employees perceived their goals to be attainable. By contrast, when workers perceived limits on attainability in the form of work-related "procedural constraints," then work goal specificity (or clarity), a construct strongly linked to self-efficacy, tended to decline (Wright, 2004).

On the basis of the propositions of social-cognitive theory and current findings, we formulated several hypotheses. First, in keeping with the general consensus that goal cognition influences goal progress, we can assume that an association among these constructs will be in evidence. Hence:

*Hypothesis 1:* Higher levels of goal-related self-efficacy and goal attainability are associated with increased goal progress.

Second, in light of the evidence (reviewed earlier), the direct or main effect of goal progress on well-being cannot be assumed. Instead, we propose the following:

*Hypothesis 2:* Goal progress, goal self-efficacy, and goal attainability jointly predict well-being at work (as measured both by a positive index, job satisfaction, and by a negative index, emotional exhaustion).

We also sought to delve into the subtler aspects of the goal pursuit process by inquiring into the consequences of different patterns of goal progress and goal cognition. Social-cognitive theory proposes that individuals with favorable perceptions of both their own ability and of the available opportunities to pursue a goal (i.e., favorable goal cognitions) are more likely to attain their goals and achieve higher levels of well-being than those with weaker cognitions (Bandura, 2001). In accordance with this theorizing, we predicted the following:

*Hypothesis 3:* Greater goal progress leads to higher job satisfaction and lower emotional exhaustion for those employees with high initial levels of both goal self-efficacy and goal attainability.

It is interesting that most theories on goal striving (including control theory and social-cognitive theory) assume that discrepancies between expected and achieved performance accomplishment serve to energize action, with the creation of discrepancies being as important as discrepancy reduction (Bandura, 2001; Carver & Scheier, 1998). Thus, starting off with unfavorable or self-doubting cognitions is not necessarily detrimental to long-term success or well-being, and it may even be facilitative (see Bandura & Locke, 2003). Also, weaker goal cognitions can make the discrepancy between desired and end states appear larger, which may then strengthen commitment and effort. When increased efforts are coupled with sufficient progress, positive effects can be expected regarding future levels of well-being. Lindsley, Brass, and Thomas (1995) have proposed that self-correcting cycles occur when individuals encounter failures, make adjustments to their goal-relevant cognition, and then intensify their efforts and achieve greater progress. Long-term learning and well-being

are better predicted by those self-correcting goal cycles than by upward spirals. As we do not yet possess the empirical evidence to predict this intriguing scenario, we can only explore this as a potential explanation for the joint effects of goal attainability, goal self-efficacy, and goal progress on well-being outcomes. More specifically, we pose as an open question whether an employee's attainment of relatively high levels of goal progress over an extensive period can serve to compensate for low goal self-efficacy and attainability perceptions and, hence, facilitate well-being.

## Method

### *Participants and Procedures*

Study participants were 172 nurses who were employed at a large Dutch academic hospital. Data were collected by means of questionnaires administered at two measurement points, with a time lag of 12 months. At Time 1 (T1), 222 nurses completed a questionnaire that solicited information on work goals, work goal cognitions, job satisfaction, and emotional exhaustion. In addition, nurses were asked to nominate the most important work goal toward which they were going to strive over the subsequent 12 months and to then rate the goal in terms of its attainability and themselves regarding self-efficacy for this goal. One year later, 197 of 222 nurses were still employed at the hospital. They received a second questionnaire measuring work goals, goal cognitions, job satisfaction, and emotional exhaustion. Participants were reminded of the goal that they had provided at T1 and were asked to indicate the status of their goal. They also answered questions about goal attainability and self-efficacy.

By examining goal cognition at T1, we sought to establish a baseline or anchor unaffected by the level of goal progress that our participants could achieve between the two measurement points. The time interval of 1 year was chosen because it (a) signifies a time frame within which midlevel goals can be established and pursued, (b) controls for seasonal fluctuations, (c) reduces the chance of high attrition due to employee turnover compared with longer time intervals, and (d) allows changes in well-being to unfold.

The nurses' mean age at T1 was 39.15 years ( $SD = 8.57$ ), and 83% were women. Almost half of the nurses (46.5%) had been employed for more than 6 years at their current position, and the majority of the

participants (60.4%) reported working more than 28 hr/week.

### Measures

**Job satisfaction.** Job satisfaction was measured by means of six items (e.g., "I am proud to work in this organization," "I am satisfied with my work") from the Leiden Quality of Work Questionnaire (van der Doef & Maes, 1999), with answers given on a 5-point scale ranging from 1 (*completely disagree*) to 5 (*completely agree*). This measure had high internal consistency at both T1 and Time 2 (T2),  $\alpha \geq .84$ .

**Emotional exhaustion.** Employee emotional exhaustion was measured with the Utrechtse Burnout Schaal (UBOS; Schaufeli & van Dierendonck, 1995), a validated Dutch version of the original Maslach Burnout Inventory (Maslach, Jackson, & Leiter, 1996). The scale consists of eight items, with high reliability at both measurement points ( $\alpha \geq .86$ ). Responses were given on a scale ranging from 0 (*never*) to 6 (*daily*). An example item is "I feel emotionally drained from my work." The variable emotional exhaustion measured at T2 was rather skewed and kurtotic, indicating that the majority of participants tended to have lower scores (skewness = 1.65,  $SE = 0.19$ ; kurtosis = 4.5,  $SE = 0.37$ ). It was thus transformed by means of a square root transformation that reduced both skewness and kurtosis to satisfactory levels (skewness = 0.21,  $SE = 0.19$ ; kurtosis = 0.44,  $SE = 0.37$ ).

Job satisfaction and emotional exhaustion are considered attitudinal and emotional aspects of well-being, respectively (Diener, 1984). They have both been found to consistently predict turnover in nursing populations (for a review, see Hayes et al., 2006). Nurse turnover is becoming an increasing challenge, with understaffed hospitals shown to have higher patient mortality rates (Aiken, Clark, Sloane, Sochalski, & Silber, 2002). In addition, emotional exhaustion, the feeling of being emotionally overextended at work and a core component of professional burnout (Lee & Ashforth, 1996), has been associated with physical illness (Honkonen et al., 2006); more specifically, cardiovascular disease (Melamed, Shirom, Toker, Berliner, & Shapira, 2006). It has also been linked to dysregulated cortisol secretion in nurses (Heillhammer, 1990, as cited in Heim, Ehlert, & Hellhammer, 2000).

**Goal attainability and goal self-efficacy.** The items for perceived self-efficacy were based on a previously developed questionnaire, the Work Goal Processes inventory (WGP; Pomaki et al., 2004). The

WGP did not include items measuring goal attainability, so new items (described later) had to be developed based on scales from existing questionnaires (Brunstein, 1993; Emmons, 1989; Karoly & Ruchman, 1995).

At T1, we asked participants to list their own goals (a maximum of three) that they could achieve within the coming 12 months. The exact instruction given to participants was as follows: "What kind of changes would you like to see happen regarding your personal work situation within the coming year? In other words, what are your most important goals related to your work?" We then asked participants to select their most important work goal. Examples of work goals include: "Gain more self-confidence as a nurse," "complete training," "improve communication with doctors," and "decrease time pressure." Next, respondents reported their degree of agreement with statements about the work goal they formulated. Goal attainability was assessed with three items ("At the moment, there are stressors in my life that interfere in the attainment of this goal," "My attainment of this goal mainly depends on external factors," "It's difficult to achieve this goal," all reverse scored), and goal self-efficacy was measured with three items ("I know for sure that I can reach this goal," "I have the necessary skills to attain this goal," and "I have the necessary energy to attain this goal"). Answers were given on a 5-point scale ranging from 1 (*completely disagree*) to 5 (*completely agree*). At T2, respondents were presented with the goals they had formulated a year earlier. Next, respondents reported their degree of agreement with the same statements regarding goal attainability and goal self-efficacy as they had at T1.

Items were subjected to confirmatory factor analysis using EQS 6.1 (Bentler, 2004). Two measurement models were tested, representing goal cognition (goal attainability and goal self-efficacy) as a single factor and as two factors. The two-factor model showed a satisfactory fit (normed fit index [NFI] = .96, nonnormed fit index [NNFI] = .97, confirmatory fit index [CFI] = .99, root mean residual [RMR] = .04, root mean square error of approximation [RMSEA] = .06),  $\chi^2(7) = 10.8$ ,  $p = .15$ ; whereas the single-factor model showed unsatisfactory fit (NFI = .55, NNFI = .27, CFI = .56, RMR = .22, RMSEA = .28),  $\chi^2(9) = 124.8$ ,  $p < .001$ . The chi-square difference test revealed that the two-factor model was a significant improvement to the single-factor model,  $\Delta\chi^2(2) = 114$ ,  $p < .001$ . The reliability analysis as assessed by coefficient alpha revealed that both

scales had moderate but satisfactory reliabilities (goal attainability,  $\alpha = 0.70$ ; goal self-efficacy,  $\alpha = 0.75$ ).

*Goal progress.* Goal progress was measured at T2. First, participants were presented with the goals that they had formulated at T1. They were then asked to indicate whether they were still pursuing their most important work goal. Respondents who were still striving toward their work goal were asked to indicate how much progress they had achieved (Oishi & Diener, 2001). Respondents who were not pursuing their goal were asked to indicate whether they had attained it or had given up. Scores ranged from 0 (*given up*) to 10 (*attainment*), with any scores greater than 0 but less than 10 indicating progress for those still pursuing their goal.

Results

*Establishing Consistency of T1 and T2 Data*

A series of chi-square and *t* tests assessed differences on the study variables (viz., gender, age, goal attainability, goal self-efficacy, job satisfaction, and emotional exhaustion) between employees who responded at both T1 and T2 ( $n = 172$ ) and respondents at T1 who did not respond at T2 ( $n = 50$ ). Differences were observed between responders and nonresponders for age,  $t(219) = 2.35, p = .020$ ; job

satisfaction,  $t(220) = 2.81, p = .005$ ; and emotional exhaustion,  $t(192) = -1.99, p = .049$ . Employees who responded at both T1 and T2 were older, more satisfied with their job, and less emotionally exhausted than employees who responded only at T1.

*Descriptive Statistics and Bivariate Correlations*

The means, standard deviations, and the zero-order correlations of the study variables are presented in Table 1. Further analysis using hierarchical regression controlling for age and gender showed that goal attainability ( $\beta = 0.41, p \leq .001$ ) and goal self-efficacy ( $\beta = 0.29, p \leq .001$ ) combined explained 22% of variance in T2 goal progress. This result confirmed Hypothesis 1, according to which goal self-efficacy and attainability were expected to be associated with increased goal progress over time.

*Moderation Analysis*

For the moderated regression analyses, all goal-relevant and dependent variables were standardized to avoid multicollinearity. As can be seen in Table 2 (Step 3), the main effect of goal attainability and self-efficacy predicted change in job satisfaction but

Table 1  
*Means, Standard Deviations, and Intercorrelations*

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11
1. Age	39.15	8.57	—										
2. Gender <sup>a</sup>	0.83	0.38	-.01	—									
3. T1 goal efficacy	3.49	0.66	-.01	-.03	—								
4. T2 goal efficacy	3.56	0.85	.07	-.05	.56***	—							
5. T1 goal attainability	2.63	0.82	-.00	.17*	.46***	.33***	—						
6. T2 goal attainability	2.75	1.00	-.06	.12	.23***	.26***	.39***	—					
7. T2 goal progress	5.61	3.47	.02	.04	.29**	.35***	.45***	.36***	—				
8. T1 job satisfaction	23.49	3.05	-.01	.13	.21**	.22**	.12	.01	.25**	—			
9. T2 job satisfaction	24.45	4.27	.14	.02	.24**	.21**	.01	.12	.19*	.53***	—		
10. T1 emotional exhaustion	11.31	6.80	-.07	.04	-.01	-.07	-.03	-.18*	-.07	-.27***	-.23**	—	
11. T2 emotional exhaustion	7.97	6.37	-.19*	-.07	-.09	-.19*	.01	-.18**	-.07	-.23**	-.54***	.47***	—

Note. T = Time.

<sup>a</sup> Men were scored as 0, and women were scored as 1.

\*  $p \leq .05$ . \*\*  $p \leq .01$ . \*\*\*  $p \leq .001$ .

Table 2  
 Summary of Hierarchical Regression Analyses for Variables Predicting Job Satisfaction and Emotional Exhaustion

Variable	T2 job satisfaction				T2 emotional exhaustion			
	$\Delta R^2$	<i>B</i>	<i>SE B</i>	$\beta$	$\Delta R^2$	<i>B</i>	<i>SE B</i>	$\beta$
Step 1	.36***				.29***			
T1 DV		0.59	.07	.60b***		0.54	.08	.54b***
Step 2	.03				.04			
Age		0.02	.01	.16*		-0.02	.01	-.18*
Gender <sup>a</sup>		-0.13	.20	-.05		-0.18	.22	-.07
Step 3	.03*				.00			
T1 GA		-0.17	.09	-.17*		-0.00	.10	-.00
T1 GSE		0.20	.09	.19*		-0.06	.09	-.06
Step 4	.01				.00			
T2 GP		0.10	.09	.09		-0.01	.10	-.01
Step 5	.05*				.03			
GSE $\times$ GA		0.09	.09	.10		-0.07	.10	-.09
GSE $\times$ GP		0.10	.10	.10		-0.11	.12	-.11
GA $\times$ GP		-0.27	.09	-.26**		0.16	.10	.15
Step 6	.05***				.06**			
T1 DV		0.59	.07	.60b***		0.57	.08	.57b***
Age		0.01	.01	.11		-0.02	.01	-.13
Gender <sup>a</sup>		-0.09	.20	-.03		-0.10	.23	-.04
T1 GA		-0.18	.10	-.17		0.00	.11	.00
T1 GSE		-0.02	.10	-.02		0.15	.11	.15
T2 GP		0.03	.09	.03		0.05	.10	.05
GSE $\times$ GA		-0.00	.09	-.00		0.00	.10	.01
GSE $\times$ GP		0.17	.10	.17		-0.17	.11	-.17
GA $\times$ GP		-0.37	.09	-.34***		0.26	.10	.26*
GP $\times$ GSE $\times$ GA		0.24	.07	.33***		-0.25	.08	-.37**

Note. For Time 2 job satisfaction, cumulative adjusted  $R^2 = .47$ . For Time 2 emotional exhaustion, cumulative adjusted  $R^2 = .35$ . T = Time; DV = dependent variable; GA = goal attainability; GSE = goal self-efficacy; GP = goal progress. <sup>a</sup> 0 = male; 1 = female. <sup>b</sup> Standardized coefficients correspond to the block in which they were entered. Step 6 presents the full final model.

\*  $p \leq .05$ . \*\*  $p \leq .01$ . \*\*\*  $p \leq .001$ .

not in emotional exhaustion. Goal self-efficacy was positively related to job satisfaction. Goal attainability was negatively related to job satisfaction, which we interpret to be the product of suppression. This is supported by the nonsignificant bivariate correlation between T1 goal attainability and T2 job satisfaction (see Table 1). It is important to note that goal progress failed to predict either of the two T2 well-being outcomes (see Step 4 in Table 2). None of the main effects were significant once all the interactions were entered (see Step 6 in Table 2).

We also found support for our second hypothesis. The steps testing two- and three-way interactions were significant (see Table 2). More specifically, the interaction between goal attainability and goal progress was a significant predictor of T2 job satisfaction. In the full model (see Step 6 in Table 2), the interaction between goal attainability and goal progress was also predictive of emotional exhaustion.

To better understand the nature of the interaction effects, we computed job satisfaction at values 1 standard deviation above and 1 *SD* below the mean. According to the simple slopes analysis, goal progress had the largest impact on job satisfaction when goal attainability at T1 was low ( $\beta = 0.36$ ,  $p \leq .01$ ). As goal progress increased, employees with lower levels of goal attainability reported increasing levels of job satisfaction. Goal progress had no impact on job satisfaction when goal attainability was high. Similar results were obtained for T2 emotional exhaustion.

The three-way interaction between goal attainability, goal self-efficacy, and goal progress significantly ( $p \leq .01$ ) predicted job satisfaction and emotional exhaustion, explaining an additional 5% and 6% of variance respectively (see Table 2). Simple slopes analysis (Dawson & Richter, 2006) showed that, for two out of four combinations between the two goal cognitions, the slope from low to higher goal

progress was positive and significant ( $p \leq .05$ ), showing that many employees benefited from higher goal progress. Only the slope from low to higher goal progress of those who reported both higher goal self-efficacy and higher goal attainability was not significant ( $\beta = 0.08, p > .10$ ). For those employees, achieving higher goal progress neither heightened their job satisfaction nor reduced their emotional exhaustion. This finding provided no support for our third hypothesis, in which we expected high goal progress to have a beneficial effect on well-being when employees had favorable goal cognitions compared with unfavorable cognitions.

An interesting but unexpected finding was that employees with a combination of high goal attainability but low goal self-efficacy (Figures 2 and 3) did not benefit from increasing goal progress. In fact, simple slopes analysis showed that this group of employees had the lowest job satisfaction and highest emotional exhaustion at higher goal progress, compared with all other possible combinations of goal cognitions ( $p \leq .01$ ). For those employees, as goal progress increased, well-being tended to decrease.

Our findings indicated that employees who started off with lower levels of both goal cognitions but who achieved higher goal progress (Figures 1 and 2) reported increased job satisfaction and decreased emotional exhaustion, compared with those with similar goal progress but higher initial goal self-efficacy and

goal attainability (see Figures 1 and 2). This finding lends support to our open question regarding the compensatory role of high goal progress. Conceivably, the reason behind the positive effect of low goal cognition at T1 coupled with high goal progress at T2 is that greater goal progress helped those employees increase their perceptions of self-efficacy and attainability. To test this possibility, we conducted additional hierarchical regression analyses (separately for goal attainability and self-efficacy), wherein we predicted T2 goal cognition from the main effects of and the interaction between T1 goal cognition and T2 goal progress. The results showed that the interaction between T1 goal self-efficacy and T2 goal progress significantly predicted T2 goal self-efficacy ( $p \leq .05$ ). The plot (see Figure 3) revealed that goal progress had an impact on the T1–T2 goal self-efficacy relationship for those who reported somewhat more unfavorable levels of that cognition at T1. Employees who started off with lower levels of goal self-efficacy but later achieved greater goal progress raised their level of goal self-efficacy a year later (although the interaction was not significant for goal attainability, the plot indicated the same pattern of relationships).

### Discussion

Favorable goal cognition has been presumed to be associated with greater goal progress, which in turn

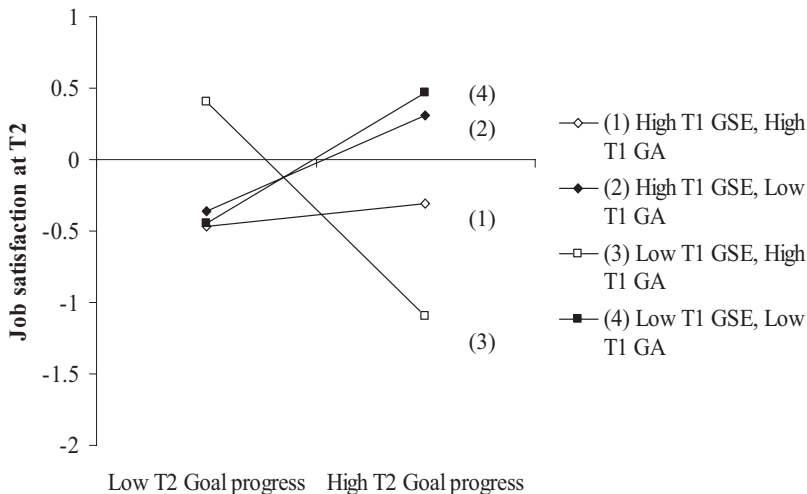


Figure 1. Participants' job satisfaction at Time 2 (T2) depicted as a function of Time 1 (T1) goal attainability, T1 goal self-efficacy, and T2 goal progress. GA = goal attainability; GSE = goal self-efficacy.

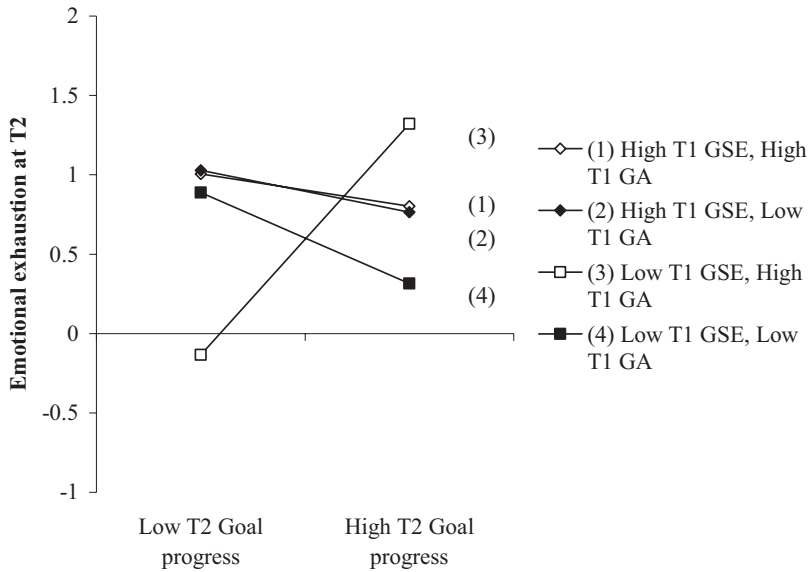


Figure 2. Participants' emotional exhaustion at Time 2 (T2) depicted as a function of Time 1 (T1) goal attainability, T1 goal self-efficacy, and T2 goal progress. GA = goal attainability; GSE = goal self-efficacy.

has been found to predict higher levels of well-being. However, individuals do not always make the necessary progress toward their work goals, obstacles are ubiquitous, people tend to over- or underestimate their emotional reactions to success and failure, and goal-related thinking is not always favorable. The present study focused on the broad question: Under

what conditions might goal progress lead to well-being in a work setting? What roles do perceptions of attainability and self-efficacy play in the progress-well-being connection?

Overall, the results of this study revealed support for our predictions that goal progress, goal-based self-efficacy, and attainability tend to covary and that

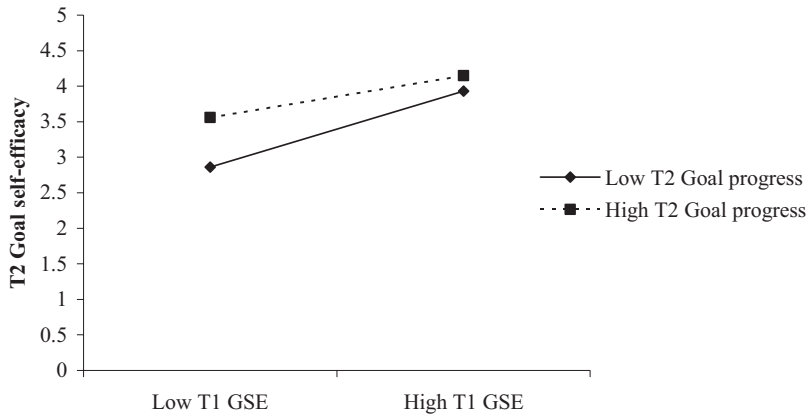


Figure 3. Participants' goal self-efficacy as Time 2 (T2) depicted as a function of Time 1 (T1) goal self-efficacy and T2 goal progress. GSE = goal self-efficacy.

these three constructs jointly predict well-being (job satisfaction and emotional exhaustion) over time. Perhaps more intriguing was the lack of support for our third hypothesis that was based on predictions by social-cognitive theory and on existing research (see Bandura, 2001). According to this hypothesis, favorable perceptions of attainability and efficacy coupled with goal progress were expected to produce beneficial well-being effects. Instead, we found support for an alternative scenario: Goal progress appeared to compensate or offset initially low levels of self-efficacy and goal attainability.

Our data showed that nurse employees who started off their goal pursuits feeling more efficacious and who had higher perceptions of goal attainability did not benefit as much from a greater level of success in their pursuit than employees who started off low on both cognitions. Apparently, when relatively weak beliefs in one's effectiveness and in the attainability of one's work aspirations encounter success over an extended period, the result is a heightened sense of well-being. This scenario is proposed by the efficacy-performance cycles theory (Lindsley et al., 1995), and the present study provides much needed support for this alternative course of goal striving. Our findings suggest that goal progress seems to have the strongest effect on well-being a year later when initial cognitions are unfavorable rather than favorable. Such a finding is also consistent with the notion that high goal progress and well-being tend to occur when individuals pursue challenging goals, that is, goals for which external factors play a significant role (Locke & Latham, 1994). Likewise, the act of exceeding one's standards or expectations tends to yield positive affect (Carver & Scheier, 1998).

On the other hand, highly efficacious employees with a strong sense of attainability may have been pursuing goals that were relatively routine and uninspiring. Furthermore, support also exists for the prediction that positive goal cognition can at times have detrimental effects. As Lindsley et al. (1995) noted, upward spirals may endanger long-term goal progress and a sense of well-being because easily won successes can create a sense of overconfidence, a possibility also acknowledged by Bandura (1997). Moreover, highly efficacious individuals tend to stay committed to relatively risky courses of action that yield few promising results and tend to maintain the attribution of goal importance even after failure to achieve a particular goal (Bandura, 2000, 2001; Di Paula & Campbell, 2002; Llewellyn, Sanchez, Asghar, & Jones, 2008; Whyte, Saks, & Hook, 1997). Finally, self-efficacy has been found to predict de-

creased performance when studied at the within-subject level of analysis (Vancouver, Thompson, & Williams, 2001; Yeo & Neal, 2006). These findings indicate that the effect of strong goal cognition on outcomes may not always be direct or necessarily adaptive. On the basis of our findings, further research on the role of overconfidence in the goal progress-well-being relationship is warranted.

We also found that those employees who started off with unfavorable goal cognitions, but later reported higher levels of goal progress, likewise reported higher levels of subsequent goal cognitions. It is possible that, as goal pursuit unfolded over the year, a contemporaneous positive relationship between cognitions and progress may have taken place. Certainly, social-cognitive theory predicts that previous success can enhance future beliefs of self-efficacy (Bandura, 1997). Additionally, this particular finding may explain why the relationship between goal progress and well-being was more pronounced among those who had initial unfavorable goal cognitions: that is, goal progress boosted beliefs of self-efficacy and made goals seem more attainable, which may then helped elevate perceptions of subjective well-being. Although this is an intriguing interpretation that supports the theory of efficacy-performance cycles, a study with multiple measurement points or with a daily diary methodology is needed to establish its empirical validity.

Those employees who started off feeling less efficacious, but who viewed their goal as attainable, ended up with lower ratings of well-being as goal progress increased. This was an unexpected result about which we can only speculate here. Feeling that a goal is generally attainable but not having what it takes to achieve it may have an eroding effect in the face of subsequent goal progress, because success cannot be easily attributed to one's own efforts but only to circumstance. Such causal attributions (e.g., unstable, external, and uncontrollable) can further erode feelings of self-efficacy and well-being (Bandura, 1997; Stajkovic & Sommer, 2000). Unexpected success has been found to predict increased self-efficacy when it could be attributed to stable causes, such as ability (Gernigon & Delloye, 2003). This attributional explanation merits further study.

Our results also point to the importance of including the concept of goal attainability in investigations of goal pursuit. We found that goal attainability moderated the effect of goal progress on well-being and also changed the way goal self-efficacy interacted with goal progress. Goal attainability may be especially significant in research in naturalistic settings

where situational constraints cannot be readily manipulated (see Maier & Brunstein, 2001). Future research is needed to evaluate the role that goal attainability plays both in goal progress and in work-related well-being.

Finally, our data indicated that goal cognitions did not directly predict emotional exhaustion. Previous research in health care employees has shown that goal cognitions are relevant predictors of this component of burnout (Pomaki et al., 2004, 2006). However, these studies included several occupational groups within the health care sector, including but not limited to nurses. Nevertheless, it is premature to conclude that goal cognitions are not relevant to nurses' burnout experiences, especially because in Pomaki et al.'s (2004) study goal cognitions were predictive of emotional exhaustion beyond the influence of general work stressors. Additionally, in the present study, goal cognition was related to emotional exhaustion in interaction with goal progress. For these reasons, more research in this area is needed.

### *Limitations*

Several limitations of the present study need to be acknowledged. By virtue of our design, no causal inferences can be made with regard to the unfolding temporal relationships between goal progress and well-being at work. Increased initial levels of job satisfaction, attainability, and self-efficacy could influence the degree of goal progress in the sense that employees who are more satisfied, who have better social networks, or who have more latitude in the execution of their work tasks—and, hence, a strong sense of efficacy and attainability—may well experience more chances to get what they want.

Although the examination of the role of goal cognition (attainability and self-efficacy) in goal progress and well-being was of interest in this study, we focused on only two of the many possible types of goal cognition. To more fully appreciate the overall process by which efforts to regulate important goals result in subjective well-being, a wider range of goal-relevant cognitions should be included in future research. Time perceptions and decision-making strategies might also be of interest in future research, as well as the way people feel during goal pursuit, how far into the future they gaze, and how they juggle potential gains and losses may likewise contribute to goal progress and to residual well-being.

Owing to practical limitations of our research project, we investigated goal cognition and goal

progress in relation to a single goal that employees reported at work. Although our methodology for the formulation of goals attempted to ensure that employees reported their most important work goal, we nonetheless must acknowledge the fact that people's work lives include multiple goals, many of which are highly prized and vigorously pursued. Our results should be interpreted with caution for an additional reason: Although most employees (61.3%) were still pursuing their goal a year later, other goals may have come to the fore. The ability to achieve those goals may have influenced employees' efficacy beliefs and their sense of well-being.

A related point concerns the possibility that the potential differences in length of goal pursuit may have influenced our results. Although we asked employees to report new goals, goals that could help them change their work situation, we cannot be completely certain that those goals did not preexist. This emphasis on change was interpreted within a current trend in hospitals for intense organizational change, restructuring, and introduction of new practices. Nevertheless, we suspect that overall progress, as assessed at T2, might be more informative of the process of goal pursuit than duration of goal pursuit.

Furthermore, because the hospital where the present study was conducted had a policy for frequent organizational changes, it is unknown whether these changes could have exerted a significant influence on our results, especially on self-reported well-being. Frequent organizational changes have been associated with lower employee well-being, especially when those changes are poorly managed (see Dollard, Skinner, Tuckey, & Bailey, 2007). However, the average level of T1 emotional exhaustion in the present sample was 11.31 on a range from 8 to 48, which is considered low emotional exhaustion (the cutoff point for health care employees is 18; see Maslach et al., 1996). An interesting possibility is that our findings are pertinent to employees who work in organizations with high rates of change, such as health care settings and other technology-heavy sectors. It is possible that pursuing goals in such organizations is governed by different opportunities and constraints. Goal-relevant efficacy, attainability, and progress may have distinctive roles and effects in unstable circumstances. This possibility warrants further study.

Although the questionnaire items were not occupation-specific, the fact that our population comprised mostly female nurses limits the generalizability of the findings to other populations of employees. It also suggests the need for replication and extension

with male employees and employees in other occupational groups. With regard to goals, it is noteworthy that the work goals reported by the nurses in the present study have much in common with goals formulated by managers (Bateman, O'Neill, & Kenworthy-U'Ren, 2002) or students (Bu & McKeen, 2001). In considering limits on generalizability, we must also recall that 50 of our original participants were unavailable for follow-up. The nurses responding at both time points may have been, as a group, better adjusted than the nonresponders.

We used a follow-up time interval of 12 months. Although this time interval offers several advantages in relation to the unfolding nature of goal pursuit and well-being and the high turnover rates in the health care sector, it is unclear how the choice of this time interval may have influenced our results. Zapf, Dormann, and Frese (1996) revealed that it is generally unknown what constitutes an appropriate time interval and that time intervals in occupational health research range from 1 month to 10 years, with the most frequently reported time interval being 12 months. Clearly, a systematic investigation of the effects of diverse time intervals is warranted.

Finally, for the purposes of the follow-up assessment, participants were not anonymous. This may have placed some constraints on the types of goals that employees were willing to disclose. It is interesting to note that employees at T1 were not aware of the follow-up assessment, because at the time no definite research plans had been made. Furthermore, a number of employees wrote down "find a new job," "work fewer hours," and "reduce workload" as their most important goal. We also found normal distributions on most of our measures, which is a good indicator that answers covered the whole spectrum from the very negative to the very positive.

### *Directions and Implications*

The present study draws attention to employees' personal goals and provides preliminary explanations for employees' goal pursuits and how they relate to their job satisfaction and emotional exhaustion. Our results suggest that organizations interested in employee retention and well-being should take employees' goals into account. However, as our results show, interventions that aim to facilitate employees' goal pursuits could benefit from helping them keep track of their efficacy and attainability beliefs.

We discovered that goal progress does not seem to be equally beneficial to all employees. The most stable group of employees were the ones who felt

both efficacious and in control of their goals. Those employees' well-being was not affected by the amount of progress they had attained. Goal progress was, however, beneficial to employees who thought their efforts to achieve their goal could meet with external obstacles, independent of their own ability to pursue it. Organizations would do well to attempt to remove obstacles or divert those employees' attention to other, more feasible goals. Also, our findings suggest that employees who start off feeling less confident are not necessarily at risk for job dissatisfaction and emotional exhaustion as long as they are assisted in their goal pursuits and manage to achieve their goals. It is interesting to note that the most vulnerable employees were the ones who felt the least confident about their ability to attain their goal but also felt that their goal was generally attainable. Our results indicate that interventions should aim more at increasing those employees' confidence and less at directly facilitating goal progress. In fact, for those employees, facilitating goal progress might be harmful.

From a practical point of view, using a system such as management by objectives, wherein the focus is placed on the objectives of the employees (Levinson, 2003), could help employees track their goal pursuits. Attention could be placed on employees' work task assignments, so that they do not conflict with their own goals, thus increasing goal attainability. Also, goal pursuits could be enhanced with regular feedback and provision of the appropriate resources, resulting in increases of self-efficacy and subsequent goal progress. Such a system could incorporate tools such as an after-event review (Ellis, Mendel, & Nir, 2006) to analyze the causes for success or failure in goal strivings.

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