

WHEN EMPLOYEES ARE OUT OF STEP WITH COWORKERS: HOW JOB SATISFACTION TRAJECTORY AND DISPERSION INFLUENCE INDIVIDUAL- AND UNIT-LEVEL VOLUNTARY TURNOVER

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This study takes a dynamic multilevel approach to examine how the relationship between an employee's job satisfaction trajectory and subsequent turnover may change depending on the employee's unit's job satisfaction trajectory and its dispersion. Analyses of longitudinal multilevel data collected from 5,270 employees in 175 business units of a hospitality company demonstrate a significant three-way interactive effect of unit-level job satisfaction trajectory and its dispersion and individual job satisfaction trajectory on individual job exit. In particular, in the presence of a negative unit-level job satisfaction trajectory and low dispersion, a positive change in individual-level job satisfaction does not affect the odds of a person leaving an organization. Put differently, an employee's being out of step with prevailing unit-level attitudes appears to alter the relationship between his or her job satisfaction trajectory and turnover propensity. Further, unit-level job-satisfaction change and its dispersion jointly influence the overall turnover rate in a unit. The results indicate unit-level and individual-level job satisfaction trajectories have unique multilevel influences on turnover above and beyond static levels of job satisfaction. Accounting for these dynamics substantially increases the explained variance in turnover behavior. The findings increase understanding of the job satisfaction–turnover link over time and across levels.

Because “voluntary employee turnover” (voluntary organizational exit) can negatively impact organizational effectiveness and employee morale (Shaw, Gupta, & Delery, 2005), executives rightly seek better ways to manage turnover to retain valued human resources and sustain high performance. To inform organizational leaders, scholars have sought to understand the antecedents of turnover. Although numerous factors are relevant (e.g., organizational

commitment, job embeddedness, and shocks), job satisfaction has emerged as the most widely studied predictor of turnover (e.g., Holtom, Mitchell, Lee, & Eberly, 2008; Swider, Boswell, & Zimmerman, 2011). Dickter, Roznowski, and Harrison pointed out “in most studies of turnover in the organizational literature job satisfaction is the key psychological construct leading to turnover” (1996: 706). Job satisfaction also serves as a global mediator for the effects of more distal antecedents such as job characteristics, organizational justice, and social ties (e.g., Price, 1977; Price & Mueller, 1986). Despite this considerable attention, the relationship between job satisfaction and turnover is not particularly strong. Meta-analytic studies show a consistently modest correlation between job satisfaction and turnover of $-.19$ (Griffeth, Hom, & Gaertner, 2000).

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One potential reason for the relatively small amount of variance explained by extant studies is that they tend to adopt a *static, monolevel* view of job satisfaction. They focus solely on one key source of information about job satisfaction—an individual's level of job satisfaction at one point in time—to predict his or her later turnover likelihood. Steel called this “the basic approach that [is] used by most researchers for performing turnover studies” (2002: 347). However, given that a large portion of variance in turnover remains unexplained by this type of assessment of job satisfaction, it may be prudent to open the aperture of the theoretical and empirical approach. Decision making research highlights how a person's decision to leave may be informed by multiple dimensions or information cues influencing job satisfaction (e.g., the “lens” model [Karelaia & Hogarth, 2008]). In the present research, we adopt a *dynamic,¹ multilevel* view of job satisfaction that utilizes five key cues reflecting different aspects of job satisfaction as predictors of turnover. Employee job satisfaction trajectory (changes over time) captures two cues: (1) reports of previous levels of job satisfaction and (2) reports of current levels of job satisfaction. Business unit job satisfaction trajectory assesses two more cues, (3) previous and (4) current levels of reported unit-level job satisfaction. The variability in employees' job satisfaction trajectories within a business unit, or what we call (5) dispersion of the trajectory scores, is the fifth cue. Using the insights gained from these five cues, this research focuses on three fundamental issues.

First, we explore the relationship between job satisfaction trajectory and turnover. Organizational and individual phenomena are not static but rather evolve over time (Hausknecht, Sturman, & Roberson, 2011). For example, Chen, Ployhart, Thomas, Anderson, and Bliese (2011) noted that all 658 employees surveyed in three diverse organizational settings at multiple times experienced job satisfaction change. Importantly, these changes in attitudes caused by various substantive factors (e.g., firm reorganizing, external economic conditions) do not represent error variance but significant influences on subsequent behavior. Further, a number of conceptual articles imply the value of examining changes in turnover antecedents (e.g., Lee and Mitchell's [1994] unfolding model of turnover and Steel's [2002] job search model). Recently, Chen and colleagues (2011) demonstrated how an evolutionary per-

spective on the antecedents of turnover intentions is likely to better capture the dynamics in the turnover process and lead to improved prediction when compared to a static model. Hence, we build on previous turnover research by investigating a model that explains the unique effect of job satisfaction trajectory on actual turnover while controlling for the static level of job satisfaction.

Second, we examine the effect of organizational context on individual-level and unit-level turnover rate. Organizational context captures the “situational opportunities and constraints that affect the occurrence and meaning of organizational behavior as well as functional relationships between variables” (Johns, 2006: 386). Holtom et al. (2008) recommended examining unit-level or organization-level satisfaction to generate important insights into the turnover process. They advocated identifying the conditions under which different effects might be observed when turnover is studied *across* levels rather than simply *within* a level. In this study, we take context into consideration by investigating the joint influence of unit- and individual-level job satisfaction trajectories on individual turnover as well as the effect of unit-level job satisfaction trajectory on unit-level turnover.

Third, we look at the contingent effect of job satisfaction trajectory dispersion on the multilevel relationships between job satisfaction trajectory and turnover. A growing multilevel research literature demonstrates that the *mean* and the *dispersion* of variables represent distinct structural and functional properties of organizational phenomena (e.g., Dineen, Noe, Shaw, Duffy, & Wiethoff, 2007). As a result, researchers have suggested that both should be examined simultaneously when developing multilevel models to increase the models' predictive validity and utility (Kirkman & Shapiro, 2005; Liao, Liu, & Loi, 2010). To further understanding of the cross-level interface between organizational context and individuals, we draw on Chan's (1998) dispersion composition model and Harrison and Klein's (2007) separation index to advance a new unit-level construct, *job satisfaction trajectory dispersion*, which reflects the extent to which individuals in a business unit differ in their job satisfaction trajectories (some become much more satisfied, some less so, and some more dissatisfied). Specifically, we examine how job satisfaction trajectory dispersion interacts with individual-level and unit-level job satisfaction trajectories to affect individual turnover. We also study the interactive effect of unit-level job satisfaction trajectory and dispersion on the turnover rate at the unit level.

¹ “Dynamic” here means assessing intraindividual variability over time (Kammeyer-Mueller, Wanberg, Glomb, & Ahlburg, 2005).

JOB SATISFACTION TRAJECTORY AS A PRECURSOR OF TURNOVER

Job satisfaction is generally defined as “a pleasurable or positive emotional state resulting from the appraisal of one’s job or job experiences” (Locke, 1976: 1304). Employees’ cognitive appraisals and affective responses to work experiences evolve over time (Hausknecht et al., 2011; Weiss & Cropanzano, 1996), which may lead to increases or decreases in job satisfaction. Interestingly, although job satisfaction clearly changes over time, it typically has been operationalized as a static variable, as Lee, Gerhart, Weller, and Trevor (2008) noted. We argue that an employee’s job satisfaction trajectory reflects the trend of his or her summary job satisfaction perceptions over time and is therefore a meaningful index for predicting his or her probability of turnover. Gestalt characteristics theory points out that when people assess and summarize distinct experiences, they do not simply look at the mean or average intensity of their experiences (Ariely & Carmon, 2000). Rather, they utilize defining salient “features” to inform their future action. Included is the overall valence of the experiences, but of equal or greater importance is the change or trajectory in evaluations: “One Gestalt characteristic that has been repeatedly shown to affect summary evaluations is the trend of an extended profile” (Reb & Cropanzano, 2007: 492). Supporting this theory, Hausknecht and colleagues (2011) examined justice trajectories and demonstrated that improving (declining) justice perceptions over time cultivate more (less) favorable employee attitudes (e.g., job satisfaction, organizational commitment). To date, one study has examined the linkage between individual job satisfaction trajectory and turnover intentions (Chen et al., 2011). We seek to build on this informative study by looking at actual turnover as not only predicted by individual job satisfaction trajectory but also by unit-level job satisfaction trajectory and dispersion.

Individual Job Satisfaction Trajectory

In line with Gestalt characteristics theory (Ariely & Carmon, 2000), Chen and colleagues (2011: 162) articulated that “systematic job satisfaction changes do not operate in a vacuum; rather, they are reflective of a pattern of work experiences that accrue over time (cf. Hulin, 1991; Mobley, 1982).” To better understand these experiences, Chen et al. (2011) adopted a reference point approach that integrated prospect theory (Kahneman & Tversky, 1984), conservation of resources theory (Hobföll, 1989), within-person spirals theory (Lindsley,

Brass, & Thomas, 1995), and sensemaking theory (Louis, 1980).

In this context, prospect theory suggests that the further a gain or loss is from a person’s reference point (e.g., initial job satisfaction), the more salient the change will be to the person (Kahneman & Tversky, 1984). According to conservation of resources theory, individuals are motivated to conserve their critical resources and thus will react to a decline in job satisfaction (Hobföll, 1989). As suggested by within-person spirals theory, when employees experience systemic, sustained decreases in job satisfaction over time, they may come to expect the trend to continue and result in worse situations. Such negative spirals contrast with positive ones: employees experiencing systematic increases in job satisfaction may expect this positive trajectory to persist and lead to more pleasant experiences in the future (Lindsley et al., 1995). Similarly, sensemaking theory emphasizes that because employees have a strong need to make sense of events and experiences at work, they will likely compare current working conditions with prior working conditions to create expectations about the future (Louis, 1980). In short, people use salient summary features of their experience over time (e.g., change trajectory) to describe the past and project the future. The integrative framework developed by Chen et al. (2011) was supported by four independent samples. After controlling for the average level of job satisfaction during a given period, they found that decline (increase) in job satisfaction was significantly related to an increase (decline) in turnover intentions. Building on this work, we contend that job satisfaction trajectory may also predict an individual’s actual turnover behavior. Researchers commonly find that an undesirable discrepancy between prior and current situations creates negative psychological responses such as stress and discomfort. As a result, an individual is impelled to reduce or eliminate the undesirable discrepancy through behavioral changes or to exit the situation (Cooper, 2007; Festinger, 1957). Accordingly, in the context of a job satisfaction decrease, an individual may be motivated to seek new job opportunities and withdraw from the present organization to prevent a further decline. In contrast, in the presence of a job satisfaction increase, the person will tend to develop a positive perspective on continuing employment (Ariely & Carmon, 2000).

To further illustrate our trajectory or dynamic view of the relationship between job satisfaction and turnover, we provide the following example: Suppose employee A’s job satisfaction increases from two to four and employee B’s job satisfaction

decreases from seven to five on a seven-point scale. The traditional static approach, which bases future turnover predictions on the general level of job satisfaction conditions over time, would predict employee A, with an average job satisfaction score of three, to be more likely to quit than employee B, whose average job satisfaction score is six. Nevertheless, in line with our dynamic perspective, these two employees experience contradictory directions (or momentum) of job satisfaction trajectories. Consequently, employee A, with a two-point increase in job satisfaction, may be more prone to remain in his or her organization than B, who experienced a two-point decline in job satisfaction. This example illustrates how static and dynamic approaches to the job satisfaction–turnover link may produce different predictions about turnover and should be explored simultaneously in turnover research. In sum, building on Chen et al. (2011), we propose:

Hypothesis 1. With the average level of job satisfaction during a given period held constant, an individual's job satisfaction trajectory is negatively related to turnover: Greater decrement (increment) in job satisfaction is associated with greater increment (decrement) in turnover.

Unit Job Satisfaction Trajectory

Shipp and Jansen (2011) advance two sensemaking mechanisms that people simultaneously use to understand and react to changes in their job attitudes: extrospection (observing experiences outside of the self) and introspection (observing experiences within the self). Thus, both the trend of an individual's attitudes and evolution in the subjective norms or feelings of coworkers (Felps, Mitchell, Hekman, Lee, Holtom, & Harman, 2009) will likely shape turnover behavior. We believe job satisfaction trajectory in a business unit provides important informational cues to a focal employee beyond the employee's own job satisfaction trajectory for interpreting his or her work experience and enacting subsequent behavior.

When coworkers are experiencing increasing job satisfaction, they are less likely to look for other jobs because of improving prospects in the organization. A focal employee is likely to observe coworkers' increased job satisfaction and decreased likelihood of leaving. As a result, the focal employee may readily infer good things are happening in the organization and interpret the unit change in satisfaction as a positive cue for staying. Conversely, declines in unit-level job satisfaction will likely result in coworkers looking for other jobs and

engaging in job search behaviors, because they have increasingly negative expectations about their future satisfaction with their job. Such behaviors provide social cues for leaving (Felps et al., 2009).

We use the following example to further elaborate on the contextual effect of unit job satisfaction trajectory on an employee's turnover, an effect that goes above and beyond individual job satisfaction trajectory. When both employee A from unit A and employee B from unit B experience the same level of job satisfaction increase over a defined period, a dynamic monolevel approach to job satisfaction, which considers the change in an individual's own job satisfaction only (Chen et al., 2011), would predict that they are equally likely to stay. Yet if unit A encounters an overall job satisfaction decrease (on average, the members of unit A are less satisfied), but unit B enjoys an overall job satisfaction increase (on average, members are more satisfied), employee A's sensemaking based on social interactions with coworkers in unit A would highlight social cues for leaving. In contrast, employee B's coworkers in unit B would provide social cues for staying. Consequently, our model will suggest that although employees A and B experience the same individual job satisfaction trajectory, the different contextual influences in their respective units will cause employee B to be more likely to stay in his or her job than employee A. This example highlights the possibility that a dynamic multilevel perspective may generate different predictions about turnover than a dynamic monolevel perspective because contextual influence may stifle forward and backward individual momentum.

In support of our above contention, empirical work demonstrates that coworkers' perspectives on their jobs substantially shape and reinforce a focal individual's view of job characteristics (Thomas & Griffin, 1989). In addition, social influence studies confirm that people frequently adjust their attitudes and behaviors to conform to social expectations or norms in a collective setting (Cialdini, 2009; Cialdini & Goldstein, 2004). White and Mitchell (1979) showed that people receiving positive evaluations of the enriched properties of their task from coworkers were more productive than individuals who received negative evaluations of task properties from coworkers. More recently, Felps and colleagues (2009) verified a turnover contagion model demonstrating that coworkers' job search behaviors significantly influenced a team member's tendency to leave. Thus, we predict:

Hypothesis 2a. With the average levels of an individual's and unit's job satisfaction as well as the individual's job satisfaction trajectory in

a given time period held constant, unit-level job satisfaction trajectory is negatively related to individual turnover: Greater decrement (increment) in unit-level job satisfaction is associated with greater increment (decrement) in individual turnover.

In recent years, comparisons of the similarity in the functional relationship between constructs at the individual and group levels (i.e., the functional homology of constructs) has led to enhanced parsimony and consistency in building multilevel theory (Chen, Mathieu, & Bliese, 2004). For instance, extending Spreitzer, Kizilos, and Nason's (1997) research on individual empowerment and effectiveness, Kirkman and Rosen (1999) verified that empowerment is also significantly related to effectiveness at the team level. Echoing this functional homology perspective on organizational constructs, we posit that unit-level job satisfaction trajectory will also affect the unit-level turnover rate.

Both justice theory and sensemaking theory indicate that people are inclined to interpret their changing situations according to summary cues that reflect evaluations of the social context and then use those cues in deciding how to behave (Folger & Cropanzano, 2001; Weick, 1995). In the present context, we believe that as more employees in a business unit generally experience a positive change in their job satisfaction over time, the prevalent social cues within the unit will be more likely to reinforce the advantages of employees staying in their jobs in order to enjoy the benefits associated with improving unit job satisfaction. Conversely, when a unit registers an overall decrease in job satisfaction, members' sensemaking will lead them to believe that the unit's job situation is becoming less desirable over time. Social norms in the unit may evolve into endorsing open criticism, searching for alternative jobs, and finally leaving.

Despite a lack of research on the link between unit-level job satisfaction trajectory and turnover, existing theoretical and empirical work supports the idea that individual-level effects of job satisfaction on employee turnover may be materialized at a higher organizational level (i.e., individual-level and unit-level job satisfaction have functional similarities). Harter, Schmidt, and Hayes's (2002) meta-analysis, for example, demonstrated significant business unit-level associations between job satisfaction and business outcomes (e.g., turnover, profit, productivity, and safety). Ostroff (1992) also showed aggregate teachers' satisfaction was positively associated with a variety of school performance measures. On the basis of the above theoretical arguments and empirical findings, we posit

that a functional homology exists in the relationship between job satisfaction trajectory and turnover across individual and business-unit levels of analysis.

Hypothesis 2b. With the average level of a unit's job satisfaction during a given time period held constant, unit-level job satisfaction trajectory is negatively related to the overall turnover rate in a unit: Greater decrement (increment) in unit-level job satisfaction is associated with greater increment (decrement) in a unit's overall turnover rate.

THE MULTILEVEL CONTINGENT ROLES OF JOB SATISFACTION TRAJECTORY DISPERSION

The degree to which an individual's social environment (e.g., change in satisfaction in his/her business unit) affects the individual's actions may depend on not only the general *level* of a particular social cue (i.e., the extent of satisfaction change in the unit) but also the *agreement* (i.e., the uniformity of change). Chan's (1998) typology of collective constructs suggests that dispersion (the within-unit variance in the scores for a lower-level construct) is a salient unit property describing the extent to which unit members diverge on a phenomenon and that such dispersion should be examined in multilevel research. Separation indexes of the differences in organization members' attitudes (usually operationalized as the within-unit variance in individual members' scores for a job attitude) are considered a distinctive type of diversity that warrants close scholarly attention (Harrison & Klein, 2007). Corroborating the above streams of thinking are findings that climate level (the average of organization members' climate perceptions) and climate strength (degree of within-organization consensus of organization members' climate perceptions) jointly affect individual and organizational outcomes (e.g., González-Romá, Peiró, & Tordera, 2002). Dineen and colleagues (2007) also demonstrated that researchers should consider the joint influence of level and dispersion of satisfaction when predicting outcomes (e.g., absenteeism) in a work unit.

As such, we assert that dispersion in job satisfaction trajectory (i.e., within-unit variance in employees' job satisfaction trajectory scores) can serve as another crucial social-contextual cue about job satisfaction that bears on the individual-, unit-, and cross-level relationships between job satisfaction trajectory and turnover.

Unit Job Satisfaction Dispersion and Individual Turnover

In a unit environment characterized by a uniform job satisfaction trajectory among members (i.e., low dispersion of job satisfaction trajectory), a focal employee should be able to readily sense the norms of the unit (Feldman, 1984) and be certain about his or her situation compared to those of coworkers (Folger & Cropanzano, 1998). Specifically, in the presence of a *uniform decrease* in the aggregate job satisfaction in a unit (i.e., decline in unit job satisfaction coupled with low dispersion of unit job satisfaction trajectory), a focal employee will be clearly aware that his or her coworkers have experienced a decline in their job satisfaction and that the norm in the unit is likely to be looking for other jobs and, ultimately, quitting current jobs. Felps and colleagues' (2009) turnover contagion research demonstrates that coworkers' job search behavior goes above and beyond an employee's own job search behavior to promote the employee's leaving. Both the social influence and organizational justice literatures have demonstrated the power of uniform contextual cues. More precisely, if peers provide clear and consistent cues, an individual may underemphasize her or his own assessment that is contradictory to that of peers' to conform with the majority (Asch, 1966) and maintain assurance of social support (Folger & Cropanzano, 1998). Accordingly, the impact of a focal member's increase in job satisfaction on individual turnover may be muted when unit members are unanimously encountering a decrease in job satisfaction over time.

In contrast, in the presence of a *uniform job satisfaction increase* in a unit (i.e., growth in unit job satisfaction coupled with low dispersion of unit job satisfaction trajectory), the general social cues will indicate that unit members are increasingly satisfied with their jobs over time. As a result, unit members are less likely to participate in withdrawal behaviors. When personal and contextual cues are in alignment, people are more inclined to adhere to their own response decisions (Gioia & Mehra, 1996; Weick, 1995). As such, a focal employee's own growth in job satisfaction should have the strongest negative influence on his or her turnover when unit members' job satisfaction improves uniformly over time as well.

A large amount of variability in the distribution of unit members' job satisfaction trajectories (i.e., high job satisfaction trajectory dispersion) may generate conflicting social cues regarding peers' changing feelings about their jobs. Classic social influence research reveals that once unanimity is broken, social influence declines significantly (e.g.,

Asch, 1966; Sherif & Sherif, 1967). Variance in coworker changes in attitudes may result in inconclusive social comparisons (Folger & Cropanzano, 1998). Hence, a focal employee will feel less able to get a clear sense of the status of his or her own job satisfaction trajectory relative to coworkers' and, in turn, be less sure about the decision to stay or leave. Put more simply, a strong agreement among coworkers about job satisfaction trajectories encourages stronger group norms and, thus, a stronger influence on behavior. In sum, we hypothesize:

Hypothesis 3. A unit's job satisfaction trajectory and its dispersion interact with an individual's job satisfaction trajectory in such a way that an increase in the individual's job satisfaction is least (most) likely to reduce turnover when the unit experiences a uniform job satisfaction decrease (increase).

Unit Job Satisfaction Dispersion and Unit Turnover

Extending the functional homology view of constructs across levels (Chen et al., 2004), we posit that at a higher organizational level, the functioning of constructs may similarly depend on the amount of dispersion in measurements of the constructs. Dispersion of job satisfaction trajectory, which indicates employees are experiencing a variety of job satisfaction trajectories in a unit, brings about ambiguity in employees' social context and makes their interpretation of social context less conclusive (Kruglanski & Mayseless, 1990). Thus, with increased dispersion of job satisfaction trajectory, unit members will find it difficult to obtain clear-cut cues from their unit to help them form a convergent perception of the unit's overall job satisfaction momentum. Social norms in the unit will be less clear (Feldman, 1984), and the observed behavior of unit members (e.g., job search) will vary. Consequently, the influence of the social environment on unit members will diminish, and they will be less likely to respond to the unit-level job satisfaction trajectory. Conversely, in the presence of within-unit consensus of job satisfaction trajectory scores (i.e., low dispersion), the social context will likely convey consistent, straightforward leaving or staying messages to individual employees over time. As such, unit-level job satisfaction trajectory will have a stronger influence on the overall turnover rate in a unit when dispersion is lower.

Empirical evidence from organizational climate research is consistent with our theorizing. González-Romá and colleagues (2002) documented

that work-unit climate strength (within-unit convergent view of climate) augments the effects of business-unit climate level on aggregate work satisfaction and organizational commitment. Similarly, Colquitt, Noe, and Jackson (2002) found the effects of a team’s procedural justice climate level on team performance and team absenteeism were affected by the team’s procedural justice climate strength. Thus, we propose:

Hypothesis 4. Dispersion of job satisfaction trajectory within a unit moderates the relationship between unit-level job satisfaction trajectory and turnover in the unit; this relationship is stronger when the dispersion of the job satisfaction trajectory is lower.

Figure 1 shows the theoretical model and hypotheses tested in this study.

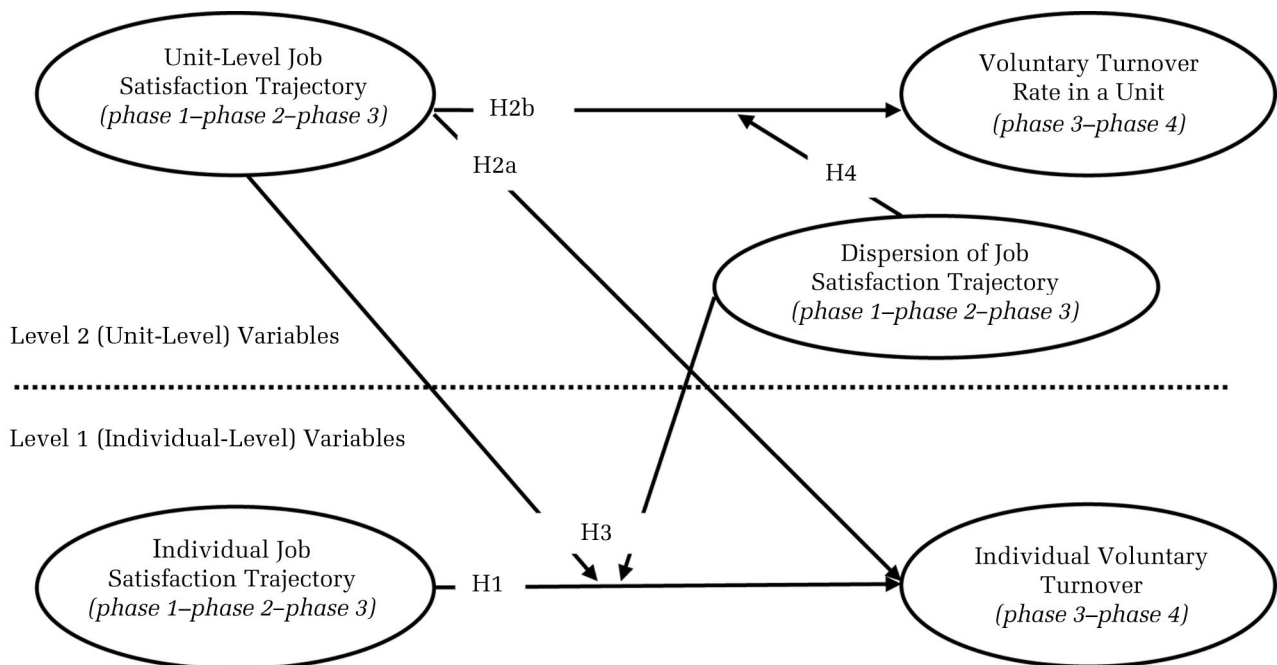
METHODS

Sample

The sample for the current study is composed of 175 business units and their employees in a leading U.S. recreation and hospitality corporation. The units operate golf courses, country clubs, private business and sports clubs, and resorts. Contact among employees within units was high, but contact across units was low. To determine the appropriate time intervals for measuring job satisfaction,

we conducted a comprehensive literature review of studies of job satisfaction and turnover, interviewed HR managers and employees, and examined archival data from the organization (e.g., webpage, media reports, internal newsletters). Previous organizational studies have measured job satisfaction over a wide range of intervals, varying from two weeks (Study 2 in Chen et al., 2011) to six months (Boswell, Shipp, Payne, & Culbertson, 2009). More recently, Chen and colleagues (2011) found convergent results from four independent samples collected with different time lags. They concluded that “the substantive relationship between changes in job satisfaction and turnover intentions generalizes over different time frames and different stages of employees’ employment in an organization (i.e., during and following socialization)” (2011: 176). The choice of measurement time points regarding job satisfaction should also take organizational context into consideration (Boswell et al., 2009). Our interviews with HR managers and employees and examination of organizational archives indicated that six months was a viable time frame for experiencing possible changes in job satisfaction, because the participating company made important personnel decisions twice each year (performance feedback, promotion, salary and benefit changes, job position changes, etc.). Considering these factors, we collected data regarding job satisfaction every six months.

FIGURE 1
Hypothesized Multilevel Model



The surveys were collected through both the internet and phone. The data collection lasted two years and included four phases. In phase 1, we invited all 14,981 employees in the 175 units to complete employee job satisfaction questionnaires. We received responses from 11,457 employees in 175 units, a response rate of 76 percent. Six months later, in phase 2, we asked the 11,457 respondents to report their job satisfaction again and got 9,079 responses from 175 units, for a response rate of 79 percent. Another six months later, in phase 3, we asked the 9,079 responding employees to evaluate their job satisfaction a third time; 5,270 employees across all 175 units completed surveys, representing a response rate of 58 percent. After another year, in phase 4, each of the 175 units provided us with voluntary turnover data for the period from phase 3 to phase 4 and demographic variables for all employees, allowing us to statistically compare respondents and nonrespondents. Following the advice of management, we used one year of turnover data to allow for a “natural cycle” to occur (i.e., one in which seasonal effects, such as Christmas, summer vacation, etc., could be captured). The use of a year reflects the “standard practice” in turnover research (Steel, 2002), and by lengthening the time between the time 3 measurement and turnover we actually reduced the chance of predicting who would leave (Dickter et al., 1996). In summary, the overall response rates are 35 percent for respondents (of the original 14,981 respondents) and 100 percent for the units (of the original 175). We did not find any significant difference between respondents and nonrespondents in terms of turnover rate, age, gender, race, and tenure. Accordingly, nonresponse bias should not be a serious concern in our study.

In the final sample of 5,270 employees from 175 units, there was an average number of 31 people in each unit who responded (s.d. = 5.8), an average tenure of 98.6 weeks (s.d. = 87.7) and an average age of 41.8 years (s.d. = 13.9) prior to our first data collection. Among respondents, 3,267 were male (62%). Eight hundred ninety-six employees turned over between phase 3 and phase 4.

Measures

Individual job satisfaction trajectory. We assessed the degree to which employees were satisfied with different dimensions of their jobs (e.g., pay, coworkers, promotion, etc.) using a shortened version of Spector’s (1985) job satisfaction measure. Spector’s original scale includes 36 items, but because of survey length constraints and suggestions from the participating company, our short-

ened measure included the two best-loading items for each of the nine original (Spector, 1985) subscales. We added two additional items after consulting HR managers and employee representatives. Thus, the respondents indicated on a five-point scale the extent to which they agreed with 20 items assessing satisfaction with various aspects of their jobs. Coefficient alpha for job satisfaction was .93. In line with Bliese and Ployhart (2002), previous studies have used the Bayes slope estimate to describe temporal change in workplace attitude and behavior; examples include Chen’s (2005) study on newcomer performance change and Chen and colleagues’ (2011) examination of job satisfaction change. Accordingly, we operationalized each individual’s job satisfaction change over phases 1 to 3 as the Bayes slope estimate drawn from hierarchical linear models. The averages of individual job satisfaction were 3.56 at phase 1, 3.86 at phase 2, and 4.37 at phase 3. The average individual job satisfaction trajectory from phases 1 to 3 was positive (0.81). This positive job satisfaction development trend may be due to the surveyed company’s implementation of supportive human resource practices (e.g., career counseling, mentoring programs) as well as employees’ socialization, which can enhance an individual’s job satisfaction over time. In our sample, 98 percent of our surveyed employees experienced job satisfaction change.

Unit-level job satisfaction trajectory. Likewise, using hierarchical linear models, we calculated this variable as the Bayes slope estimate of each unit’s average job satisfaction trajectory over phases 1 to 3. The averages of unit-level job satisfaction are 3.13 at phase 1, 3.49 at phase 2, and 4.03 at phase 3. The average unit-level job satisfaction trajectory from phases 1 to 3 is 0.90. All surveyed units experienced job satisfaction change.

Job satisfaction trajectory dispersion. According to Chan’s (1998) dispersion composition model, we operationalized job satisfaction trajectory dispersion using the within-unit standard deviation in the individual job satisfaction trajectory scores, which reflects the extent to which unit members differ in their job satisfaction trajectory over phases 1 to 3.

Voluntary turnover. The organization provided a report listing identifying information for all leavers for the 12-month period between phase 3 and phase 4. Stayers were coded as 0, and voluntary leavers were coded as 1.

Control variables. At the individual level, average levels of job satisfaction at phases 1 to 3 and demographic variables such as age, gender, race, and organizational tenure were statistically controlled for to rule out the influences of employee’s

static levels of job satisfaction, life experiences, social categories, and career progress on our findings (Chen et al., 2011; Holtom et al., 2008). Likewise, at the unit level, we controlled for average levels of unit-level job satisfaction at phases 1 to 3 as well as average age, gender, race, and tenure of employees. In addition, since the units are located in different regions, and perceived job alternatives is a significant precursor for turnover (Trevor, 2001), we controlled for the local unemployment rate for each unit. The data were obtained from the Bureau of Labor Statistics for each zip code where a unit was located.

Analytical Strategy

Given that our respondents were nested in units, a core assumption for the normal logistic regression (i.e., the observations should be independent) was violated. As a result, we used the Bernoulli model in hierarchical generalized linear modeling (HGLM; Guo & Zhao, 2000) in HLM 6.06 software (Raudenbush, Bryk, Cheong, & Congdon, 2004) to test Hypotheses 1, 2a, and 3 (see the Appendix for the two-level HGLM equations that were used to test these hypotheses). HGLM integrates generalized linear models, random-effects models, and structured dispersions to cope with the nonindependence between observations and overcome severe biases in dispersion components of binary data (Lee & Nelder, 1996). The Bernoulli model in HGLM, which uses a binomial sampling method with a Bernoulli distribution and logit link (Raudenbush et al., 2004), is thus ideal for testing multilevel models with binary outcome variables (Guo & Zhao, 2000; Lee & Nelder, 2001). It has been used previously to test turnover models (e.g., Messersmith, Guthrie, Ji, & Lee, 2011). To avoid spurious cross-level interactive effects, we tested Hypotheses 2a and 3 using the group-mean-centering

approach to partition the cross-level from between-unit interactions (Hofmann & Gavin, 1998).² In all other analyses using HGLM, we grand-mean-centered the predictors (Hofmann & Gavin, 1998). Because Hypotheses 2b and 4 concern unit-level relationships only with continuous variables, they were tested via ordinary least squares (OLS) regression. When testing Hypothesis 4, following the recommendations of Cohen, Cohen, West, and Aiken (2003), we centered the variables involved in the interaction term before we created the interaction term. We do not believe multicollinearity was a problem in the analyses because the correlations among study variables were not very high (Tables 1 and 2), and the highest variance inflation factor was 2.37, well below the commonly accepted threshold of 10 (Neter, Wasserman, & Kutner, 1990).

RESULTS

Preliminary Analyses

Tables 1 and 2 show the descriptive statistics and correlations among the control, independent, and dependent variables at the individual (1) and unit (2) levels, which provide initial evidence in support of our hypothesized relationships.

Multilevel Main Effects of Job Satisfaction Trajectory on Turnover (Hypotheses 1, 2a, and 2b)

Hypotheses 1 and 2a suggest that individual job satisfaction trajectory and unit-level job satisfac-

² To identify any differences in the results between different centering methods, we also tested Hypotheses 2a and 3 using grand mean centering; consistently with Gavin and Hofmann (2002), we found the HGLM coefficients for the cross-level moderating effects were virtually identical.

TABLE 1
Descriptive Statistics and Correlations of Level 1 (Individual-Level) Variables^a

| Variables | Mean | s.d. | 1 | 2 | 3 | 4 | 5 | 6 |
|---|-------|-------|--------|--------|-------|-------|--------|--------|
| 1. Age | 41.77 | 13.86 | | | | | | |
| 2. Race | 0.64 | 0.48 | .04** | | | | | |
| 3. Gender | 0.62 | 0.48 | .07** | -.13** | | | | |
| 4. Tenure (weeks) | 98.62 | 87.73 | .41** | -.05** | .04** | | | |
| 5. Average levels of job satisfaction (phase 1–phase 2–phase 3) | 3.93 | 0.67 | .04** | -.10** | .06** | -.00 | | |
| 6. Job satisfaction trajectory (phase 1–phase 2–phase 3) | 0.05 | 0.13 | .07** | .02 | .00 | .04** | -.03** | |
| 7. Turnover (phase 3–phase 4) | 0.17 | 0.37 | -.03** | .04** | -.02 | -.02 | -.05** | -.10** |

^a $n = 5,270$ individuals. Gender: “female” = 0, “male” = 1. Race: “nonwhite” = 0, “white” = 1.

* $p < .05$

** $p < .01$

Two-tailed tests.

TABLE 2
Descriptive Statistics and Correlations of Level 2 (Unit-Level) Variables^a

| Variables | Mean | s.d. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|-------|-------|-------|-------|--------|-------|------|-------|--------|------|
| 1. Age | 37.78 | 4.56 | | | | | | | | |
| 2. Race | 0.64 | 0.24 | .20** | | | | | | | |
| 3. Gender | 0.56 | 0.23 | -.08 | -.15 | | | | | | |
| 4. Tenure (weeks) | 65.42 | 27.42 | .45** | .08 | -.21** | | | | | |
| 5. Local unemployment rate | 0.05 | 0.02 | -.09 | .06 | .09 | -.17* | | | | |
| 6. Average levels of job satisfaction (phase 1–phase 2–phase 3) | 3.55 | 0.63 | .01 | -.02 | -.02 | .04 | .06 | | | |
| 7. Job satisfaction trajectory (phase 1–phase 2–phase 3) | 0.03 | 0.25 | .11 | .06 | -.05 | .06 | .09 | -.06 | | |
| 8. Job satisfaction trajectory dispersion (phase 1–phase 2–phase 3) | 0.03 | 0.18 | -.05 | -.11 | .03 | .05 | .06 | .04 | .02 | |
| 9. Turnover (phase 3–phase 4) | 0.16 | 0.09 | -.00 | -.16* | -.02 | .01 | -.10 | -.18* | -.24** | -.07 |

^a $n = 175$ business units. Gender: “female” = 0, “male” = 1. Race: “nonwhite” = 0, “white” = 1.

* $p < .05$

** $p < .01$

Two-tailed tests.

tion trajectory are negatively related to individual turnover. As shown by Table 3 (model 2), individual job satisfaction trajectory ($\gamma = -0.17$, $p < .01$) and unit-level job satisfaction trajectory ($\gamma = -1.21$, $p < .01$) significantly related to individual turnover, thereby supporting Hypotheses 1 and 2a. As people become more satisfied with their jobs and overall satisfaction in their unit increases, fewer individuals leave their jobs. With respect to the unit-level relationship between job satisfaction trajectory and turnover (Hypothesis 2b), results of model 2 in Table 4 indicate that unit-level job satisfaction trajectory ($b = -.09$, $p < .01$) was significantly associated with the overall turnover rate in a unit. Accordingly, Hypothesis 2b was supported. Units with increases in job satisfaction subsequently had less turnover.

Multilevel Three-Way Interactive Effect (Hypothesis 3)

Hypothesis 3 predicts a multilevel three-way interactive effect of unit-level job satisfaction trajectory, job satisfaction trajectory dispersion, and individual job satisfaction trajectory on individual turnover. As seen in model 4 of Table 3, the three-way interaction term was significant ($\gamma = 1.27$, $p < .05$). This hypothesis was further supported by slope difference tests (Dawson & Richter, 2006), and Figure 2 was plotted according to Aiken and West (1991).

In predicting individual turnover with the individual job satisfaction trajectory, we found that the slope ($\gamma = -0.01$, n.s.) for low job satisfaction trajectory dispersion and negative unit-level job satisfaction trajectory differed significantly from the slope ($\gamma = -0.17$, $p < .05$) for high job satisfaction trajectory dispersion and positive unit-level job satisfaction trajectory ($t = 3.12$, $p < .01$);

the slope ($\gamma = -0.16$, $p < .05$) for high satisfaction trajectory dispersion and negative unit-level job satisfaction trajectory ($t = 3.07$, $p < .01$); and the slope ($\gamma = -0.28$, $p < .05$) for low job satisfaction change dispersion and positive unit-level job satisfaction trajectory ($t = 3.12$, $p < .01$). Therefore, as predicted, an increase in an employee’s job satisfaction appeared to have the least negative effect on individual turnover in the presence of a uniform decrease in unit-level job satisfaction.

Moreover, the slope ($\gamma = -0.28$, $p < .05$) for low job satisfaction trajectory dispersion and positive unit-level job satisfaction trajectory significantly differed from the slope ($\gamma = -0.17$, $p < .05$) for high job satisfaction trajectory dispersion and positive unit-level job satisfaction trajectory ($t = 3.01$, $p < .01$) and the slope ($\gamma = -0.16$, $p < .05$) for high satisfaction trajectory dispersion and negative unit-level job satisfaction trajectory ($t = 3.09$, $p < .01$). Hence, as predicted, an increase in individual job satisfaction had the strongest negative relationship to individual turnover when unit members experienced a uniform growth in their job satisfaction. The lack of difference ($t = 1.90$, n.s.) between the slope for high job satisfaction trajectory dispersion and positive unit-level job satisfaction trajectory ($\gamma = -0.17$, $p < .05$) and the slope for high job satisfaction trajectory dispersion and negative unit-level job satisfaction trajectory ($\gamma = -0.16$, $p < .05$) affirms that job satisfaction trajectory dispersion serves as a meaningful social context cue to significantly diminish the moderating effect of unit-level job satisfaction trajectory.

To help readers better understand our findings, we offer the following example: Both employees A and B experience a comparable degree of increase in job satisfaction over time. Employee A is in step

TABLE 3
HGLM Results: The Multilevel Three-Way Interactive Effect on Individual Turnover of Individual Job Satisfaction Trajectory, Unit-Level Job Satisfaction Trajectory, and Job Satisfaction Trajectory Dispersion^a

| Variables | Model 1 | Model 2 | Model 3 | Model 4 |
|--|-------------------|-------------------|-------------------|-------------------|
| <i>Intercept</i> | -1.62** (0.53) | -1.60** (0.52) | -1.58** (0.51) | -1.41** (0.32) |
| <i>Level 1 variables</i> | | | | |
| Age | -0.03** (0.00) | -0.02* (0.00) | -0.02* (0.00) | -0.01* (0.00) |
| Race | 0.58** (0.08) | 0.43** (0.07) | 0.35** (0.09) | 0.42** (0.11) |
| Average levels of job satisfaction (phase 1–phase 2–phase 3) | -0.19** (0.05) | -0.17* (0.08) | -0.16* (0.07) | -0.12* (0.05) |
| Individual job satisfaction trajectory (phase 1–phase 2–phase 3) | | -0.17** (0.04) | -0.15** (0.04) | -0.18** (0.03) |
| <i>Level 2 variables</i> | | | | |
| Age | -0.01 (0.03) | -0.02 (0.02) | -0.01 (0.01) | -0.03 (0.02) |
| Race | -0.04 (0.25) | -0.02 (0.28) | -0.05 (0.26) | -0.15 (0.19) |
| Unit average levels of job satisfaction (phase 1–phase 2–phase 3) | -0.83** (0.22) | -0.52 (0.39) | -0.23 (0.17) | -0.25 (0.27) |
| Unit-level job satisfaction trajectory (phase 1–phase 2–phase 3) | -1.23** (0.30) | -1.21** (0.30) | -1.52** (0.35) | -1.32** (0.20) |
| Job satisfaction trajectory dispersion (phase 1–phase 2–phase 3) | | | -0.22 (0.30) | -0.15 (0.20) |
| Unit-level job satisfaction trajectory × Job satisfaction trajectory dispersion (phase 1–phase 2–phase 3) | | | 5.22** (1.91) | 4.35** (1.41) |
| <i>Cross-level interactions</i> | | | | |
| Individual job satisfaction trajectory × Unit-level job satisfaction trajectory (phase 1–phase 2–phase 3) | | | -0.08 (0.11) | -0.12 (0.15) |
| Individual job satisfaction trajectory × Job satisfaction trajectory dispersion (phase 1–phase 2–phase 3) | | | 0.25* (0.10) | 0.26* (0.12) |
| Individual job satisfaction trajectory × Unit-level job satisfaction trajectory × Job satisfaction trajectory dispersion (phase 1–phase 2–phase 3) | | | | 1.27* (0.62) |
| R^{2b} | 0.10 | 0.21 | 0.32 | 0.43 |

^a $n = 5,270$ individuals at level 1; $n = 175$ business units at level 2; standard errors are noted in parentheses where applicable. We also ran analyses with local unemployment rate, gender, and tenure at both individual and unit levels as controls and found none of them was significant. Therefore, our final analyses omit these three control variables to maximize statistical power (Becker, 2005).

^b R^2 is calculated based on proportional reduction of error variance due to predictors in the models of Table 3 (Snijders & Bosker, 1999).

* $p < .05$

** $p < .01$

Two-tailed tests.

with his or her business unit, which also enjoys consistent positive job satisfaction change. However, employee B is out of step with his or her business unit, which exhibits consistent negative job satisfaction change. Consequently, according to our findings, employee A is more likely to stay in his or her job than is employee B.

The Interactive Effect of Unit-Level Job Satisfaction Trajectory and Its Dispersion on Unit Turnover Rate (Hypothesis 4)

The results of model 3 in Table 4 suggest the interaction between unit-level job satisfaction trajectory and its dispersion was significantly re-

lated to the overall turnover rate in a unit ($b = .42$, $p < .05$). To further probe these findings, we conducted simple slope tests and plotted these significant interactive effects (Aiken & West, 1991). As indicated by Figure 3, when job satisfaction trajectory dispersion was low, unit-level job satisfaction trajectory was more negatively related to the overall turnover rate in a unit ($b = -.11$, $p < .01$) than high job satisfaction trajectory dispersion ($b = -.07$, $p < .01$). Accordingly, Hypothesis 4 received support. The strength of the relationship between unit-level job satisfaction trajectory and unit turnover rate is stronger when there is less dispersion in job satisfaction trajectory.

TABLE 4
OLS Results: The Interactive Effect of Unit-Level Job Satisfaction Trajectory and Job Satisfaction Trajectory Dispersion on the Employee Turnover Rate in a Business Unit^a

| Variables | Model 1 | Model 2 | Model 3 |
|--|-------------------|-------------------|-------------------|
| <i>Intercept</i> | 0.21** (0.05) | 0.19** (0.06) | 0.19** (0.04) |
| <i>Step 1: Control variables</i> | | | |
| Age | 0.01 (0.01) | 0.00 (0.00) | 0.00 (0.00) |
| Race | -0.07 (0.04) | -0.05 (0.04) | -0.03 (0.03) |
| <i>Step 2: Independent variables</i> | | | |
| Unit average levels of job satisfaction (phase 1–phase 2–phase 3) | -0.09** (0.03) | -0.08* (0.04) | -0.04 (0.04) |
| Unit-level job satisfaction trajectory (phase 1–phase 2–phase 3) | | -0.09** (0.02) | -0.10** (0.03) |
| Job satisfaction trajectory Dispersion (phase 1–phase 2–phase 3) | | | -0.03 (0.05) |
| <i>Step 3: Interaction variables</i> | | | |
| Unit-level job satisfaction trajectory × Job satisfaction trajectory dispersion (phase 1–phase 2–phase 3) | | | 0.42* (0.17) |
| R^2 | 0.04 | 0.11 | 0.19 |
| F | 2.12* | 2.39* | 2.49** |
| ΔR^2 | | 0.07** | 0.08** |

^a $n = 175$ business units at level 2; standard errors are noted in parentheses where applicable. We also ran analyses with local unemployment rate, gender, and tenure at both individual and unit levels as controls and found none of them was significant. Therefore, our final analyses omit these three control variables to maximize statistical power (Becker, 2005). We kept age and race in order to allow the OLS analyses at the unit level to have the same set of control variables as the HLM analyses.

* $p < .05$

** $p < .01$

Two-tailed tests.

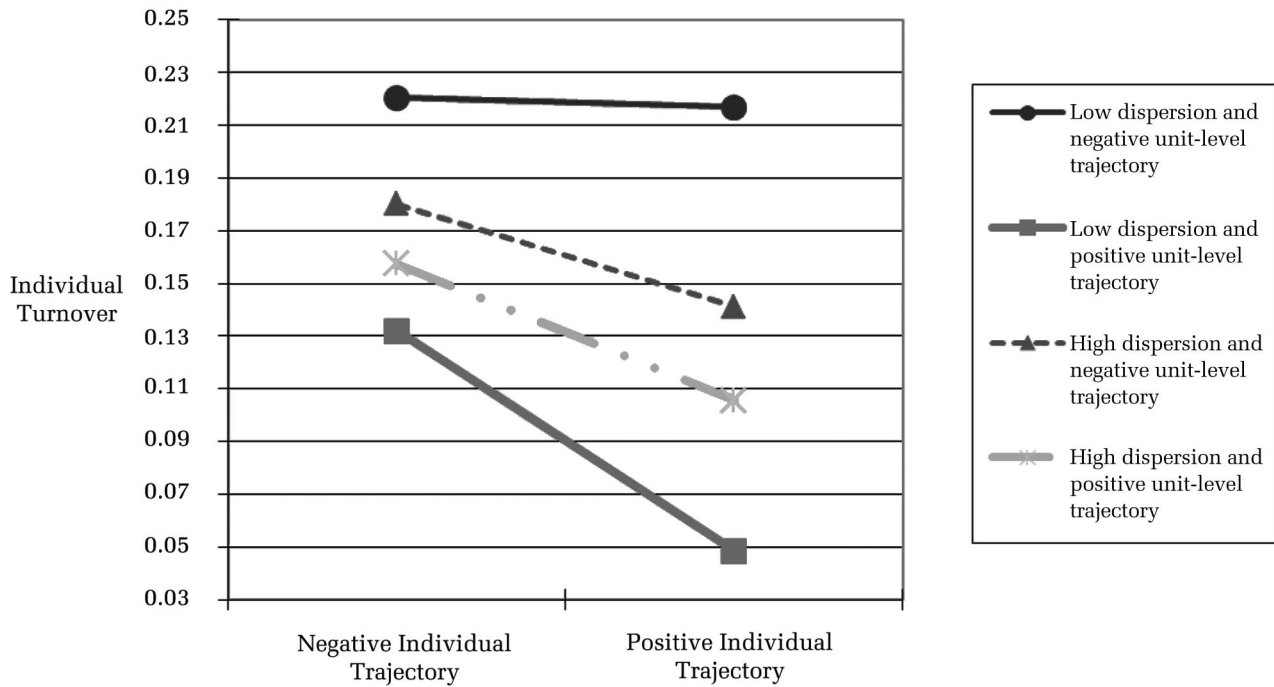
Supplementary Analyses

An issue that was not specifically hypothesized but that prompted us to look at our data in more detail was the case in which an individual's job satisfaction trajectory was opposite his/her unit's trajectory. When the work environment generates social cues contradictory to a person's experience, he or she may be prompted to engage in counterfactual thinking and imagine alternative realities (Roese, 1997). Prior work has shown that the degree to which a person engages in counterfactual thinking depends on the severity of the negative outcome (Nicklin, Greenbaum, McNall, Folger, & Williams, 2011). Thus, those whose own job satisfaction decreases may be more apt to develop counterfactual thoughts than individuals whose job satisfaction increases. Yet, as suggested by the lens model (Karelaia & Hogarth, 2008), the extent to which counterfactual thinking affects behavior may vary across people and situations. For example, people with internal locus of control may simply disregard counterfactual thoughts and attend exclusively to their own job satisfaction trajectory (Rotter, 1990). Or employees in cohesive units may feel compelled to follow coworkers and pay most of

their attention to unit-level job satisfaction trajectory (Hogg, 1992).

We conducted a series of analyses to explore this question. Holding all other variables constant at mean levels, when a unit member enjoys a positive individual job satisfaction trajectory (.18, 1 s.d. above the mean individual job satisfaction trajectory) but negative unit job satisfaction trajectory (-0.22, 1 s.d. below the mean unit job satisfaction trajectory), her turnover likelihood is .22. In the situation of a negative individual job satisfaction trajectory (-0.08, 1 s.d. below the mean individual job satisfaction trajectory) and positive unit job satisfaction trajectory (.28, 1 s.d. above the mean unit job satisfaction trajectory), the turnover likelihood is .13. But, in both cases, this differential shows the power of context, which leads people to suppress their personal needs and attitudes to accommodate the norms and expectations of their context (Johns, 2006) or of others (Asch, 1966). Yet, as described above, a variety of individual and contextual variables may also influence the degree to which one is responsive to individual as opposed to contextual cues. In our sample, members of a unit maintained frequent social exchanges and high task interde-

FIGURE 2
Three-Way Interactive Effect of Unit-Level Job Satisfaction Trajectory, Job Satisfaction Trajectory Dispersion, and Individual Job Satisfaction Trajectory on Individual Turnover



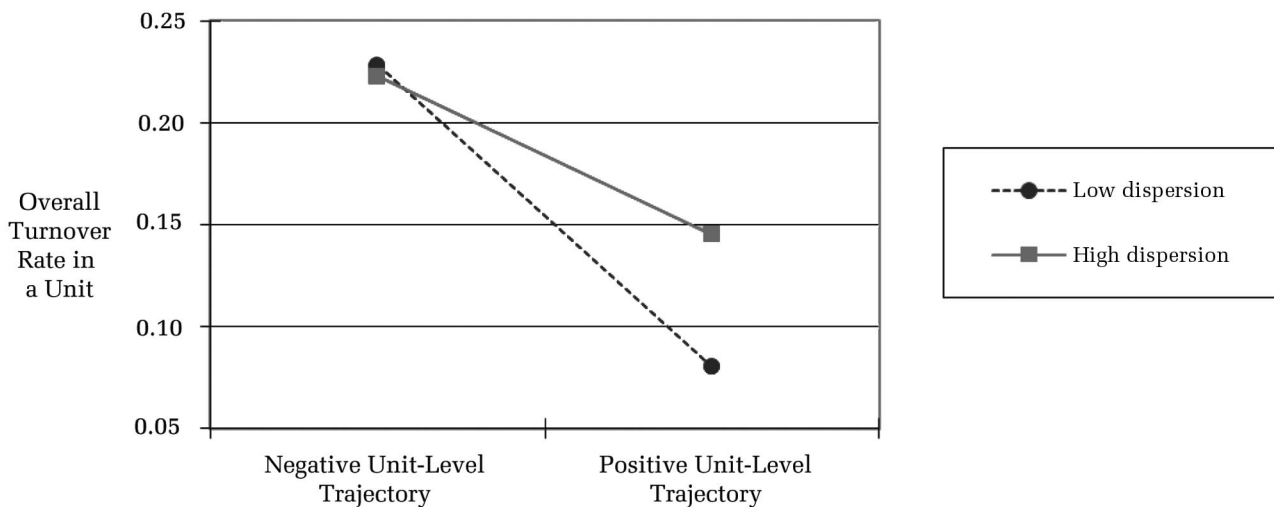
pendence. As such, they may be more receptive to contextual influence than individuals in other organizational settings. This is clearly an issue for further research.

DISCUSSION

In this research, we develop and analyze a model of the individual-, unit-, and cross-level relation-

ships between job satisfaction trajectory and turnover. The results indicate that, going beyond static (average) individual and unit levels of job satisfaction measured at three time points, unit-level and individual-level job satisfaction trajectories have *unique* influences on individual turnover. Further, unit-level job satisfaction trajectory has a negative effect on the overall turnover rate in a unit after unit-level static (average) job satisfaction has been

FIGURE 3
Interactive Effect of Unit-Level Job Satisfaction Trajectory and Job Satisfaction Trajectory Dispersion on the Overall Turnover Rate in a Business Unit



controlled for. Multilevel data substantiate the integrative three-way interaction model, which highlights that unit-level job satisfaction trajectory and its dispersion can suppress the positive or negative momentum of an individual's job satisfaction trajectory. Specifically, if an employee's job satisfaction is declining, but his or her business unit is experiencing a consistent positive change in job satisfaction, that employee's likelihood of turnover owing to his or her negative job satisfaction trajectory may be reduced. Conversely, if an employee's job satisfaction is increasing, but his or her business unit is experiencing a consistent negative change in job satisfaction, the employee's likelihood of staying owing to his or her positive job satisfaction trajectory in the organization may be reduced. In both cases, an employee's being out of step with his or her work context changes our prediction for that employee. Finally, the negative relationship between unit-level job satisfaction trajectory and overall turnover rate was reduced by wide satisfaction trajectory dispersion.

Theoretical Implications

Our research sketches a portrait of the relationships between job satisfaction trajectory and turnover as well as the contingent role of a new organizational context variable, job satisfaction trajectory dispersion, thereby making four primary contributions to the turnover literature. First, this study answers recent calls for integrating temporal elements into turnover research, given the fact that employees' attitudes and behaviors evolve over time (Pitariu & Ployhart, 2010) and, when taking a dynamic view, researchers may generate predictions distinct from the traditional static perspective (Steel, 2002). In this research, we offer theoretical rationales for *why* job satisfaction trajectory, which captures multiple key cues (past and present) about job satisfaction, should account for additional variance in turnover at both the individual and unit levels above and beyond static measures of job satisfaction. Seeking empirical verification of this new theory, we followed 5,270 employees nested in 175 units of a recreation and hospitality firm for two years and provided the first empirical evidence for the negative relationship between job satisfaction trajectory and actual turnover when controlling for the average level of job satisfaction. In addition, the traditional, static, monolevel approach (i.e., using individual-level job satisfaction at phase 3 to predict individual turnover between phase 3 and phase 4) only accounted for 5 percent of the variance in individual turnover. In contrast, our dynamic multilevel approach (i.e., adopting

individual-level and unit-level job satisfaction trajectories from phase 1 to phase 2 to phase 3 as well as unit-level job satisfaction trajectory dispersion to jointly predict individual turnover between phase 3 and phase 4) explained 43 percent of variance in individual turnover. Hence, our theory and results extend the existing turnover research by taking into account the crucial role of the evolution of job satisfaction. This research also suggests that organizational theories can be further enriched by considering the link between attitudinal change trajectory and behavioral responses.

A second important contribution of this study was the adoption of a multilevel perspective on turnover. To truly understand the job satisfaction–turnover link, one must examine what is happening at the individual and unit levels over time (i.e., supplementing within-person and between-person information with contextual information). When they move together in the same direction, the potential for substantial impact is maximized. Conversely, if they move in different directions, tension and confusion about cue diagnosticity increases, and the potential for substantial impact is reduced. Numerous conceptual and empirical works have testified to the importance of the multilevel perspective for understanding the complexity and richness of social phenomena that may emerge at different hierarchical levels (e.g., Hitt, Beamish, Jackson, & Mathieu, 2007; Klein, Dansereau, & Hall, 1994). Nevertheless, empirical studies of the multilevel relationships between job attitude trajectory and turnover are scarce. Moreover, it has recently been argued that a multilevel perspective on the influence of social factors (e.g., coworkers' attitudes) on a focal employee's turnover can expand turnover researchers' theoretical lens and enhance the relevance of their findings for practitioners (Felps et al., 2009). Our approach not only verifies that positive individual-level job satisfaction trajectory and unit-level job satisfaction trajectory have *nonredundant* negative effects on individual turnover but also demonstrates the *functional homology* (Chen et al., 2004) of the job satisfaction trajectory–turnover relationship at the unit level. Our findings highlight the need for cross-level effects of social environmental factors (e.g., attitudes, behaviors, and emotions at the unit level) to be taken into account when examining antecedents of an individual's turnover. This study also implies that additional research on the homology in the functional relationships between the established turnover precursors (e.g., procedural justice) and turnover across levels is warranted.

Third, findings pertaining to the moderating influence of job satisfaction trajectory dispersion

point to the importance of investigating the *dispersion* or variance of the social context factors. Tackling the *level* of social circumstances in organizational research is not new. For example, organizational culture was shown to influence employee turnover through collective sensemaking and social information processes (e.g., Abelson, 1993). The significant attenuating effects of job satisfaction change dispersion on the individual-, unit-, and cross-level relationships between job satisfaction change and turnover in this study show *level* and *dispersion* represent independent social-contextual features.

Finally, our results offer insights into the cross-level boundary conditions for the influence of individual job satisfaction trajectory. Turning to an examination of the three-way interactive effect of individual job satisfaction trajectory, unit-level job satisfaction trajectory, and job satisfaction trajectory dispersion on individual turnover, we were able to tease out which combination of contextual factors is best suited for bringing out the effect of individual job satisfaction trajectory on turnover. We found that growth in individual job satisfaction is most likely to prevent individual turnover when unit members experienced a uniform growth in their job satisfaction. This finding confirms the value of having high consistency between personal and contextual stimuli in triggering behavioral reactions (Blanton, 2001; Thomas & Griffin, 1983). That is, when contextual cues (e.g., uniform job satisfaction increase experienced by members within a business unit) are in alignment with personal cues (individual job satisfaction growth), an individual is inclined to attach more importance to personal cues and allow them to shape his/her behavioral responses. Interestingly, we also detected that when unit members uniformly encounter a decrease in job satisfaction, a focal employee's job satisfaction growth appears to have little influence on his or her turnover. This finding adds to social influence theory and research (e.g., Cialdini, 2009; Cialdini & Goldstein, 2004) by showing that a high degree of mismatch between personal and contextual stimuli significantly changes the pattern of behavioral responses. Another interesting finding is that in the presence of high job satisfaction trajectory dispersion, regardless of the general direction of unit-level job satisfaction trajectory (positive or negative), the strength of the relationship between individual job satisfaction trajectory and turnover remains constant. Extending the justice and social influence literatures, this result highlights the fact that as the cues from the organizational context become increasingly diverse, the influence of organizational context diminishes.

Managerial Implications

Our findings provide practitioners with valuable insights on how to decrease employee voluntary turnover, which has been associated with a variety of negative outcomes in organizations (Shaw, Dineen, Fang, & Vellella, 2009). Individual job satisfaction has long been thought to be essential to reducing an employee's likelihood of leaving (Hom & Griffeth, 1995; Mobley, 1977). Yet individual levels of job satisfaction are perhaps more subject to change over even short periods of time than managers may think (Chen et al., 2011). Our findings emphasize that to more accurately predict employees' likelihood of turnover, managers need to move beyond looking only at their current job satisfaction scores to focus on the change trajectory of job satisfaction over time. To keep their valuable human resources, managers should endeavor to promote and reinforce retention strategies that lead to positive changes in employee job satisfaction. For instance, managers can proactively provide new types of recognition or bonuses and introduce unique career or training opportunities to highlight desirable career prospects associated with increasing tenure. With regard to the jobs that employees perform, managers may focus on continually increasing skill variety, task identity, task significance, autonomy, and feedback, which have been demonstrated to be major job characteristics that contribute to growth in employee job satisfaction (Hackman & Oldham, 1976).

Another crucial managerial implication suggested by our study is that individuals are paying attention to and are influenced by the attitudes of others in their business unit. To more precisely estimate the probability of an employee quitting his or her job, managers also need to understand the influence a business unit can have on job satisfaction and turnover: the contagion effect. The influence is manifested both through unit-level job satisfaction trajectory and its dispersion. We have shown that unit-level job satisfaction trajectory can explain additional variance in individual turnover beyond individual job satisfaction trajectory.

Moreover, convergence in unit-level job satisfaction trajectory can have a more substantial impact on the link between individual job satisfaction trajectory and turnover than dispersion. As the environment in a business unit changes, an individual may incorporate such changes into his or her attitudes, especially if there is convergence in coworkers' attitudes. Declines in individual satisfaction could lead employees to search for alternatives to their current employment situation. When experiencing this decline, an individual would look to

coworkers in the workplace for informational cues about their jobs. If there is low dispersion and positive change in unit job satisfaction, employees should be less subject to their own decrease in job satisfaction, and search behavior would likely be reduced. Alternatively, if there is low dispersion and negative change in unit job satisfaction, search behavior would likely increase because of consistent social-contextual cues for leaving. Put differently, if I see a large group of coworkers grumbling, I am more likely to grumble. If only a few grumble, I am less likely to do so.

Hence, in addition to concern about individual employees' job satisfaction evolution, organizations should take measures to encourage activities (e.g., inviting employees who experience a positive job satisfaction trajectory to share their work experience with coworkers and to mentor new hires) that facilitate the spread of information on job satisfaction growth. Doing so might increase employees' awareness of the uniform positive change in job satisfaction among their peers in the workplace. Managers should think carefully about the initial assignments of new employees with respect to the prevailing job satisfaction trajectories of various work groups. Placing a new employee into a business unit where job satisfaction is declining could have serious negative implications. Managers also need to be especially aware of factors that contribute to changes in a group's overall job satisfaction, such as perceived equity (Adams, 1965) and organizational justice (Colquitt et al., 2002).

Limitations and Future Directions

Several critical questions remain for subsequent research to explore, to more fully understand the mechanisms and circumstances under which level and dispersion of job satisfaction trajectory jointly affect turnover at multiple organizational levels. First, since we have not investigated fully the psychological mechanisms that link the cross-level interaction between job satisfaction trajectory and its dispersion to individual turnover and the overall turnover rate in a unit, much work remains to be done. At the individual level, the literature reveals that intention to leave (Chen et al., 2011) and job search behavior (Felps et al., 2009) might be the mediators through which multilevel job satisfaction trajectory and its dispersion interact to impact individual turnover. At the unit level, researchers could scrutinize transactive memory (Austin, 2003; Ilgen, Hollenbeck, Johnson, & Jundt, 2005) and shared mental models (Ellis, 2006), which may serve as the cognitive conduits that lead organization members to collectively retrieve, interpret, and

process information related to unit-level job satisfaction trajectory and turnover.

Second, other factors may jointly cause the effects on individual turnover of unit-level job satisfaction trajectory and its dispersion. Thus, additional research is needed to identify these covariates to expand on this study. Although at present little is known about why some units or organizations are more likely to cultivate a uniform trajectory in employee job satisfaction over time than are others, we suggest that such research could be tied in with literatures on erratic supervision, diversity, and HR practices. As an example, the extent to which a leader develops differentiated exchange relationships with subordinates has been conceptualized as exerting negative influence on subordinates' forming collective perceptions of organizational phenomena in the workplace (Roberson & Colquitt, 2005). We therefore suspect that when organization leaders engage more in differentiated social exchanges with subordinates, job satisfaction trajectory dispersion among subordinates is more likely.

Furthermore, both surface-level diversity (in, for instance, age, sex, and ethnicity [Lawrence, 1997]) and deep-level diversity (e.g., in personality, values, and abilities [Barrick, Stewart, Neubert, & Mount, 1998]) should bear on the emergence of organization members' uniform job satisfaction trajectory, whereas over time deep-level diversity may be more influential (Harrison, Price, Gavin, & Florey, 2002). With respect to HR practices, pay dispersion research indicates that dispersed pay distributions may lead employees with relatively high pay to develop higher job satisfaction than those with relatively low pay (e.g., Bloom, 1999; Bloom & Michel, 2002; Messersmith et al., 2011).

Third, we have no measures of possible events or factors that prompted increases or decreases in job satisfaction trajectory. For instance, certain organizational actions may cultivate gradual changes in job satisfaction trajectory, whereas other actions may produce strong changes in this trajectory. Future research should investigate the causes of changes in a job satisfaction trajectory to identify the impact on individual and unit-level turnover as well as on other behavioral outcomes (e.g., job performance and organizational citizenship behavior).

Fourth, whereas a wide variety of potential predictors for turnover, such as local unemployment rate, age, tenure, race, and gender have been included as controls in our analyses, we did not control for several established predictors of turnover. For instance, organizational commitment has been found to decrease the probability of individual turnover over time (Bentein, Vandenberg, Van-

denberghe, & Stinglhamber, 2005). Hence, it would be a meaningful extension of this study to explore whether organizational commitment trajectory and its dispersion interact with job satisfaction trajectory and its dispersion to explain additional variance in turnover across levels. Moreover, to expand the criterion domain, we also encourage researchers to explore the ways level and dispersion of turnover precursors (e.g., job satisfaction, organizational commitment) may impact other withdrawal behaviors such as absenteeism and retirement.

Fifth, the results found in this study may vary according to differences among individuals and contexts. We examined three sources of information regarding job satisfaction: within-person, between-person, and contextual. However, individual and contextual differences may result in individuals responding to the three sources of information to a different extent. For example, we mentioned that people with an external locus of control may attend more to contextual cues than people with an internal locus of control (Rotter, 1990). Future inquiries may also expand on our research by investigating how temporal focus (Shipp, Edwards, & Lambert, 2009) may affect people's reactions to different types of job satisfaction information over time.³ Shipp and her colleagues defined temporal focus as "the attention individuals devote to thinking about the past, present, and future" (2009: 1). Accordingly, present-focused individuals may be less swayed by fluctuations or trends in satisfaction change; static measures of job satisfaction may largely determine their turnover likelihood. Past-focused workers would focus on previous job satisfaction cues and be less responsive to job satisfaction evolution information. Future-focused individuals may be most responsive to trajectories. Moreover, the literature notes that particular attention should be paid to how measurements of job attitudes are timed (see Mitchell and James's [2001] MCC curve method for contemplating time lags between measurements as an example of attention to timing) and specific characteristics and situations of organizations and their employees.

Finally, we have not addressed individual expectations about anticipated satisfaction. Mobley (1982) pointed out people's *anticipated* job satisfaction level may affect their turnover decisions. As such, researchers may expand on our model by incorporating this important cue into the potential effects of expected future job satisfaction.

³ We thank an anonymous reviewer for providing us with this important insight.

Conclusions

Departing from the dominant paradigm in turnover research, which is use of a static, individual-level, between-person research design, our study attests to the value of a dynamic multilevel perspective on turnover. Interestingly, the findings emphasize that growth in a focal employee's job satisfaction is the least likely to prevent him or her from leaving when job satisfaction is uniformly decreasing in his or her business unit and thus the employee is out of step with coworkers. Growth in a focal employee's job satisfaction is the most likely to prevent him or her from leaving when his or her business unit enjoys a uniform job satisfaction increase and, thus, the person is in step with coworkers. Moreover, the effect of unit-level job satisfaction trajectory on the overall turnover rate in a unit is mitigated by job satisfaction trajectory dispersion. We hope the unique theoretical implications of this study will stimulate additional research that takes into account the critical roles of social context and temporal aspects to better understand the momentum and complexity of the turnover process.

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APPENDIX

Two-Level HGLM Equations

We used the following equations to test Hypotheses 1, 2a, and 3:

Level 1: *Individual turnover*_{ij} = β_{0j} + β_{1j} (individual job satisfaction trajectory) + r_{ij} .

Level 2: β_{0j} = γ_{00} + γ_{01} (unit-level job satisfaction trajectory) + γ_{02} (job satisfaction trajectory dispersion) + γ_{03} (unit-level job satisfaction trajectory \times job satisfaction trajectory dispersion) + U_{0j} .

β_{1j} = γ_{10} + γ_{11} (unit-level job satisfaction trajectory) + γ_{12} (job satisfaction trajectory dispersion) +

γ_{13} (unit-level job satisfaction trajectory \times job satisfaction trajectory dispersion) + U_{1j} .



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