

THE IMPACT OF EXPECTATIONS ON NEWCOMER PERFORMANCE IN TEAMS AS MEDIATED BY WORK CHARACTERISTICS, SOCIAL EXCHANGES, AND EMPOWERMENT

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Integrating research on the Pygmalion and Galatea effects with a group socialization model and theories of work motivation and interpersonal leadership, we delineated and tested a model of newcomer role performance in work teams. A two-month field study of 70 newcomers, 70 team leaders, and 102 teammates in high-tech project teams supported the model. In particular, newcomer general self-efficacy and experience predicted newcomer and team expectations, and motivational and interpersonal processes (captured by work characteristics, social exchanges, and empowerment) helped link expectations and newcomer role performance.

The nature of work in organizations has undergone important changes in recent years. Most work organizations are now relying on team-based structures to help face increasing levels of market competition and technological innovation (Sundstrom, 1999). Teams, more than groups in general, include highly interdependent members holding specialized roles. In addition, to maintain competitive levels of knowledge and skills, employees, particularly those in such high-technology industries as the information technology (IT) industry, transit across work projects and organizations much more frequently than ever before (Hall, 1996; Katz, 1997). The increasing level of employee mobility requires better understanding of the effectiveness of newcomers for projects and organizations. Such understanding can help to minimize the potential “process losses” associated with newcomer socialization (cf. Ostroff & Kozlowski, 1992). Moreover, organizations care about newcomer effectiveness, given that they spend a large amount of money on

socializing newcomers (Bauer, Morrison, & Callister, 1998). For instance, DeMarco (1996) estimated that high-technology organizations often invest more than \$150,000 in each new technical employee (such as a computer engineer) before the investment begins to pay off.

Unfortunately, despite a vast amount of newcomer socialization research, most studies on newcomers have focused on predicting secondary (that is, attitudinal) criteria, and not on more primary criteria, such as newcomer performance (Bauer et al., 1998). Moreover, studies examining newcomer performance (e.g., Morrison, 1993; Saks, 1995) have focused on task performance but have not captured other important aspects of performance employees are now expected to engage in, such as teamwork, continuous learning, and innovative behavior (cf. Welbourne, Johnson, & Erez, 1998).

Additionally, as Anderson and Thomas (1996) and Kozlowski and Bell (2003) have argued, not enough newcomer socialization research has been conducted in the context of work teams. This is surprising, “since the proximal work group provides the immediate work and socio-cultural environment within which the new recruit must learn to accomplish job tasks and responsibilities” (Anderson & Thomas, 1996: 423). Although Moreland and Levine (1982) developed a model of group socialization, little research to date has empirically tested or supported this model (Anderson & Thomas, 1996). Furthermore, Moreland and Levine’s model focuses on attitudinal outcomes and does not explicitly address socialization in the con-

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text of work organizations (Anderson & Thomas, 1996; Bauer et al., 1998).

Accordingly, the purpose of the present research was to delineate and test a model of newcomer effectiveness in the context of work teams. Our particular focus was on the performance of individual newcomers who join existing teams, and not on team-level performance, development, or socialization. Thus, we developed and tested a longitudinal model in which individual differences and motivational and interpersonal processes are hypothesized to predict newcomer role performance. We base this model largely on Dov Eden's (1990, 1992) work on the Pygmalion and Galatea effects, which are outlined below. Specifically, we propose that the Galatea effect helps explicate the motivational processes through which newcomer expectations lead to newcomer effectiveness, whereas the Pygmalion effect helps delineate the interpersonal processes through which team expectations account for newcomer effectiveness.

Our research focuses on the socialization of knowledge workers, defined as "high-level employees who apply theoretical and analytical knowledge, acquired through formal education, to developing new products or services" (Janz, Colquitt, & Noe, 1997: 878). Knowledge workers often work in project teams, which can be defined as time-limited teams that produce one-time outputs and include interdependent members who are highly specialized and have considerable expertise (Brown & Eisenhardt, 1995; Cohen & Bailey, 1997; Sundstrom, 1999). Studying knowledge workers is important, because they represent one of the most rapidly growing segments of the workforce (Choi & Varney, 1995; Janz et al., 1997) and are very likely to experience the current changes in the nature of work noted above: interdependence and frequent transitions within and between organizations.

THEORETICAL BACKGROUND AND HYPOTHESES

Pygmalion, Galatea, and Newcomer Socialization

Dov Eden's (1990, 1992) work on Pygmalion leadership style suggests that leaders' initial expectations of their subordinates influence subsequent subordinate motivation and performance through leadership processes. Acting in a manner that is consistent with the notion of self-fulfilling prophecy, the processes underlying the Pygmalion effect involve leader-follower interactions through which a leader communicates his or her expectations to a follower (for instance, through empowering the follower with more challenging work and developing

better work relationships with the follower). In turn, the follower eventually internalizes the leader's expectations and, consequently, becomes more motivated to meet the leader's expectations (thus fulfilling the leader's "prophecy"). Eden has further invoked the notion of the Galatea effect, which is a process in which employees' own performance expectations evoke a sense of confidence and intrinsic motivation, which drives employees to allocate more work-related effort that helps fulfill their own "prophecy" regarding their effectiveness. Thus, the Pygmalion and Galatea effects both involve the processes through which expectations impact performance, but the former is other-initiated, whereas the latter is self-initiated.

Although research has generally supported the Pygmalion and Galatea effects (Eden, 1992; McNatt, 2000), most research studying these effects has been conducted in military settings, has involved trainees or recruits, and has not addressed the processes mediating between expectations and performance. McNatt (2000) urged researchers to test the efficacy of the Pygmalion and Galatea effects in other organizational settings and to develop more integrative models involving expectations and organizational behavior. The present research helps fill these voids by integrating the Pygmalion and Galatea effects with a model of group socialization (Anderson & Thomas, 1996) and with theories of work motivation and interpersonal leadership, and by testing this integrative model in for-profit high-tech organizations.

The Pygmalion and Galatea effects are particularly prevalent during socialization periods, because expectations are formed fairly quickly during initial newcomer-team interactions (Liden, Wayne, & Stilwell, 1993) and, over time, these expectations and their consequences stabilize and become less malleable (Eden, 1990, 1992; Feldman, 1986). Moreover, the Pygmalion and Galatea effects are consistent with a model of work group socialization developed by Anderson and Thomas (1996). In line with models of newcomer socialization (e.g., Van Maanen & Schein, 1979) and Eden's work, Anderson and Thomas suggest a newcomer and a team mutually progress through three socialization phases. During the first phase, *anticipation*, the newcomer and the team form initial expectations of one another. In the second phase, *encounter*, newcomer and team expectations lead to mutual newcomer-team interactions and newcomer motivation. During the final phase, *adjustment*, the team and the newcomer adjust to each other, and stabilization of newcomer and team performance levels reflects this adjustment.

Role Performance

To capture newcomer effectiveness in team settings well, it is important to consider the various work-related roles newcomers are expected to fulfill in their teams. Murphy and Jackson defined work roles as “the total set of performance responsibilities associated with one’s employment” (1999: 335). Building on role theory and identity theory, Ilgen and Hollenbeck (1991) and Welbourne and her colleagues (1998) developed the concept of role performance. According to role theory (e.g., Graen & Scandura, 1987; Katz & Kahn, 1978), employees enact multiple work roles. According to identity theory (Burke, 1991; Thoits, 1992), a subset of work roles that are highly valued by both the organization and the employee should be included in measures of role performance. Thus, we conceptualize newcomer role performance as the extent to which newcomers effectively perform multiple work roles.

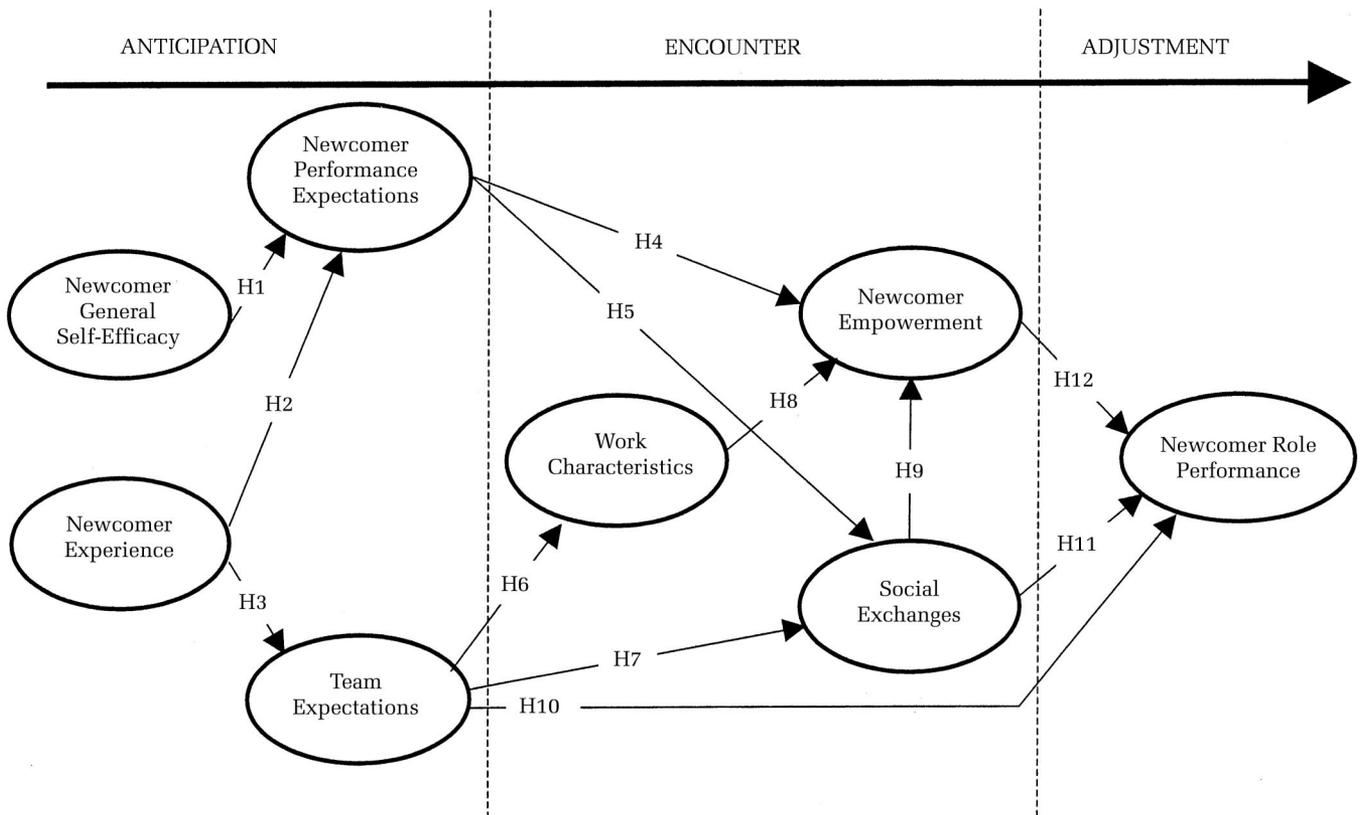
Welbourne and her coauthors developed and validated a multidimensional measure of role performance that includes five role domains (activities characteristic of a type of domain are noted in parentheses): (1) *job* (doing tasks specified in one’s job description), (2) *career* (obtaining the necessary

skills to progress through one’s organization and career), (3) *innovator* (coming up with creative and innovative ideas), (4) *team* (working well with other team members), and (5) *organization* (going above the call of duty in one’s concern for the firm). However, Welbourne et al. (1998) suggested adding a customer service role to their measure. Customer service is a particularly important role in project teams, which often work on developing products and/or providing services for internal or external customers. The five role domains identified by Welbourne et al. (1998), together with a customer service role domain, capture the work requirements of newcomers in project teams well (cf. Brown & Eisenhardt, 1995; Katz, 1997; Sundstrom, 1999).

A Model of Newcomer Role Performance

Figure 1 presents our hypothesized model of newcomer role performance, which is based on the work of Eden (1990, 1992) and of Anderson and Thomas (1996). We propose that newcomer general self-efficacy and experience account for newcomer and team expectations. In turn, these expectations positively predict newcomer role performance, at least in part through more proximal predictors of

FIGURE 1
Hypothesized Model of Relationships



newcomer performance—namely, the opportunity to perform work roles (captured by characteristics of work assigned to a newcomer), social exchanges between the newcomer and her or his team, and newcomer motivation (captured by newcomer empowerment).

Anticipation phase. Following the work of Eden (1990, 1992) and previous socialization research (e.g., Liden et al., 1993), we defined newcomer performance expectations as the extent to which newcomers expect to effectively perform various roles (that is, the job role, the team role, and so forth) in the context of their new work teams. In project teams, the leader and members share leadership functions (Zaccaro & Marks, 1999), and thus it is likely that teammates' expectations operate similarly to leader's expectations and that team leaders and teammates share their expectations of a newcomer. Thus, we combined leader and teammates expectations into a single construct, termed "team expectations of the newcomer" ("team expectations" hereafter), defined as the expectations a newcomer's team leader and teammates share regarding how effectively the newcomer will perform the various roles in their team.

General self-efficacy is a trait-like construct capturing "people's tendency to view themselves as capable of meeting task demands in a wide variety of situations" (Chen, Gully, Whiteman, & Kilcullen, 2000: 838). As individuals gain experience across different task domains, they tend to feel more efficacious in general and expect to be successful in various tasks (Chen, Gully, & Eden, 2001). Research by Chen and coauthors (Chen et al., 2000; Chen, Gully, & Eden, 2001) has differentiated between general self-efficacy and task-specific self-efficacy and expectations and shown that general self-efficacy strongly and positively predicts self-efficacy and performance expectations for a variety of occupational tasks, even when other individual differences are controlled for. Thus, we predicted:

Hypothesis 1. General self-efficacy positively influences newcomer performance expectations.

Work experience includes both *quantity* (amount) and *quality* (type and breadth) components (Tesluk & Jacobs, 1998). The present research focused on overall work-related experience, as opposed to specific aspects of experience, as overall experience may be the better predictor of newcomer and team expectations. Accruing positive experiences in a given work domain leads to higher performance expectations for that domain (Bandura, 1997). For instance, training researchers have found that work-related experience positively predicted pretraining performance expectations

(Mathieu & Martineau, 1997). Newcomer experience is also likely to predict team expectations, because experience is often associated with performance reputation (Gioia & Sims, 1983). Throughout early interactions during employee selection and during the first few days of employment, team leaders and members may become aware of a newcomer's experience and develop shared expectations about how well the newcomer can perform various work roles. Two hypotheses follow:

Hypothesis 2. Newcomer work-related experience positively influences newcomer performance expectations.

Hypothesis 3. Newcomer work-related experience positively influences team expectations.

Encounter phase. Capturing the encounter phase of socialization, we expected to find that newcomer and team expectations would affect the tasks assigned to a newcomer, the quality of social interactions between the newcomer and a team, and newcomer motivation. Borrowing from the job characteristics model (Hackman & Oldham, 1976), we conceptualized the work tasks assigned to a newcomer in terms of work characteristics. According to Hackman and Oldham, a job has a high "motivating potential" to the extent that it is high on skill variety, task identity, task significance, autonomy, and feedback. Likewise, we expected that, to the extent that the work assigned to newcomers is high on skill variety, task identity, task significance, autonomy, and feedback, it has the potential to motivate newcomers. Note that we differentiate between the characteristics of assigned work and psychological reactions to it (that is, newcomer empowerment [Liden et al., 2000; Thomas & Velthouse, 1990]).

Following research on leader-member exchange (e.g., Dansereau, Graen, & Haga, 1975; Dienesch & Liden, 1986; Graen & Scandura, 1987), coworker exchange (Sherony & Green, 2002), and team-member exchange (Seers, 1989; Seers, Petty, & Cashman, 1995), we defined social exchange as the quality of work-related exchanges between a newcomer and his or her teammates and team leader. High-quality social exchanges are characterized by high levels of mutual trust, respect, and loyalty. Newcomers' exchanges with their team leaders and with teammates are likely to be highly similar in project teams, given these teams are nonhierarchical and that teammates share leadership roles (Zaccaro & Marks, 1999). We focused on social exchanges perceived by a newcomer, as previous research has shown that employees' perceptions of such exchanges are likely to have powerful effects

on their motivation and attitudes (e.g., Gerstner & Day, 1997; Liden et al., 2000).

Finally, we expected newcomer-perceived level of empowerment to capture newcomer motivation. Thomas and Velthouse (1990) conceptualized empowerment as a multidimensional construct consisting of four motivational states: (1) impact (the degree to which an employee feels he or she affects an environment), (2) competence (perceived ability to accomplish work-related tasks), (3) meaningfulness (the worker's intrinsic caring about work tasks), and (4) choice (perceived self-determination or autonomy at work). These authors suggested that the four empowerment dimensions reflect self and task assessments that combine to form a motivational effect on the choice to engage and persist in work-related behavior.

With both the Galatea effect and the evidence that performance expectations influence motivation in mind, we hypothesized the following:

Hypothesis 4. Newcomer performance expectations positively influence newcomer empowerment.

This hypothesis is also consistent with cognitive models of motivation, which suggest performance expectations for particular tasks positively predict allocation of persistent task-related effort (Kanfer, 1990), and with the work of Thomas and Velthouse (1990), who suggested that employees who expect to be effective tend to interpret work experiences more positively, and hence feel more empowered. In addition, in team contexts, newcomers with higher performance expectations are more likely to develop good work relationships with their teams, as such relationships enable the newcomers to be more effective. Lending support for this argument, Liden and his colleagues (1993) found that initial newcomer performance expectations positively predicted the quality of subsequent leader-newcomer interactions. Therefore, we also hypothesized:

Hypothesis 5. Newcomer performance expectations positively influence social exchanges.

Given a Pygmalion effect (Eden, 1990, 1992), when team leaders and team members expect a newcomer to be effective, they are likely to assign work with higher motivating potential to the newcomer and develop better work relationships with the newcomer. Therefore,

Hypothesis 6. Team expectations positively influence work characteristics.

Hypothesis 7. Team expectations positively influence social exchanges.

In turn, work with higher motivating potential and a higher quality of social exchanges are likely to positively influence newcomer empowerment (Bauer & Green, 1996; Liden et al., 2000). In particular, the characteristics of work assigned to a newcomer and of social exchanges capture the underlying interpersonal processes through which team expectations affect newcomer empowerment (Eden, 1990, 1992). Thus,

Hypothesis 8. Work characteristics positively influence newcomer sense of empowerment.

Hypothesis 9. Social exchanges positively influence newcomer sense of empowerment.

Importantly, Hypotheses 4–9 directly integrate Eden's work on the Pygmalion and Galatea effects with theories of work motivation (job characteristics and empowerment) and interpersonal leadership (leader-member exchange and team-member exchange).

Adjustment phase. Newcomer role performance reflects the adjustment phase of socialization. Eden's (1990, 1992) work on the Pygmalion effect suggests that team expectations influence newcomer role performance only indirectly, through interpersonal and motivational processes. However, in the area of performance ratings, team expectations may also have a direct influence on team-perceived newcomer effectiveness, because expectations shape the cognitive processes through which raters attend to, encode, and retrieve performance-related information (DeNisi & Williams, 1988). Indeed, Feldman (1986) argued that expectations are likely to influence performance ratings both directly (via the cognitive processes underlying performance ratings) and indirectly (through interpersonal processes involving interactions between raters and ratees). Thus, we hypothesized this:

Hypothesis 10. Team expectations directly and positively influence newcomer role performance.

According to research on leader-member and team-member exchanges, newcomers who experience positive social exchanges are likely to receive more role-related information and support, which leads to feelings of greater empowerment and enables better work performance (e.g., Bauer & Green, 1996; Liden et al., 2000; Seers, 1989). Therefore:

Hypothesis 11. The quality of social exchanges between a newcomer and a team positively influences newcomer role performance.

Finally, empowerment is likely to positively affect newcomer role performance, because newcom-

ers who feel empowered are more likely to begin and persist in performing the various job roles (Liden et al., 2000; Thomas & Velthouse, 1990). Thus,

Hypothesis 12. Newcomer empowerment positively influences newcomer role performance.

METHODS

Sample

Three large high-tech organizations participated in return for information regarding the study's results. Preliminary interviews in the organizations confirmed that participating employees were knowledge workers from project teams working on developing and implementing new IT solutions and/or maintaining current IT systems. Each team worked in one geographic location, but the teams were dispersed throughout the United States. Owing to our survey's length and concerns about interfering with work demands, we collected data from one newcomer, one or two teammates, and the team leader in each team. However, we sampled the teammates most likely to interact closely and regularly with the newcomer. On average, team size was 8 members, and newcomers reported interacting 10 hours per week with their team leader and 13 hours per week with the teammates we sampled during the time of the study.

Surveys were sent over e-mail to 390 employees in 104 teams, and complete data were available from 70 work teams (a 67 percent response rate). Of the employees who responded, 70 were newcomers, 70 were team leaders, and 102 were teammates. Those providing complete data did not differ from those providing partial data on any demographic or substantive variable. Likewise, the 38 teams in which only 1 teammate provided data did not differ on any variable or relationship of interest from the 32 teams in which 2 teammates provided data, and no significant differences were detected among the three organizations. Sixty-two newcomers were new to both their work teams and organizations (they were new hires), and 8 were new to their teams, but not to their organizations (they were internal transfers). Among the respondents providing complete data, the average age was 39 years; 76 percent were men, 75 percent were Caucasian, 12 percent were African American, 5 percent were Asian, and 3 percent were Hispanic. Among the teammates and team leaders providing complete data, the average organizational tenure was 2 years, and the average team tenure was 1 year.

Design and Procedures

During interviews we conducted with IT employees, managers, and human resources specialists, we asked participants to indicate "how long would you say it has usually (on average) taken a new member to become a full team member?" (A full team member was defined as someone no longer considered new, but rather, as performing up to expectations and as "one of the gang"). Responses to this question indicated that the socialization period of newcomers in IT project teams normally lasts about two to three months. Therefore, we employed three data collection points to capture the three phases of newcomer integration (anticipation, encounter, and adjustment) within the first two to three months following newcomer entry to a team. The organizations provided us with the names and e-mail addresses of participants as soon as possible after newcomer entry to a team.

Because there is no specific theory about when each socialization period begins and ends, we made three data collections at about equal time intervals (corresponding to the three socialization periods). At time 1, on the average 21 days after newcomer entry, participants completed demographics measures and measures of performance expectations; also, leaders completed measures of newcomer type, staffing purpose, team size, and team performance, and newcomers completed measures of general self-efficacy and experience. At time 2, 21 days after time 1, teammates provided work characteristics ratings, and newcomers completed measures of social exchanges and empowerment. Finally, at time 3, 21 days after time 2, team leaders and teammates rated newcomer performance. When participants failed to complete a survey within two days, a reminder was sent; we sent up to five reminders, 48 hours apart. On the average, newcomer role performance was assessed 63 days after newcomer entry (range = 43–88).

Measures

Most of the constructs in Figure 1 (besides general self-efficacy) were conceptualized as aggregate multidimensional constructs (Edwards, 2001; Law, Wong, & Mobley, 1998), as their components combine to form them. Also, the internal consistency reliability of the multidimensional measures, when dimension scores were used as items, ranged from .63 to .95, suggesting the respective dimensions were consistent. Additionally, no different relationships were expected a priori with different dimensions of each multidimensional construct, and therefore it was more parsimonious to examine the

dimensions as components of single variables. Moreover, given high correlations among dimensions of the multidimensional constructs, examining the dimensions separately would have resulted in statistical problems such as multicollinearity. Therefore, we aggregated items from each multidimensional measure into a single variable and estimated their internal consistency reliability using Nunnally's (1978: Ch. 7, Equation 11) formula for the reliability of composites (see Edwards, 2001).

Role performance and performance expectations. Welbourne et al.'s (1998) 20-item Role-Based Performance Scale measured newcomer performance in the following role domains (examples of items appear in parentheses): task ("quantity of work output"), career ("making progress in his/her career"), innovator ("finding improved ways to do things"), team ("making sure his/her work team succeeds"), and organization ("doing things to promote the company"). Our interviews and Welbourne and colleagues suggested that a customer service role was missing from their measure. The customer service role was defined as "working with clients or customers internal or external to the organization toward the success of the project." Drawing on our interviews, we wrote four new items to capture the customer service role: "accurately anticipating customers' needs," "establishing excellent rapport with customers," "interacting professionally with customers," and "providing high-quality service to customers." Five IT team leaders and project managers confirmed that the 24 role performance items captured the content domain of newcomer role performance in the context of project teams well. Teammates and team leaders rated the performance of newcomers on each of the 24 role performance items (1 = "needs much improvement"; 5 = "excellent"), and their responses were aggregated and then averaged into a single scale ($\alpha = .99$).

The same 24 items were used to measure newcomer performance expectations and team expectations. Newcomers, teammates, and team leaders were asked to "rate how confident you are that [you, if newcomer, and 'newcomer name,' if team leader or member] will successfully accomplish each of the following outcomes and activities while working as a part of your current work team" (1 = "not at all confident"; 5 = "extremely confident"). Teammates' and team leaders' average responses were aggregated to the team level and then averaged into a single scale ($\alpha = .98$). We also averaged newcomers' responses to form a single scale ($\alpha = .97$). Confirmatory factor analyses indicated that the team expectations and newcomer role performance measures captured two distinct constructs.

(Results from these analyses are available upon request from the first author.)

Empowerment. We measured empowerment using Spreitzer's (1995) 12-item scale, which taps meaningfulness (for example, "The work I do is very important to me"), competence ("I am confident about my ability to do my job"), choice ("I can decide on my own how to go about my work"), and impact ("My impact on what happens in my work team is large") (1 = "strongly disagree"; 5 = "strongly agree"). We slightly modified the three impact items to refer to "my work team" rather than "my department." The 12 items were averaged into a single empowerment scale ($\alpha = .92$).

Social exchanges. We measured social exchanges using an eight-item leader-member exchange measure developed by Scandura and Graen (1984) and later modified by Bauer and Green (1996). A sample item is "I would characterize the working relationship I have with [name of team member] as extremely effective" (1 = "strongly disagree"; 5 = "strongly agree"). Each newcomer rated the quality of exchanges with his or her team leader and with one or two teammates separately, and we averaged the ratings into a single social exchange score ($\alpha = .96$).

Work characteristics. We adapted the Revised Job Diagnostic Survey (Idaszak & Drasgow, 1987) to measure work characteristics. Teammates were asked to characterize the specific work assigned to a focal newcomer; two sample items are "included complex and variable tasks" and "could impact others in very important ways" (1 = "strongly disagree"; 5 = "strongly agree"). We used teammates' ratings to reduce common-source bias. We averaged teammates responses within each team and then averaged items to form a single work characteristics scale ($\alpha = .94$).

Experience. Drawing on the interviews conducted with IT team members, team leaders, and human resources managers, we developed a ten-item measure of the work-related experience of employees in IT project teams, designing it to capture both the quantity (for instance, an individual's number of years in the IT industry) and the quality (for instance, the percentage of projects worked on that required interactions with teammates) of experience (cf. Tesluk & Jacobs, 1998). The Appendix gives the items of this scale. A different sample of project managers and team leaders confirmed the items were a good measure of important aspects of IT work experience. An exploratory factor analysis indicated that a two-factor solution best captured the items, accounting for 48 percent of total item variance. The first factor captured experience quantity (amount of experience; items 1–5), whereas the

second factor captured experience quality (types of experiences; items 6–10). Because the two factors correlated significantly ($r = .43, p < .05$) and our focus was overall experience, we standardized and then averaged the ten items into a single work experience composite ($\alpha = .77$).

General self-efficacy. General self-efficacy was measured with the eight-item New General Self-Efficacy Scale (Chen, Gully, & Eden, 2001; $\alpha = .87$). A sample item is “I am confident that I can perform effectively on many different tasks” (1 = “strongly disagree”; 5 = “strongly agree”). Chen and his co-authors (2000; Chen, Gully, & Eden, 2001) found this scale to be internally consistent, stable over time, and valid.

Control variables. Additional newcomer and team characteristics were measured as control variables. First, we measured newcomer age, because older employees may find it more difficult to develop new skills and may be less adaptable (Maurer, 2001). Second, we measured newcomer gender, given that the IT industry has been dominated by male knowledge workers, which may make it harder for female newcomers to adjust effectively (Deborah Eden, 1992). Third, because the total socialization period captured in this study differed across newcomers, owing to differences in the time interval between newcomer entry and time 1 measurement, it was important to control for newcomer tenure on a team. We therefore measured tenure as the number of days between newcomer entry and role performance measurement. Fourth, we controlled for newcomer type (1 = “new hire” [new to both the team and the organization]; 2 = “transfer” [new to the team but not the organization]), as previous research suggests socialization experiences differ for different types of newcomers (e.g., Chao et al., 1994). Fifth, we controlled for staffing purpose (1 = “replacement”; 2 = “new addition”), because our preliminary interviews revealed that teams usually acquire newcomers to meet either replacement or expansion needs, which may affect socialization processes and experiences. Finally, we controlled for team size and initial team performance, because Anderson and Thomas (1996) suggested such team characteristics could impact socialization processes in teams. For instance, team size and team performance can determine the amount of external and internal resources available for a team, and team performance can reflect team productivity norms. Team leaders rated team performance using an 11-item scale developed by Campion, Papper, and Medsker (1996); a sample item is “productivity/quantity of work done” (1 = “needs much improvement”; 5 = “excellent”; $\alpha = .95$).

Aggregation Issues

All constructs shown in Figure 1 except team expectations were conceptualized at the individual level. Team expectations were conceptualized as a shared team-level construct, and thus teammates’ and team leaders’ expectations were aggregated to the team level. Also, multiple ratings were aggregated to measure work characteristics, social exchanges, and newcomer role performance, even though these constructs were conceptualized at the individual level. To justify the aggregations, we based a calculation of interrater agreement/consensus ($r_{wg(j)}$) on a uniform expected variance distribution (James, Demaree, & Wolf, 1984). We also calculated two intraclass correlations—ICC(1) and ICC(2)—and conducted an F -test for the ICC(1), which captures interrater reliability/consistency. Specifically, ICC(1) indicates whether raters/team members are replaceable, or the amount of variance in ratings accounted for by team membership, whereas ICC(2) indicates the aggregate variables’ stability, or whether average ratings in teams help differentiate between teams (Bliese, 2000). Average interrater agreement was above the .70 benchmark proposed by James et al. (1984) for team expectations (.98), work characteristics (.97), social exchanges (.96), and newcomer role performance (.90). ICC(1) and ICC(2) values were .13 and .27 for team expectations ($F = 1.36, p = .08$), .41 and .50 for work characteristics ($F = 2.00, p < .05$), .50 and .73 for social exchanges ($F = 3.64, p < .05$), and .24 and .43 for newcomer role performance ($F = 1.77, p < .05$), all of which are consistent with values usually obtained in team research conducted in field settings (Bliese, 2000).

RESULTS

Descriptive statistics and intercorrelations are provided in Table 1 (more detailed results are available upon request). Although the correlations were generally consistent with our expectations, the relationships between (1) newcomer experience and newcomer performance expectations, (2) team expectations and social exchanges, and (3) social exchanges and newcomer role performance, though in the expected direction, were not statistically significant.

Several significant relationships involving control variables were detected. First, male newcomers had higher levels of experience, expected to perform better, reported a higher quality of social exchanges, and felt more empowered than female newcomers. Second, new hires had lower performance expectations but were assigned more chal-

TABLE 1
Descriptive Statistics, Reliability Coefficients, and Correlations^a

Variable	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Age, time 1, newcomer-provided	36.45	9.56															
2. Gender, time 1, newcomer-provided ^b	1.76	0.43	.06														
3. Newcomer tenure in team ^c	62.91	9.31	.30*	.12													
4. Newcomer type, time 1, leader-provided ^d	1.11	0.32	-.06	.10	-.28*												
5. Staffing purpose, time 1, leader-provided ^e	1.57	0.50	.04	.25*	.14	.22											
6. Team size, time 1, leader-provided	7.67	3.36	.07	-.02	-.03	-.12	.09										
7. Team performance, time 1, leader-provided	4.10	0.80	.03	-.12	.02	-.04	-.07	-.04	(.95)								
8. General self-efficacy, time 1, newcomer-provided	4.46	0.40	.04	.09	.03	-.11	-.04	.09	-.26*	(.88)							
9. Experience, time 1, newcomer-provided	0.03	0.57	-.06	.32*	.02	.18	.42*	-.03	.01	.01	(.77) ^f						
10. Newcomer expectations, time 1, newcomer-provided	4.45	0.44	.07	.35*	.13	-.29*	-.03	.13	-.18	.50*	.10	(.97) ^f					
11. Team expectations, time 1, teammate- and leader-provided	4.16	0.40	.00	.16	.02	.18	.10	-.06	.18	-.05	.25*	-.08	(.98) ^f				
12. Work characteristics, time 2, teammate-provided	3.88	0.45	-.14	.15	-.06	.24*	.30*	.01	-.02	-.01	.14	-.03	.39*	(.94) ^e			
13. Social exchanges, time 2, newcomer-provided	3.91	0.53	.06	.39*	.15	-.08	.13	.03	-.10	.37*	.18	.48*	.19	.16	(.96) ^f		
14. Empowerment, time 2, newcomer-provided	4.14	0.43	.10	.27*	.03	-.02	.16	.19	-.03	.44*	.13	.54*	.09	.29*	.51*	(.92) ^f	
15. Role performance, time 3, teammate- and leader-provided	3.79	0.60	.11	.21	-.04	.02	-.01	.03	.41*	-.01	.14	.07	.63*	.30*	.17	.31*	(.99) ^f

^a $n = 70$. Internal consistency reliability coefficients (alphas) appear on the diagonal.

^b 1 = female, 2 = male.

^c Number of days between newcomer entry to team and role performance measurement.

^d 1 = new hire, 2 = transfer.

^e 1 = replacement, 2 = new addition.

^f Composite reliability (Nunnally, 1978).

lenging work than were transfer employees. Third, “new addition” newcomers had higher experience and were assigned with more challenging work than “replacement” newcomers. Finally, team performance positively predicted newcomer role performance.

Hierarchical Regression Results

To test the hypotheses, we conducted a series of hierarchical regression analyses. First, we tested whether variables hypothesized to have direct effects (entered into the equation at a second step) had predictive power over and above that of the control variables and variables expected to have only indirect effects (entered into the equation at a first step). To balance between statistical control validity and internal validity, we only included in these analyses control variables found to have significant bivariate relationships with the respective dependent variables. Note that indirect predictors were only available for analyses involving dependent variables in the encounter and adjustment phases. Second, we reversed the order of variable entry, to test whether control variables and variables expected to have indirect effects had predictive ability over and above that of the hypothesized predictors.

Table 2 summarizes results involving outcomes of the anticipation phase. As expected, newcomer general self-efficacy positively predicted newcomer performance expectations (Hypothesis 1), and newcomer experience positively predicted

team expectations (Hypothesis 3), even when we accounted for the control variables. Unexpectedly, newcomer experience did not significantly predict newcomer performance expectations (Hypothesis 2). Also, newcomer gender and type predicted newcomer performance expectations over and above newcomer general self-efficacy and experience.

Results involving encounter phase outcomes are shown in Table 3. As hypothesized, newcomer performance expectations positively predicted newcomer empowerment (Hypothesis 4) and social exchanges (Hypothesis 5); team expectations positively predicted work characteristics (Hypothesis 6) and social exchanges (Hypothesis 7); and work characteristics and social exchanges positively predicted newcomer empowerment (Hypotheses 8 and 9, respectively). However, controlling for the effects of control variables and indirect predictors, we determined that the influence of team expectations on social exchanges was only marginally significant ($p < .10$). Removing the effects of control variables and indirect predictors did not change the significance of any other hypothesized predictors. In addition, when the hypothesized (direct) predictors were controlled, staffing purpose significantly predicted work characteristics; newcomer gender marginally predicted social exchanges; and general self-efficacy marginally predicted social exchanges and newcomer empowerment.

Table 4 summarizes results involving newcomer role performance (that is, results from the adjustment phase). Supporting Hypotheses 10 and 12, respectively, team expectations and newcomer empowerment positively predicted newcomer role performance, even when we added control variables and indirect predictors. However, failing to support Hypothesis 11, social exchanges did not significantly predict newcomer role performance. Finally, team performance was found to positively predict newcomer role performance over and above the hypothesized predictors. In sum, the hypothesized model of relationships was strongly supported, as 10 of the 12 hypothesized paths were found to be statistically significant.

Structural Equation Modeling Results

To test the overall fit of the hypothesized model, we tested it using LISREL 8 (Jöreskog & Sörbom, 1993). We also tested whether a more parsimonious model, in which we dropped the paths from newcomer experience to newcomer performance expectations and from social exchanges to newcomer role performance (which were found to be nonsignificant), would fit the data as well as the hypothesized model. In these analyses, we used scale scores as

TABLE 2
Results of Hierarchical Regression Analyses
Predicting Anticipation Outcomes^a

Step and Variables	β	R^2	ΔR^2	ΔF
Newcomer performance expectations				
1. Newcomer gender	.39*			
Newcomer type	-.33*	.23	.23	10.15*
2. Newcomer general self-efficacy	.44*			
Newcomer experience	.04	.42	.19	10.58*
Newcomer performance expectations				
1. Newcomer general self-efficacy	.50*			
Newcomer experience	.09	.26	.26	11.52*
2. Newcomer gender	.33*			
Newcomer type	-.28*	.42	.16	9.26*
Team expectations				
1. Newcomer experience	.25*	.06	.06	4.39*

^a $n = 70$.

* $p < .05$

Two-tailed tests

TABLE 3
Results of Hierarchical Regression Analyses
Predicting Encounter Outcomes^a

Step and Variables	β	R^2	ΔR^2	ΔF
Work characteristics				
1. Newcomer type	.19			
Staffing purpose	.26*			
Newcomer experience	.00	.12	.12	3.12*
2. Team expectations	.36*	.24	.12	10.35*
Work characteristics				
1. Team expectations	.39*	.15	.15	12.22*
2. Newcomer type	.14			
Staffing purpose	.28*			
Newcomer experience	-.09	.24	.09	2.64 [†]
Social exchanges				
1. Newcomer gender	.33*			
Newcomer general self-efficacy	.34*			
Newcomer experience	.07	.27	.27	7.98*
2. Newcomer performance expectations	.32*			
Team expectations	.19 [†]	.35	.09	4.35*
Social exchanges				
1. Newcomer performance expectations	.50*			
Team expectations	.24*	.29	.29	13.63*
2. Newcomer gender	.21 [†]			
Newcomer general self-efficacy	.20 [†]			
Newcomer experience	.03	.35	.06	2.14
Newcomer empowerment				
1. Newcomer gender	.21*			
Newcomer general self-efficacy	.43*			
Newcomer experience	.04			
Team expectations	.06	.26	.26	5.63*
2. Newcomer performance expectations	.34*			
Work characteristics	.28*			
Social exchanges	.23*	.47	.21	8.16*
Newcomer empowerment				
1. Newcomer performance expectations	.43*			
Work characteristics	.27*			
Social exchanges	.26*	.44	.44	17.29*
2. Newcomer gender	.00			
Newcomer general self-efficacy	.19 [†]			
Newcomer experience	.02			
Team expectations	-.03	.47	.03	0.80

^a $n = 70$.
[†] $p < .10$
* $p < .05$
Two-tailed tests

single indicators of the respective constructs and corrected for measurement error by fixing the factor loadings and error variances using the internal consistency reliabilities and variances of the measures

TABLE 4
Results of Hierarchical Regression Analyses
Predicting Adjustment Outcomes^a

Step and Variables	β	R^2	ΔR^2	ΔF
Newcomer role performance				
1. Team performance	.44*			
Newcomer general self-efficacy	.02			
Newcomer experience	.09			
Newcomer performance expectations	.12			
Work characteristics	.31*	.30	.30	5.28*
2. Team expectations	.57*			
Social exchanges	-.09			
Newcomer empowerment	.28*	.57	.27	12.58*
Newcomer role performance				
1. Team expectations	.63*			
Social exchanges	-.13			
Newcomer empowerment	.31*	.47	.47	19.41*
2. Team performance	.31*			
Newcomer general self-efficacy	-.05			
Newcomer experience	-.03			
Newcomer performance expectations	.07			
Work characteristics	.03	.57	.10	2.64*

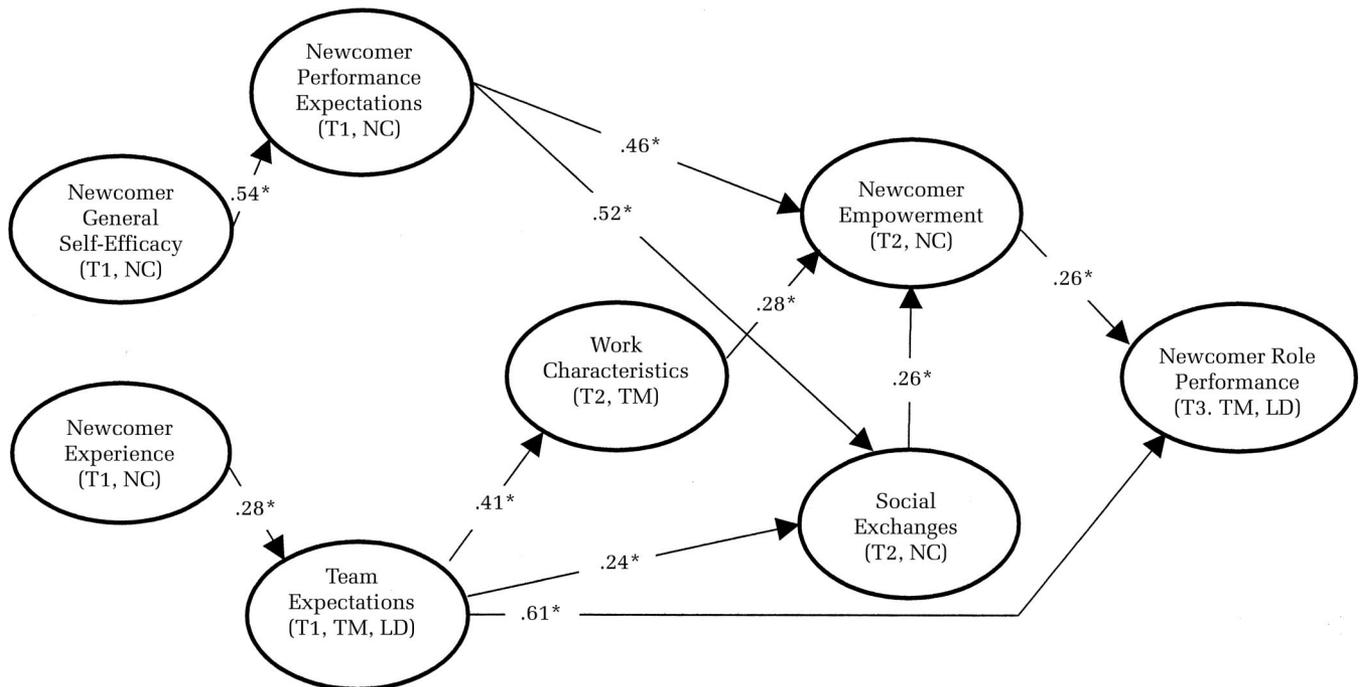
^a $n = 70$.
* $p < .05$
Two-tailed tests

(see Netemeyer, Johnston, & Burton, 1990). The small sample made it impossible to include control variables in the LISREL analyses. The hypothesized model fit the data well ($\chi^2 [15, n = 70] = 9.23$, SRMR = .05, CFI = 1.00). However, the more parsimonious model also fit the data quite well ($\chi^2 [17, n = 70] = 11.43$, SRMR = .06, CFI = 1.00), and a chi-square difference test indicated the hypothesized model did not fit the data better than the more parsimonious model ($\Delta\chi^2 [2, n = 70] = 2.20, p > .05$). Thus, we retained the more parsimonious model as the final model. Standardized path coefficients from the final model are shown in Figure 2. The LISREL parameter estimates closely matched the parameter estimates from the hierarchical regression analyses, supporting the same ten hypothesized paths.

DISCUSSION

The results of our analyses supported most of the hypothesized relationships, even when we controlled for various newcomer and team characteristics, suggesting that both motivational and interpersonal processes are proximal predictors of newcomer effectiveness in team settings.

FIGURE 2
Standardized Path Coefficients from Final Model of Relationships^a



^a $n = 70$. T1 = data provided at time 1; T2 = data provided at time 2; T3 = data provided at time 3. NC = data provided by newcomers; TM = data provided by teammates; LD = data provided by team leaders.

* $p < .05$, two-tailed test

Theoretical Contributions

Two major limitations of previous work on the Pygmalion and Galatea effects have been the lack of examination of the mediating processes linking expectations and performance, and limited external validity. Integrating Pygmalion and Galatea research with theories of interpersonal leadership and work motivation, our research has shed light on the interpersonal and motivational processes triggered by newcomer and team expectations. In particular, our findings suggest that work characteristics, social exchanges, and newcomer empowerment help explain the effects of expectations on newcomer effectiveness. Moreover, newcomer performance expectations were shown here to be based primarily on general self-efficacy, whereas team expectations were based mostly on newcomer experience, suggesting that newcomer general self-efficacy relates to newcomer effectiveness mainly through motivational processes, whereas newcomer experience relates to newcomer effectiveness primarily through interpersonal processes. Further, our finding that leaders and teammates had shared expectations of newcomers and that most of the theoretical relationships held for civilian project teams extends the social-psychological

boundaries and external validity of Pygmalion and Galatea research.

Interestingly, initial team expectations related more strongly to subsequent newcomer performance than to subsequent interpersonal processes and newcomer motivation. This suggests that the cognitive processes (such as the storage and retrieval of information related to ratee behavior) linking team expectations to performance ratings are stronger than the interpersonal processes linking team expectations to performance ratings. Unfortunately, it is not possible to accurately determine the extent to which the strong relationship between team expectations and newcomer performance was due to common method variance, halo error, or actual cognitive processes (cf. Feldman, 1986). Thus, it seems safe to conclude that team expectations lead to subsequent ratings of newcomer performance through both interpersonal and cognitive processes.

Redressing the paucity of research on newcomer socialization in team settings, we showed that it is important to consider interpersonal and motivational processes, as well as team-level factors (such as initial team expectations and performance), when trying to model newcomer effectiveness in

work teams. Moreover, our research highlights the importance of explicitly considering how long the socialization process takes. Our preliminary interviews revealed that newcomers in IT project teams are expected to “get up to speed” within about two to three months, a period that is substantially shorter than the periods examined in the majority of previous newcomer socialization research (see Bauer et al., 1998). Indeed, if organizations (particularly high-tech firms) are to fully utilize the potential of their newcomers, they need to ensure that the newcomers reach acceptable levels of performance as early as possible.

Unexpectedly, experience did not significantly predict newcomer performance expectations. Although higher experience is believed to positively predict performance expectations (Bandura, 1997), given that we focused on job changers in relatively low-level positions, it is also possible that those who had more experience and were still “stuck” in entry-level positions had lower performance expectations. A second unexpected result, which is inconsistent with Liden and colleagues’ (2000) findings, involved the relationship between social exchanges and newcomer role performance. However, the present research examined a more comprehensive performance criterion than Liden et al.’s research, and it could be that empowerment better matches comprehensive performance criteria than specific performance criteria (see Chen, Casper, & Cortina, 2001). Also, we used a longitudinal design, whereas Liden and his coauthors employed a cross-sectional design. It could be that the effects of empowerment on performance need time to unfold. Finally, although both studies examined knowledge workers, we examined newcomers, whereas Liden et al. examined tenured employees. Thus, it is possible that the processes examined in the present study are somewhat different from processes involving employees who have worked longer for a given firm (cf. Feldman, 1986). Given that two hypothesized paths were not supported, we strongly encourage researchers to further test and validate the final model adapted in this study.

Practical Contributions

Results provide important implications for the management of newcomers in general and knowledge workers in particular. First, recruitment and socialization practices should include attempts to increase newcomers’ performance expectations. Newcomers’ performance expectations can be boosted using several tactics, including exposing newcomers to early successes at work, setting challenging and specific goals for them early on, and

modeling positive role behaviors to newcomers in recruitment programs (Bandura, 1997; Eden, 1990). The finding that female newcomers had lower performance expectations than male newcomers suggests interventions directed at boosting performance expectations are likely to have particularly high utility among female newcomers. Our results also suggest that selecting applicants with higher general self-efficacy, as well as those who are new to a team and an organization (that is, new hires), yields newcomers who tend to have higher performance expectations.

Results also suggest that newcomer empowerment plays a key role in knowledge workers’ performance, and that organizations can empower knowledge workers by raising their performance expectations, assigning them tasks with higher motivating potential, and ensuring their teams encourage and support them. Additionally, results suggested that increasing team expectations could increase newcomer effectiveness. However, as Eden and his colleagues (2000) showed, programs attempting to directly boost team expectations may not be very effective, because the Pygmalion effect appears to be less potent when managers consciously raise their expectations of subordinates. Thus, rather than explicitly instructing managers and teammates to expect more of newcomers, organizations could utilize factors that naturally influence team expectations. For instance, the present research indicates that hiring more experienced employees is likely to result in higher team expectations. Further, Eden (1990) suggested that managers and coworkers are likely to expect more of newcomers when their organization establishes strong climate for productivity and achievement.

Limitations and Directions for Future Research

First, the relatively small sample in this research lowered the power to detect significant relationships. Still, results supported most hypothesized relationships. Moreover, our sample was larger than the average sample reported by Cohen and Bailey (1997) for work teams research in general (average $n = 65$) and for project teams research in particular (average $n = 45$). Second, although several of the findings could apply to different types of teams (including production, management, and action teams), some results may generalize better to project teams than to other types. Third, collecting the expectations measures following newcomer entry was not ideal; it would have been preferable to collect them prior to newcomer entry. However, we found no significant relationships associated with

newcomer tenure on a team, suggesting that data collected closer to newcomer entry were not different from data collected later on. This finding (that is, an absence of findings) is consistent with research suggesting that performance expectations are formed rather quickly during socialization (e.g., Liden, Wayne, & Stilwell, 1993), and that expectations and their effects tend to stabilize after they are formed (Eden, 1990; Feldman, 1986). Thus, the evidence we have suggests collecting the anticipation data following newcomer entry did not severely bias our findings.

Fourth, although measures were collected from different sources and at different times, some results may have been influenced by common method bias. In particular, common method bias could have inflated the influence of team expectations on newcomer role performance. Future research should examine more objective performance criteria. Finally, strong inferences of causality cannot be drawn from this research, because an observational research design was employed. However, the internal validity of this research was higher than that of most research employing observational designs, given the longitudinal design and replication of previous experimental research (cf. Eden, 1992).

The extent to which our findings generalize to different work teams should be examined. For example, although empowerment seems to contribute positively to effective integration of knowledge workers in project teams, empowering new employees in production teams may result in cognitive overload and increase the rate of accidents. Moreover, newcomers in other types of teams (management or production teams, for example), where the socialization process is usually longer than it is in project teams, may take longer than two or three months to learn to perform up to expectations. In addition, researchers should examine whether our findings generalize to different types of newcomers. Although we found only a few differences between those who were new to both their team and the focal organization, and those who were new only to their team, previous research has indicated that different types of newcomers may adjust differently (e.g., Chao, O'Leary-Kelly, Wolf, Klein, & Gardner, 1994). Such research could enable practitioners to tailor different human resources and managerial practices to different types of teams and newcomers.

Finally, the present research could be extended by examining more dynamic models of newcomer processes and effectiveness (cf. Chan & Schmitt,

2000). For instance, it is possible that both initial levels of newcomer empowerment and changes in it over time uniquely predict initial levels of newcomer role performance, as well as the rate by which it improves over time. It is also important to examine the consequences of initial levels of and changes over time in newcomer performance. For example, irrespective of initial levels of newcomer performance, newcomers who more quickly improve their performance over time may also have an impact on their work teams' effectiveness. Such research could substantially improve understanding of the dynamic processes through which newcomer effectiveness evolves and exerts its influences on the broader social systems in which newcomers work.

REFERENCES

- Anderson, N., & Thomas, H. D. C. 1996. Work group socialization. In M. A. West (Ed.), *Handbook of work group psychology*: 423–450. Chichester, England: Wiley.
- Bandura, A. 1997. *Self-efficacy: The exercise of control*. New York: Freeman.
- Bauer, T. N., & Green, S. G. 1996. Development of leader-member exchange: A longitudinal test. *Academy of Management Journal*, 39: 1538–1567.
- Bauer, T. N., Morrison, E. W., & Callister, R. R. 1998. Organizational socialization: A review and directions for future research. In G. R. Ferris (Ed.), *Research in personnel and human resources management*, vol. 16: 149–214. Greenwich, CT: JAI Press.
- Bliese, P. D. 2000. Within-group agreement, non-independence, and reliability: Implications for data aggregation and analyses. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions*: 349–381. San Francisco: Jossey-Bass.
- Brown, S. L., & Eisenhardt, K. M. 1995. Product development: Past research, present findings, and future directions. *Academy of Management Review*, 20: 343–378.
- Burke, P. J. 1991. Identity process and social stress. *American Sociological Review*, 56: 836–849.
- Campion, M. A., Papper, E. M., & Medsker, G. J. 1996. Relations between work team characteristics and effectiveness: A replication and extension. *Personnel Psychology*, 49: 429–452.
- Chan, D., & Schmitt, N. 2000. Interindividual differences in intraindividual changes in proactivity during organizational entry: A latent growth modeling approach to understanding newcomer adaptation. *Journal of Applied Psychology*, 85: 190–210.

- Chao, G. T., O'Leary-Kelly, A. M., Wolf, S., Klein, H. J., & Gardner, P. D. 1994. Organizational socialization: Its content and consequences. *Journal of Applied Psychology*, 79: 730–743.
- Chen, G., Casper, W. J., & Cortina, J. M. 2001. The roles of self-efficacy and task complexity in the relationships among cognitive ability, conscientiousness, and task performance: A meta-analytic examination. *Human Performance*, 14: 209–230.
- Chen, G., Gully, S. M., & Eden, D. 2001. Validation of a new general self-efficacy scale. *Organizational Research Methods*, 4: 62–83.
- Chen, G., Gully, S. M., Whiteman, J., & Kilcullen, R. N. 2000. Examination of relationships among trait-like individual differences, state-like individual differences, and learning performance. *Journal of Applied Psychology*, 85: 835–847.
- Choi, T. Y., & Varney, G. H. 1995. Rethinking the knowledge workers: Where have all the workers gone? *Organizational Development Journal*, 13(2): 41–50.
- Cohen, S. G., & Bailey, D. E. 1997. What makes teams work: Group effectiveness research from the shop floor to the executive suite. *Journal of Management*, 23: 239–29.
- Dansereau, F., Graen, G., & Haga, W. J. 1975. A vertical dyad linkage approach to leadership within formal organizations. *Organizational Behavior and Human Performance*, 13: 46–78.
- DeMarco, T. 1996. Human capital, unmasked. *New York Times*, April 14: F13.
- DeNisi, A. S., & Williams, K. J. 1988. Cognitive approaches to performance appraisal. In G. R. Ferris & K. M. Rowland (Eds.), *Research in personnel and human resources management*, vol. 6: 109–155. Greenwich, CT: JAI Press.
- Dienesch, R. M., & Liden, R. C. 1986. Leader-member exchange model of leadership: A critique and further development. *Academy of Management Review*, 11: 618–634.
- Eden, Deborah. 1992. Female engineers: Their career socialization into a male-dominated occupation. *Urban Education*, 27: 174–195.
- Eden, Dov. 1990. *Pygmalion in management: Productivity as a self-fulfilling prophecy*. Lexington, MA: Lexington Books.
- Eden, Dov. 1992. Leadership and expectations: Pygmalion effects and other self-fulfilling prophecies in organizations. *Leadership Quarterly*, 3: 271–305.
- Eden, Dov, Geller, D., Gewirtz, A., Gordon-Terner, R., Inbar, I., Liberman, M., Pass, Y., Salomon-Segev, I., & Shalit, M. 2000. Implanting Pygmalion leadership style through workshop training: Seven field experiments. *Leadership Quarterly*, 11: 171–21.
- Edwards, J. R. 2001. Multidimensional constructs in organizational behavior research: An integrative analytical framework. *Organizational Research Methods*, 4: 144–192.
- Feldman, J. M. 1986. A note on the statistical correction of halo error. *Journal of Applied Psychology*, 71: 173–176.
- Fried, Y., & Ferris, G. R. 1987. The validity of the job characteristics model: A review and meta-analysis. *Personnel Psychology*, 40: 287–322.
- Gerstner, C. R., & Day, D. V. 1997. Meta-analytic review of leader-member exchange theory: Correlates and construct issues. *Journal of Applied Psychology*, 82: 827–844.
- Gioia, D. A., & Sims, H. P. 1983. Perceptions of managerial power as a consequences of managerial behavior and reputation. *Journal of Management*, 9(1): 7–26.
- Graen, G. B., & Scandura, T. A. 1987. Towards a psychology of dyadic organizing. In L. L. Cummings & B. M. Staw (Eds.), *Research in organizational behavior*, vol. 9: 175–208. Greenwich, CT: JAI Press.
- Hackman, J. R., & Oldham, G. R. 1976. Motivation through the design of work: Test of a theory. *Organizational Behavior and Human Performance*, 16: 250–279.
- Hall, D. T. 1996. Protean careers of the 21st century. *Academy of Management Executive*, 10(4): 8–16.
- Idaszak, J. R., & Drasgow, F. 1987. A revision of the Job Diagnostic Survey: Elimination of a measurement artifact. *Journal of Applied Psychology*, 72: 69–74.
- Ilgel, D. R., & Hollenbeck, J. R. 1991. The structure of work: Jobs and roles. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (2nd ed.), vol. 2: 165–208. Palo Alto, CA: Consulting Psychologists Press.
- James, L. R., Demaree, R. G., & Wolf, G. 1984. Estimating within-group interrater reliability with and without response bias. *Journal of Applied Psychology*, 69: 85–98.
- Janz, B. D., Colquitt, J. A., & Noe, R. A. 1997. Knowledge worker team effectiveness: The role of autonomy, interdependence, team development, and contextual support variables. *Personnel Psychology*, 50: 877–904.
- Joreskog, K., & Sorbom, D. 1993. *LISREL 8: Structural equation modeling with the SIMPLIS command language*. Hillsdale, NJ: Erlbaum.
- Kanfer, R. 1990. Motivation theory and industrial and organizational psychology. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (2nd ed.), vol. 1: 75–170. Palo Alto, CA: Consulting Psychologists Press.
- Katz, D., & Kahn, R. L. 1978. *The social psychology of organizations*. New York: Wiley.

- Katz, R. 1997. Organizational socialization and the reduction of uncertainty. In R. Katz (Ed.), *The human side of managing technological innovation: A collection of readings*: 25–38. New York: Oxford University Press.
- Kozlowski, S. W. J., & Bell, B. S. 2003. Work groups and teams in organizations. In W. C. Borman, D. R. Ilgen, & R. J. Klimoski (Eds.), *Comprehensive handbook of psychology*, vol. 12—Industrial and organizational psychology: 333–375. New York: Wiley.
- Law, K. S., Wong, C. S., & Mobley, W. H. 1998. Toward a taxonomy of multidimensional constructs. *Academy of Management Review*, 23: 741–755.
- Liden, R. C., Wayne, S. J., & Sparrow, R. T. 2000. An examination of the mediating role of psychological empowerment on the relations between the job, interpersonal relationships, and work outcomes. *Journal of Applied Psychology*, 85: 407–416.
- Liden, R. C., Wayne, S. J., & Stilwell, D. 1993. A longitudinal study on the early development of leader-member exchanges. *Journal of Applied Psychology*, 78: 662–674.
- Mathieu, J. E., & Martineau, J. W. 1997. Individual and situational influences in training motivation. In J. K. Ford & Associates (Eds.), *Improving training effectiveness in work organizations*: 193–222. Mahwah, NJ: Erlbaum.
- Maurer, T. J. 2001. Career-relevant learning and development, worker age, and beliefs about self-efficacy for development. *Journal of Management*, 27: 123–140.
- McNatt, B. D. 2000. Ancient Pygmalion joins contemporary management: A meta-analysis of the result. *Journal of Applied Psychology*, 85: 314–322.
- Moreland, R. L., & Levine, J. M. 1982. Group socialization: Temporal changes in individual-group relations. In L. Berkowitz (Ed.), *Advances in experimental social psychology*, vol. 15: 137–192. New York: Academic.
- Morrison, E. 1993. Longitudinal study of the effects of information seeking on newcomer socialization. *Journal of Applied Psychology*, 78: 173–183.
- Murphy, P. R., & Jackson, S. E. 1999. Managing work role performance: Challenges for twenty-first-century organizations and their employees. In D. R. Ilgen & E. D. Pulakos (Eds.), *The changing nature of performance: Implications for staffing, motivation, and development*: 325–365. San Francisco: Jossey-Bass.
- Netemeyer, R. G., Johnston, M. W., & Burton, S. 1990. Analysis of role conflict and role ambiguity in a structural equations framework. *Journal of Applied Psychology*, 75: 148–157.
- Nunnally, J. C. 1978. *Psychometric theory* (2nd ed.). New York: McGraw-Hill.
- Ostroff, C., & Kozlowski, S. W. J. 1992. Organizational socialization as learning process: The role of information acquisition. *Personnel Psychology*, 45: 849–874.
- Saks, A. M. 1995. Longitudinal field investigation of the moderating and mediating effects of self-efficacy on the relationship between training and newcomer adjustment. *Journal of Applied Psychology*, 80: 211–225.
- Scandura, T. A., & Graen, G. B. 1984. Moderating effects of initial leader-member exchange status on the effects of leadership intervention. *Journal of Applied Psychology*, 69: 428–436.
- Seers, A. 1989. Team-member exchange quality: A new construct for role-making research. *Organizational Behavior and Human Decision Processes*, 43: 118–135.
- Seers, A., Petty, M. M., & Cashman, J. F. 1995. Team-member exchange under team and traditional management. *Group and Organization Management*, 20: 18–38.
- Sherony, K. M., & Green, S. G. 2002. Coworker exchange: Relationships between coworkers, leader-member exchange, and work attitudes. *Journal of Applied Psychology*, 87: 542–548.
- Spreitzer, G. M. 1995. Psychological empowerment in the workplace: Dimensions, measurement, and validation. *Academy of Management Journal*, 38: 1442–1465.
- Sundstrom, E. 1999. The challenges of supporting work team effectiveness. In E. Sundstrom & Associates (Eds.), *Supporting work team effectiveness: Best management practices for fostering high performance*: 3–23. San Francisco: Jossey-Bass.
- Tesluk, P. E., & Jacobs, R. R. 1998. Toward an integrated model of work experience. *Personnel Psychology*, 51: 321–355.
- Thoits, P. A. 1992. Identity structures and psychological well-being: Gender and marital status comparisons. *Social Psychology Quarterly*, 55: 236–256.
- Thomas, K. W., & Velthouse, B. A. 1990. Cognitive elements of empowerment: An “interpretive” model of intrinsic task motivation. *Academy of Management Review*, 15: 666–681.
- Van Maanen, J., & Schein, R. H. 1979. Toward a theory of organizational socialization. In B. M. Staw (Ed.), *Research in organizational behavior*, vol. 1: 209–264. Greenwich, CT: JAI Press.
- Welbourne, T. M., Johnson, D. E., & Erez, A. 1998. The Role-Based Performance Scale: Validity analysis of a theory-based measure. *Academy of Management Journal*, 41: 540–555.
- Zaccaro, S. J., & Marks, M. A. 1999. The roles of leaders in high-performance teams. In E. Sundstrom & Associates (Eds.), *Supporting work team effectiveness: Best management practices for fostering high performance*: 95–125. San Francisco: Jossey-Bass.

APPENDIX

Newcomer Experience Measure

Items and response options are given verbatim, with their original spelling, capitalization, and punctuation. Where no response options are indicated, the response scale was 0–100%.

1. What is the highest academic degree you have earned that is directly related to Information-Technology (IT)? (1 = “no IT-related degree,” to 5 = “Ph.D. in an IT field”)
2. How many total years have you held jobs/positions in the IT field (including co-ops or internships)? (1 = “less than 1 year,” to 6 = “more than 12 years”)
3. How many total IT-related positions/jobs (including co-ops or internships) have you held thus far, not including this current job? (1 = “this is my first IT-related job/position,” to 6 = “more than 10 jobs/positions”)
4. Within how many different industries (e.g., telecommunication, financial services, healthcare, energy) have you held IT positions thus far? (1 = “1 IT-related industry,” to 6 = “more than 5 different IT-related industries”)
5. How many total IT-related projects have you worked on, not including the current project you are working on? (1 = “this is my first project,” to 7 = “more than 20 projects”)
6. Of the various IT-related projects you have worked on thus far, what percentage of projects required you to learn and master cutting-edge technologies (i.e., state-of-the-art technologies)?
7. Of the various IT-related projects you have worked on thus far, what percentage of projects required you to work as a part of a work team (i.e., to work together with other team members towards some common work objectives)?
8. Of the various IT-related projects you have worked on thus far, what percentage of projects required you to interact with either internal or external customers on a regular basis?
9. Of the various IT-related projects you have worked on thus far, what percentage of projects required you to supervise (i.e., be in charge of) the work of other team members on a regular basis?
10. Of the various IT-related projects you have worked on thus far, what percentage of projects required you to contribute to project documentation (e.g., write or contribute to project plans, test plans, and/or design documents)?



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