

The impact of developmental job experience on job performance: The importance of team context

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Abstract

Drawing on social resources theory, we examine the impact of developmental job experience (DJE) on employees' job performance and the role of the team context in this relationship. In a multisource, multiwave dataset of 354 employees working on 40 teams in seven Chinese companies, we find that DJE has a positive indirect relationship with job performance through increasing employees' information and support seeking. This positive indirect relationship is stronger for employees on teams with a high average DJE and low variance in DJE; it is significantly weaker for employees on teams with a low average DJE and a high variance in DJE. These results reveal that the work and team contexts play important roles in the relationship between DJE and employees' work outcomes.

KEYWORDS

developmental job experience, job performance, social resources theory, teams

1 | INTRODUCTION

Developmental job experience (DJE; also known as developmental challenge and developmental assignments) refers to challenging and novel job components that provide opportunities for learning on the job by exposing individuals to tasks that require new skills (McCauley et al., 1994, 1995). DJE is an essential training and development tool for employers: On-the-job development, which DJE is part of, accounts for 70% of the knowledge and skill acquisition at the workplace (Center for Creative Leadership, 2020). DJE also acts as a valuable complement to other development formats such as formal classroom-type training because it helps individuals apply the training content at the workplace (Weiss & Molinaro, 2006).

Since DJE represents such an important part of employee development, a key consideration for employers is how it impacts employees' job performance. If it interferes with recipients' job performance, employers must pay not only the costs of development but also those of lost performance. However, if DJE facilitates skill acquisition while

boosting job performance, then it represents a high-performing and cost-efficient development tool that should be extensively used.

However, the relationship between DJE and job performance has not received much research attention, as most of the research on DJE has focused on skill acquisition by employees, leaders, and managers (e.g., DeRue & Wellman, 2009; Dragoni et al., 2009) and their subsequent career advancement (Aryee & Chu, 2012; de Pater, van Vianen, Bechtoldt, & Klehe, 2009; Dong et al., 2014; Seibert et al., 2017). The few empirical analyses on the relationship between DJE and job performance have had mixed results. Aryee and Chu (2012) and Chow et al. (2007) showed that DJE was positively associated with job performance. Aladin (2020) and de Pater, van Vianen, Bechtoldt, and Klehe (2009), however, found no correlation. Carette et al. (2013) demonstrated a positive relationship between DJE and job performance for early-career employees, but not for mid-career ones.

One of the reasons for the mixed findings is that some articles measured only the direct relationship between DJE and job performance, without investigating its mediators and moderators (Aladin, 2020; Chow

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et al., 2007; de Pater, van Vianen, Bechtoldt, & Klehe, 2009). Aryee and Chu (2012), however, showed that the effect of DJE on task performance was mediated by individuals' task-related self-efficacy (a belief in their capabilities to organize and execute action to attain certain levels of performance); and Carette et al. (2013) revealed that boundary conditions such as individuals' career stage played an important role in this relationship. These findings imply that future research needs to move beyond testing the direct relationship and integrate both mediators and moderators into models to identify the mechanisms that lead from DJE to job performance and to clarify the conditions under which DJE might be more or less strongly related to job performance.

Our article aims to accomplish these objectives. Drawing on social resources theory (Lin, 1999; Lin et al., 1981), we theorize that DJE affects job performance through a mechanism that has so far remained unexplored: information and support seeking (ISS). Specifically, we argue that individuals cope with DJE more successfully if they obtain advice, information, performance feedback, and social support from their co-workers. We also claim that there are important boundary conditions in this mediated relationship. While boundary conditions were considered by extant studies as well, these were primarily individual differences such as employees' goal orientation (e.g., DeRue & Wellman, 2009; Dragoni et al., 2009), leadership self-efficacy (Courtright et al., 2014), self-esteem (Brutus et al., 2000), or emotional intelligence (Dong et al., 2014). The impact of the work environment or context on the outcomes of DJE, an issue highly relevant for HRM research and practice, has rarely been considered. Exceptions are three articles that argue that social support—feedback from superiors and from “others” in the organization (DeRue & Wellman, 2009; Srikanth & Jomon, 2020), and mentoring (Seibert et al., 2017)—enhances the benefits of DJE.

We build on these three articles by proposing that the work context influences the mediated relationship between DJE and job performance through ISS. We show that individuals who work in jobs with higher levels of DJE will be more likely to engage in ISS in order to receive social resources: job-related guidance, performance feedback, and social support from co-workers. Higher levels of ISS will then improve job performance. We also propose that the characteristics of team peers who can provide or withhold these social resources (information, advice, feedback, etc.) may help the individual deal with the complexity, novelty, or uncertainty inherent in DJE and may influence the focal individual's ISS and job performance. Specifically, the distribution of DJE on the team will importantly influence the resources that team members provide to the focal individual. We show that individuals' ISS, and, in turn, job performance will be higher if they work on a team that has a high average level of DJE, and low variance in DJE (that is, team members have similar levels of DJE).

Our article contributes to the literature on DJE in several ways. First, we add to the scarce empirical evidence on the relationship between DJE and job performance. Second, in contrast to previous studies that focused on the mediating impact of individual attributes, such as self-efficacy or self-esteem, we examine mediation by individual behaviors or actions—specifically, ISS. As employees tackle DJE, engaging in higher levels of ISS translates into higher job performance.

Third, our article takes a multilevel perspective and integrates team-level and individual-level variables in a theoretical model. It reveals that individual-level relationships between DJE and its outcomes (ISS and job performance) may depend on team-level conditions. These findings call attention to the important impact of the work and team contexts on the outcomes of DJE and open up research that addresses the workplace context in which DJE happens.

The findings also provide practical advice to HR managers and project managers about assigning individuals to teams. The positive indirect relationship between DJE and job performance suggests that DJE should be an important part of employee development plans. The significant mediating role of ISS indicates that HR managers should build a team climate that encourages support-seeking and information-sharing among employees. The significant moderating effect of team peers' DJE implies that employers may increase the benefits of DJE by paying attention not only to the DJE received by a focal employee but also to the DJE of the team peers who work with that person.

2 | THEORY AND HYPOTHESES

2.1 | The relationship between DJE and job performance

DJE refers to novel, varied, and challenging job components that lead to the acquisition of new knowledge and skills through exposing individuals to a great variety of stimuli, through placing them in uncertain and risky situations, and through presenting them with complex problems and tasks that require skills they do not already have (McCauley et al., 1994, 1995, 2019).¹

McCauley et al. (1994) propose that the development provided by job experiences may be of five types. Unfamiliar responsibilities involve different or broader tasks. Jobs with a high level of responsibility have a large scale (e.g., responsibility for a large budget) or scope (e.g., responsibility for many different tasks) and often are highly visible to senior managers. Creating and managing change requires incumbents to lead or adapt to organizational changes. Working across boundaries signifies working with parties over whom job holders have little authority (coworkers or external constituencies such as suppliers). Managing diversity involves working as part of a diverse team or across cultures (McCauley et al., 1994, 2019).

The majority of the studies on DJE have pointed out the benefits of this type of development. For employees, the most important of these benefits were on-the-job learning and the development of managerial and leadership skills (Brutus et al., 2000; DeRue & Wellman, 2009; Dragoni et al., 2009; Preenen et al., 2011; Seibert et al., 2017; Srikanth & Jomon, 2020; Van Gelderen et al., 2005), and career advancement (Aryee & Chu, 2012; Campion et al., 2022; de Pater, van Vianen, Bechtoldt, & Klehe, 2009; Dong et al., 2014; Seibert et al., 2017). For employers, DJE helped maintain a high-performing, motivated, and committed workforce by increasing employees' job performance (Aryee & Chu, 2012; Chow et al., 2007), boosting their positive job-related attitudes (Cao & Hamori, 2016; Courtright et al., 2014; Dong et al., 2014;

Preenen et al., 2014; Van Gelderen et al., 2005), and decreasing their propensity to leave (Preenen et al., 2011).

Nevertheless, two studies cautioned that DJE led not only to positive, but also to negative outcomes simultaneously: emotional exhaustion and laissez-faire leadership (Courtright et al., 2014), as well as unpleasant feelings and lower prospects of career advancement (Dong et al., 2014), because the challenge inherent in these jobs created not only excitement and motivation, but stress, burnout, uncertainty, and fatigue as well. Accordingly, Aladin (2020) and de Pater, van Vianen, Bechtoldt, and Klehe (2009) found no relationship between DJE and job performance, while Carette et al. (2013) showed that the performance-related benefits of DJE were present only for early-career employees; for mid-career ones, higher levels of DJE had diminishing returns.

These findings imply that DJE is a complex form of development that represents mostly benefits, but also risks to individuals. The ways in which individuals deal with the challenge in DJE, therefore, have an important impact on the benefits that they receive. Several researchers have documented traits that helped employees cope with the demands of DJE: learning orientation, which helped them persist in the face of obstacles, motivated them to explore new solutions, and thus maximized skill acquisition (DeRue & Wellman, 2009; Dragoni et al., 2009); and self-efficacy, which increased their skill acquisition and performance by determining the effort they allocated to DJE (Aryee & Chu, 2012; Brutus et al., 2000). None of these articles looked at behaviors—the actions individuals should take to respond to DJE. Yet research that identifies the set of behaviors that help employees cope with DJE may be of more value for HR practice than the one focusing on traits, as employees may be coached to change their behaviors or adopt new ones, while personality traits are very hard to change even after extensive training (Doh, 2003).

Drawing on social resources theory (Lin, 1999; Lin et al., 1981), we argue that employees may cope with the complexity inherent in DJE and maximize its benefits by seeking and obtaining social resources such as information, advice, feedback, or social support from co-workers, which, in turn, should enhance their job performance.

Social resources theory focuses on the nature of the resources embedded in an individual's social network. Social resources are valued goods accessible through individuals' social ties to other people (Lin et al., 1981). They may be of two types: instrumental resources include job-related information, advice, guidance, or feedback; expressive resources are characterized by high levels of trust, intimacy, and closeness and include emotional support, displays of positive emotion, friendliness, and solidarity (e.g., Robertson et al., 2020). Social resources determine a variety of outcomes such as individuals' access to certain jobs in the labor market, their promotion to particular jobs within an organization (Seibert et al., 2001), access to organizational knowledge (Reiche, 2012), and job performance (Pieper, 2015). An individual's likelihood of gaining these outcomes depends on the quality (value, utility, relevance) and accessibility of the social resources (Lin, 1999). In our context, the likelihood that DJE will improve job performance depends on whether team members possess high quality, that is,

potentially valuable and useful information, and whether these resources are accessible by the individual.

We propose that as the level of DJE increases, individuals will increasingly seek out others in their environment for information, advice, feedback, or emotional support. Individuals who are uncertain how tasks should be done will seek to obtain instrumental social resources: job-related or organization-specific information to reduce the uncertainty, and advice or feedback from others to form a more accurate understanding of their own competence and performance (DeRue & Wellman, 2009; Hayton et al., 2012; Liao et al., 2010; Srikanth & Jomon, 2020).

DJE also leads to a broad range of affective reactions (Dong et al., 2014). High levels of DJE bring a constant stream of stressors (Dong et al., 2014), require sustained mental, physical, and emotional effort, and lead to fatigue, tension, or emotional exhaustion (Courtright et al., 2014; Dong et al., 2014). Under the resulting anxiety, fear, or frustration, individuals are likely to reach for expressive social support: advocacy, emotional support, or encouragement.

And individuals who actively seek instrumental and expressive social resources are likely to perform better than those who grapple with the challenge of DJE on their own. Feedback and guidance give proactive seekers a more accurate understanding of their jobs, of their own competence and performance, and of others' expectations of them (Anseel et al., 2015; Ashford & Cummings, 1983; DeRue & Wellman, 2009). The better employees understand how things work and what is expected of them, the more likely it is that they will be able to adjust their behavior to the unique demands of their setting, make corrections, and perform well in their jobs (Anseel et al., 2015; Ashford & Cummings, 1983). Empathy and emotional support help them cope better with the uncertainty in DJE and ensure that their cognitive resources are not diverted away from task completion (DeRue & Wellman, 2009).

Although we are not aware of any empirical article that examined the relationship between ISS and job performance among employees tackling DJE, related research showed that the availability of feedback enhanced skill acquisition and the career-related benefits of DJE (DeRue & Wellman, 2009; Srikanth & Jomon, 2020). Furthermore, a meta-analysis found a sizeable significant positive correlation between two types of coworker support (instrumental coworker support such as task-related guidance or feedback, and emotional support such as displays of positive emotion, including friendliness or solidarity) and task performance (Chiaburu & Harrison, 2008). Given these arguments and the related empirical evidence, we propose that.

Hypothesis 1. Employees' information and support seeking mediate the positive relationship between DJE and job performance.

2.2 | The importance of the team context

Hypothesis 1 argued that individuals cope with DJE through seeking and getting social resources from others. The chief source of these

resources is the employees surrounding them (Salancik & Pfeffer, 1978). Team peers represent an especially important social referent because teams are the basic building blocks of most contemporary organizations (Mathieu et al., 2014). Compared to superiors, team peers have a much greater presence in the focal individual's day-to-day activities. They tend to be the closest, often sharing physical space, and they are also more similar to the focal individual in status and working conditions. All of these factors facilitate more frequent interactions between the focal individual and team peers (Chiaburu & Harrison, 2008).

Team peers may help individuals cope with the demands of DJE in several ways. First, they can relay task-related guidance that diminishes the focal individual's uncertainty about behavioral expectations or the outcomes of individual behavior (Chiaburu & Harrison, 2008). Second, they may offer lateral mentoring. They may provide cues about task prioritization, important in jobs where high levels of DJE may induce work overload, burnout, and disengagement (Courtright et al., 2014; Dong et al., 2014). They may also alleviate the focal individual's disengagement or frustration through empathy and emotional support (Chiaburu & Harrison, 2008).

Team members' characteristics will have an important impact on the social resources that they provide to the focal individual. We are particularly interested in an attribute that HR and line managers can influence: the allocation of DJE on the team. We propose that the amount of DJE possessed by the team peers will have an important impact on the quality and accessibility of the team's social resources, and therefore will influence the relationship among the focal individual's DJE, ISS, and job performance.

Specifically, we consider two team-level attributes: the average level of DJE on the team and the variance of DJE levels across team members (a.k.a. "separation" [Harrison & Klein, 2007] or "differentiation" [Liao et al., 2010; Liden et al., 2006]).² In the single-function teams that we look at, within-team variance in DJE indicates differences in the DJE levels of tasks that are in the same broad domain (e.g., marketing or customer service).

Examining both types of these attributes is important because they convey different information on the relationship between team composition and team processes. The assumption behind team mean values is that it is the amount of attributes held by the team that influences outcomes. Analyses with within-team variance contend that it is the extent to which team members are similar or different from each other along an attribute that influences team outcomes. Accordingly, team mean operationalizations of the composition variables were found to have a stronger relationship with certain outcomes and team heterogeneity variables with others (Bell, 2007; Bell et al., 2011).

2.2.1 | The average level of DJE on the team

Social resources theory argues that the extent to which social resources influence individual outcomes is a function of the quality and the accessibility of these resources (Lin, 1999; Lin et al., 1981).

We propose that the resources provided by team members are of higher quality and more accessible on teams that have higher average DJE levels (TADJE) than on teams with lower levels. Team members whose job has higher levels of DJE possess higher-quality resources because DJE both broadens and deepens skill sets by challenging individuals and supplying them with more information and insight than routine, easy, non-developmental tasks can offer (Brutus et al., 2000; DeRue & Wellman, 2009; Dragoni et al., 2009; Preenen et al., 2011; Seibert et al., 2017; Srikanth & Jomon, 2020; van Gelderen et al., 2005).³ More highly skilled team members, in turn, give higher quality advice and information (Hayton et al., 2012; Kane et al., 2012).

On teams with higher average DJE levels, these resources will also be more available to the focal individual. The bulk of the literature has associated DJE with various positive affective and attitudinal outcomes, such as positive feelings (Dong et al., 2014), job satisfaction (van Gelderen et al., 2005), emotional engagement (Courtright et al., 2014), and affective organizational commitment (Cao & Hamori, 2016, 2020). Although two articles warned about burnout (Courtright et al., 2014) and negative feelings (Dong et al., 2014), we think that these are less likely to affect our sample of early-career employees, who are more capable of handling DJE than older workers (Carette et al., 2013), and for the medium, as opposed to high, levels of DJE that our sample has (DeRue & Wellman, 2009). Positive affective states and work-related attitudes, in turn, strongly predict helping behaviors at the workplace. For example, job satisfaction and organizational commitment were consistently found to have some of the strongest positive relationships with organizational citizenship behaviors (discretionary behaviors that contribute to the effective functioning of the organization)—much stronger than either ability or dispositional and personality traits (Ilies et al., 2007; Organ & Ryan, 1995; Podsakoff et al., 2000).

On teams with high TADJE, and therefore higher-quality and more accessible social resources, individuals will be more likely to seek, as well as to receive, information and support from their peers, under the expectation that they will get higher-quality resources and their peers will be more willing to share those with them. Upon seeking these resources, they should also be more likely to receive higher-quality job-related information, feedback, and social support, which will then enhance their job performance. The former arguments lead to the following conditional indirect effect (IE):

Hypothesis 2. The team's average level of DJE strengthens the positive indirect relationship between DJE and job performance through ISS, so that higher levels of DJE on the team result in a stronger positive indirect relationship.

2.2.2 | Within-team variance of DJE

Variance in DJE within the team (TVDJE) influences both the quality and the accessibility of team social resources. People on teams with low TVDJE likely work on similar tasks and confront similar challenges (Grant, 1996), and therefore develop a "common language" in which

to share information, feedback, and knowledge about how to solve problems in current assignments and to accumulate useful lessons and solutions (Grant, 1996; Huo et al., 2019). In teams with higher TVDJE, on the other hand, members likely have dissimilar knowledge and skills, which are less valuable to other team members because dissimilarity impedes information integration (Van Knippenberg et al., 2004). Furthermore, in a team with high TVDJE, those members with very low levels of DJE may have no high-quality social resources to offer to their teammates because they could not develop such resources in jobs with low levels of DJE (Hayton et al., 2012; Kane et al., 2012). At the other extreme, those with very high levels of DJE may easily become overloaded with work and be unavailable for feedback, advice, or information. Ellis et al. (2003) found that overloading one or more individual team members interfered with learning even if the team's overall workload remained the same; teams learned most when the workload was distributed evenly across members.

Dissimilarity in DJE levels may limit the accessibility of social resources in other ways, too. As team members share physical space and regularly interact, they frequently compare their working conditions with those of their teammates (Chiaburu & Harrison, 2008). DJE is highly desirable, as it is associated with increased promotability and career advancement (Campion et al., 2022; de Pater, van Vianen, Bechtoldt, & Klehe, 2009; Dong et al., 2014; Seibert et al., 2017), so large differences in its distribution may lead to conflict and dislike among team members (Huo et al., 2019; Lovelace et al., 2001). In contrast, on teams with low TVDJE, perceived inequities, and work overloads will not hamper team members' willingness to share resources.

We expect that greater variance in DJE levels across team members will decrease individuals' likelihood of seeking out their peers for job-related information, advice, or feedback because individuals expect the quality and accessibility of such resources to be lower. On teams with higher TVDJE, information, and support-seeking behaviors will be less likely to improve job performance because those resources are less easily granted to individuals, and even if obtained they will be of lower quality than on teams with low TVDJE. That is, greater variance in team members' DJE levels should weaken the positive indirect relationship between DJE and job performance through ISS. Therefore, we propose the following conditional IE:

Hypothesis 3. TVDJE weakens the positive indirect relationship between DJE and job performance through ISS, so that higher levels of TVDJE weaken this positive indirect relationship.

The positive relationship between DJE and job performance mediated through ISS will be strongest on teams with high levels of TADJE and low levels of TVDJE. The reason is that high levels of TADJE are associated with team members' high skill levels and positive attitudes, which contribute to both the quality and the accessibility of social resources on the team. Meanwhile, low levels of TVDJE

create a common language and knowledge set that makes information exchange easier and hinders perceived dissimilarities from interfering with the exchange of social resources on the team. On teams with high TADJE and low TVDJE, individuals should be likeliest to engage in ISS upon tackling DJE, and ISS should be likeliest to improve job performance. Therefore we hypothesize that.

Hypothesis 4. TVDJE weakens the positive effect of TADJE on the positive indirect relationship between DJE and job performance through ISS. Specifically, the positive moderating effect of TADJE on the indirect relationship between DJE and job performance through ISS is weaker at high levels of TVDJE than at low levels of TVDJE.

3 | METHODS

3.1 | Sample and procedure

Our sample includes employees from seven firms in eastern China, in four industries: chemicals (two firms), hospitality (two firms), exhibitions and advertisement (two firms), and textiles (one firm). We collected data in four phases, from both self-reported employee surveys and archival company records. We collected data on employees' DJE in Phase 1 through a survey of all full-time employees in the seven firms. Data on ISS were collected in a follow-up survey of the same employees in Phase 2 2 weeks later. In Phase 3 we obtained demographic data and work team information on the respondents from archival HR records. Job performance information was gathered from HR archives in Phase 4, about 6 months after Phase 1. While we have complete data on 430 employees, we restrict our analyses to full-time non-managerial employees, who are the most likely to turn to team members as they grapple with DJE. On average, these employees have been in their current positions for 6.6 years. In addition, we restrict our analyses to teams with three members or more, as have other researchers (e.g., Li & Liao, 2014; Song et al., 2020; Tang et al., 2020). Our sample is composed of 354 employees on 40 teams. The teams that we look at fit the definition by Kozlowski et al. (1996): they are composed of multiple individuals who interact and work on interdependent tasks and possess shared goals, in an organizational setting. All the teams operate in a single job function, so team members with higher DJE will work on more complex or challenging jobs, but in the same broad job domain (e.g., customer service or sales).

3.2 | Measures

All survey items were measured on a 1–5 point Likert scale except where we specify otherwise. Items from the English-language literature were translated from English to Chinese following the translation–back-translation procedure (Brislin, 1980).

TABLE 1 The distribution of performance evaluation scores in the sample companies.

Company	Industry	Evaluation format	Frequencies	%	Coding for analyses	
Company 1	Chemicals	A/B/C/D-high to low, A is the highest	D	2	2	A = 4, B = 3, C = 2, D = 1
			C	16	13	
			B	96	75	
			A	14	11	
Company 2	Hospitality	I/II/III-low to high, III is the highest	I	15	9	I = 1, II = 2, III = 3
			II	80	49	
			III	68	42	
Company 3	Hospitality	I/II/III-low to high, III is the highest	I	12	8	I = 1, II = 2, III = 3
			II	77	48	
			III	71	44	
Company 4	Exhibitions and advertisement	1/2/3/4/5-low to high, 5 is the highest	1	1	2	1 = 1, 2 = 2, 3 = 3, 4 = 4, 5 = 5
			2	9	16	
			3	35	63	
			4	10	18	
			5	1	2	
Company 5	Textile	I/II/III-low to high, III is the highest	I	22	28	I = 1, II = 2, III = 3
			II	50	63	
			III	8	10	
Company 6	Exhibitions and advertisement	0-100, low to high, 100 is the highest. But in reality, the evaluations are either 75, 80, 85 or 90. (Scores with an interval of 5 are the default).	75	2	4	75 = 1, 80 = 2, 85 = 3, 90 = 4
			80	15	26	
			85	34	60	
			90	6	11	
Company 7	Chemicals	A/B/C/D-high to low, A is the highest	D	5	4	A = 4, B = 3, C = 2, D = 1
			C	17	15	
			B	86	74	
			A	8	7	
			Total	760		

3.2.1 | Developmental job experience

We use a shortened, 30-item version (Cao & Hamori, 2020) of the 50-item Job Challenge Profile, which was created by McCauley and her colleagues in the Center for Creative Leadership (McCauley et al., 1994, 2019). The Job Challenge Profile asks respondents to rate how well each statement describes what they have experienced in their current job (1 = “not at all descriptive,” 5 = “extremely descriptive”). We performed second-order confirmatory factor analysis to verify the nature of the DJE construct. In accord with previous research (Cao & Hamori, 2020; DeRue & Wellman, 2009; Dong et al., 2014) that showed that the variable that aggregates all five dimensions of DJE (unfamiliar responsibilities, high levels of responsibility, creating and managing change, working across boundaries, and managing diversity) is the best way to represent the DJE construct, our results indicate a good fit for a model of DJE with five first-order factors and one second-order factor ($\chi^2[400] = 717.42$, $p < 0.001$, CFI = 0.92, RMSEA = 0.05, SRMR = 0.07). All factor loadings were larger than 0.50 and

significant. Thus, we aggregated related items to generate DJE. Cronbach's alpha was 0.91.

ISS is a 3-item scale that we adapt from Hertz and Williams (2009). The items are (1) I asked a more experienced employee to share knowledge or procedures that might help me to perform my job better, (2) I worked alongside a coworker in order to gain new knowledge or skills related to my job, and (3) I asked coworkers for feedback on my job-related behaviors, performance, or skills. In Phase 2 of the data collection, respondents were asked to indicate the extent to which the items described their situation (1 = “not at all descriptive,” 5 = “extremely descriptive”). The Cronbach alpha is 0.77.

We calculated the team's average level of DJE (*TADJE*) by using the within-team mean of each team member's participation in DJE. Employees who work in the same department under the same manager and also share the same office or workplace were grouped as a team. *Team-level variance of developmental job experience (TVDJE)* is the average of the squared differences from the mean (i.e., $\sum[S_i - S_{mean}]^2/n$) of team members' DJE (Chan, 1998; Liao et al., 2010; Liden et al., 2006).

Job performance was measured using the annual evaluation scores from archival HR records. It is a single, general evaluation of each employee's annual in-role job performance covering all the important dimensions and requirements of the job. This score is typically used for bonus and promotion decisions. To ensure objectivity and fairness, the evaluation process included a direct supervisor, the employee him/herself, and clients, depending on the job type. Table 1 describes the performance evaluation schemes in the sample companies and shows the distribution of performance evaluation scores in each company.

We coded the performance evaluation scores as a continuous variable. Since different companies used different ranges for their evaluation scores (A/B/C/D, 1 to 5, 0 to 100, etc.), some having three categories while others had four or five, and since the distribution of employees across the categories also differed, we standardized the performance scores within each organization to ensure scale consistency across the sampled organizations. Since each organization had a slightly different approach to performance evaluations, we control for employees' company affiliation in all the analyses.

Control variables. We include several controls shown in previous empirical research to relate to our study variables (Bernerth & Aguinis, 2016). Male employees were more likely to receive DJE (de Pater, van Vianen, Fischer, & van Ginkel, 2009). Male is a binary variable where 1 stands for male and 0 for female respondents. Age influenced individuals' ability to cope with DJE and altered the relationship between DJE and job performance (Carette et al., 2013). Employee age and gender may also influence the relationship between other controls (e.g., organizational tenure) and job performance (Ng & Feldman, 2010). Age is measured in years. Organizational tenure had a positive relationship with individuals' job performance (Ng & Feldman, 2010), with newcomers exhibiting lower performance than those who had been promoted to the same role from within the organization (Bidwell, 2011). Organizational tenure is measured in years. Education was strongly related to cognitive ability (Falch & Sandgren Massih, 2011), which is one of the two key determinants of job performance besides motivation (Van Iddekinge et al., 2018). Education ranges between 1 and 5: middle school or under (1), high school (2), three-year college (3), four-year college (4), and master's degree or higher (5). Team size may affect team members' ISS since the likelihood of team citizenship behaviors (Pearce & Herbig, 2004) and the quality of group experience deteriorated in larger teams (Aubé et al., 2011). Team size is operationalized as the number of employees working on the team. Finally, we control for company membership with a binary variable for each of the seven participating organizations.

3.3 | Analyses

Because employees in our sample were nested in teams, we tested the proposed model by using multilevel analyses in STATA 15.0 (Raudenbush et al., 2004). We ran null models with no predictors and with job performance as the dependent variable (Raudenbush et al., 2004). The results showed significant between-team variance in

job performance ($ICC1 = 0.19$, indicating that 19% of variance resides between teams). These results supported our use of multilevel analyses. We group-mean-centered individual-level variables and grand-mean-centered team-level variables in the analyses (Hofmann & Gavin, 1998).

To test Hypothesis 1, we used the Monte Carlo method for assessing mediation. Confidence intervals (CI) are estimated with 20,000 simulation replications. To test for the conditional IEs proposed in Hypotheses 2 and 3, we employed the analytical frameworks used by Edwards and Lambert (2007), Hayes (2015), and Lachowicz et al. (2018). We first estimated first-stage and second-stage moderation analyses, which are shown in Table 5. From these we then calculated IE sizes at high (1 SD above the mean) and low (1 SD below the mean) levels of our moderators, TADJE and TVDJE, to test their significance levels. As an additional test, we calculated the index of moderated mediation, which quantifies the association between an IE and a moderator and indicates whether the IEs are significantly different at high and low values of the moderator (Feng et al., 2023; Hayes, 2015; Matusik et al., 2022; Motro et al., 2022).

4 | RESULTS

Table 2 shows the means, standard deviations, and correlations of all variables.

Hypothesis 1 proposes that ISS mediate the relationship between DJE and job performance. Results from the Monte Carlo simulations, shown in Table 3, reveal that the IE of participation in DJE on *job performance* through ISS is positive and significant, as the 95% CI does not include zero (IE = 0.08, 95% CI [0.02, 0.16]). Hypothesis 1 is supported.

Hypothesis 2 predicts that TADJE moderates the mediated relationship between DJE and job performance through ISS so that higher levels of TADJE strengthen the positive indirect relationship. As the results in Table 4 reveal, TADJE is a significant first-stage moderator: there is a significantly stronger positive IE of DJE on job performance through ISS at high values of TADJE (1 SD above the mean) than at low values (1 SD below the mean): IE = 0.10, 95% CI [0.02, 0.20] and IE = 0.05, 95% CI [0.004, 0.11], respectively; (*difference* = 0.06, 95% CI [0.001, 0.14]). The index of moderated mediation is also significant (*index* = 0.05, 95% CI [0.001, 0.13]).

TADJE is a significant second-stage moderator, too: There is a significantly stronger effect of DJE on job performance through ISS at high values of TADJE (+1 SD) than at low values (−1 SD): IE = 0.18, 95% CI [0.05, 0.31] and IE = 0.001, 95% CI [−0.09, 0.09], respectively, (*difference* = 0.18, 95% CI [0.01, 0.35]). The index of moderated mediation is also significant (*index* = 0.16, 95% CI [0.01, 0.32]).

To test whether TADJE is a significant first- and second-stage moderator, we compare the IE at low (−1 SD) and high (+1SD) values of TADJE.⁴ The difference in the IEs at high and low values of TADJE is significant: (*difference* = 0.22, 95% CI [0.03, 0.41]). Hypothesis 2 is supported. Figure 1 plots the relationship between DJE and job performance at high and low values of TADJE. It shows that when TADJE

TABLE 2 Means, standard deviations, and correlations^a.

No	Variable	1	2	3	4	5	6	7	8	9	10
1	Age	-									
2	Male	0.25	-								
3	Education	-0.25	-0.06	-							
4	Organizational tenure	0.61	0.20	-0.13	-						
5	Information and support seeking	-0.06	-0.14	0.02	-0.09	-					
6	Job performance	0.17	0.06	0.00	0.21	0.18	-				
7	DJE	0.05	0.02	0.07	0.10	0.32	0.17	-			
	Mean	33.27	0.51	3.25	6.64	3.12	-0.04	3.09			
	SD	9.04	0.50	0.65	6.95	0.92	0.98	0.74			
1	Team size	-									
2	TADJE	-0.34	-								
3	TVDJE	0.04	0.29	-							
4	Company 1	0.11	-0.36	-0.20	-						
5	Company 2	0.33	-0.33	-0.27	-0.31	-					
6	Company 3	-0.14	0.61	0.61	-0.23	-0.28	-				
7	Company 4	-0.18	0.45	0.07	-0.13	-0.17	-0.12	-			
8	Company 5	-0.18	0.06	-0.04	-0.11	-0.13	-0.09	-0.06	-		
9	Company 6	-0.22	0.29	0.00	-0.11	-0.14	-0.10	-0.06	-0.05	-	
10	Company 7	-0.02	-0.25	-0.08	-0.24	-0.29	-0.21	-0.13	-0.11	-0.11	-
	Mean	18.48	3.06	0.29	0.21	0.28	0.17	0.07	0.04	0.05	0.18
	SD	13.16	0.54	0.18	0.41	0.45	0.37	0.25	0.20	0.21	0.39

Note: Upper table shows the Level 1 correlation and lower table shows the Level 2 correlations. Correlation > |0.08|, $p < 0.10$; Correlation > |0.10|, $p < 0.05$; Correlation > |0.13|, $p < 0.01$.

^a $n = 354$ at the individual level, $n = 40$ at the team level.

TABLE 3 Monte Carlo results for mediation analyses.

DJE-Information and support seeking-Job performance			
Direct effect	95% CI	Indirect effect	95% CI
0.19	[0.02, 0.36]	0.08	[0.02, 0.16]

is high, higher DJE results in significantly higher job performance. At low levels of TADJE, however, higher DJE fails to improve job performance.

Hypothesis 3 predicts that the team's TVDJE moderates the positive indirect relationship between DJE and job performance through ISS so that higher levels of TVDJE weaken this positive indirect relationship. TVDJE is a significant first-stage moderator. DJE has a significantly weaker IE on job performance through ISS at higher levels of TVDJE than at lower levels ($+/-1$ SD): IE = 0.05, 95% CI [0.01, 0.11] and IE = 0.10, 95% CI [0.02, 0.20], respectively; ($difference = -0.05$, 95% CI [-0.12, -0.001]). The index of moderated mediation is also significant ($index = -0.13$, 95% CI [-0.32, -0.0002]). At the same time, TVDJE is not a significant second-stage moderator: the index of moderated mediation is not significant ($index = -0.19$, 95% CI [-0.53, 0.13]), nor is there a statistically significant difference between the IEs at high and low ($+/-1$ SD) values of TVDJE ($difference = -0.08$, 95% CI [-0.23, 0.06]). Furthermore, TVDJE is not a significant first-and second-stage

moderator either, because the difference in the IEs at high and low values ($+/-1$ SD) of TVDJE is not significant: ($difference = -0.09$, 95% CI [-0.18, 0.002]).⁵ Hayes (2015) claims that for a conditional IE to be significant, it is sufficient for the moderator to moderate one of the two paths (either the first stage or the second stage); it need not moderate both. Hypothesis 3 is therefore supported, although TVDJE is only a first-stage moderator, and not a first- and second-stage one, as our theory suggested. Figure 2 plots the indirect relationship between DJE and job performance through ISS, conditionally on the first-stage moderator TVDJE. The plot reveals that there is a stronger positive relationship between DJE and job performance at low levels of TVDJE than at high levels. As a robustness check, we also run the former analyses with TADJE as a control variable. The results (available upon request) are essentially the same as those of the analyses without this control.

Hypothesis 4 predicts that TVDJE weakens the positive effect of TADJE on the positive indirect relationship between DJE and job performance through ISS. That is, this effect is weaker at high levels of TVDJE than at low levels of TVDJE. Model 6 of Table 5 shows that the coefficient of the three-way interaction term (DJE \times TADJE \times TVDJE) on ISS is not significant ($coefficient = -0.93$, n.s.). Model 9 of Table 5 reveals that the coefficient of the three-way interaction term (ISS \times TADJE \times TVDJE) on job performance is not

TABLE 4 Tests of the conditional indirect effects of DJE on job performance through ISS.

Conditional indirect effects	Estimate	95% CI ^a	Conditional indirect effects	Estimate	95% CI ^a
TADJE as first-stage moderator			TVDJE as first-stage moderator		
TADJE is high (+1SD)	0.10	[0.02, 0.20]	TVDJE is high (+1SD)	0.05	[0.01, 0.11]
TADJE is low (-1SD)	0.05	[0.004, 0.11]	TVDJE is low (-1SD)	0.10	[0.02, 0.20]
Difference between high and low	0.06	[0.001, 0.14]	Difference between high and low	-0.05	[-0.12, -0.001]
Index	0.05	[0.001, 0.13]	Index	-0.13	[-0.32, -0.0002]
TADJE as second-stage moderator			TVDJE as second-stage moderator		
TADJE is high (+1SD)	0.18	[0.05, 0.31]	TVDJE is high (+1SD)	-0.004	[-0.10, 0.09]
TADJE is low (-1SD)	0.001	[-0.09, 0.09]	TVDJE is low (-1SD)	0.07	[-0.02, 0.17]
Difference between high and low	0.18	[0.01, 0.35]	Difference between high and low	-0.08	[-0.23, 0.06]
Index	0.16	[0.01, 0.32]	Index	-0.19	[-0.53, 0.13]
TADJE as first- and second-stage moderator			TVDJE as first- and second-stage moderator		
TADJE is high (+1SD)	0.22	[0.06, 0.40]	TVDJE is high (+1SD)	-0.002	[-0.06, 0.05]
TADJE is low (-1SD)	0.0004	[-0.05, 0.06]	TVDJE is low (-1SD)	0.09	[-0.02, 0.22]
Difference between high and low	0.22	[0.03, 0.41]	Difference between high and low	-0.09	[-0.18, 0.002]

^aThe results are significant when the 95% CI does not include zero.

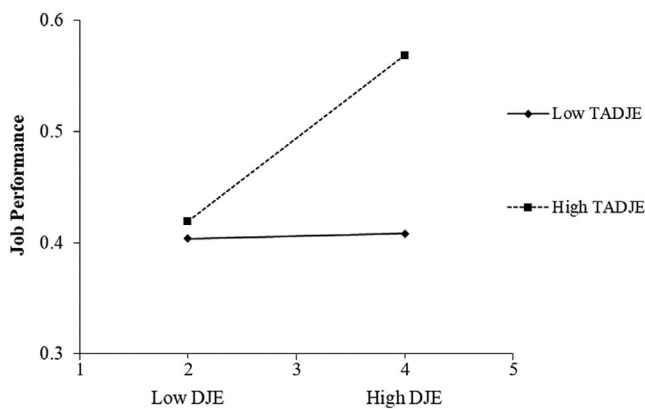


FIGURE 1 TADJE as a first-and-second stage moderator of the relationship between DJE and job performance.

significant either (*coefficient* = -0.95, n.s.). Therefore, Hypothesis 4 is not supported.

4.1 | Additional analyses

4.1.1 | Past job performance

We find that DJE leads to higher job performance through ISS. An alternative explanation for these results may be that individuals with higher past job performance are more likely to have higher levels of DJE, and it is the past performance—rather than the DJE—that results in higher job performance. Unfortunately, past job performance data are available in only three of our seven organizations, on 200 employees. To be able to eliminate this alternative explanation, we run Model 1, shown in Table 6. The results reveal that past

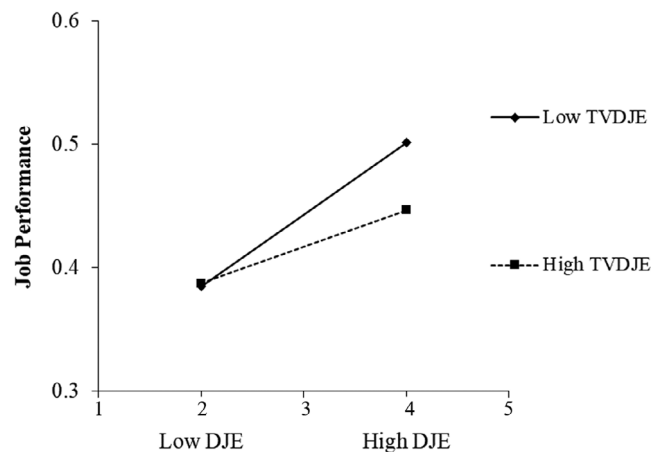


FIGURE 2 TVDJE as a first-stage moderator of the relationship between DJE and job performance.

performance indeed has a strong positive relationship with job performance ($\beta = 0.58, p < 0.01$). Nevertheless, DJE is still positively and significantly related to job performance ($\beta = 0.17, p < 0.05$) even when past performance is controlled.

4.1.2 | The curvilinear effects of DJE on ISS and job performance

DeRue and Wellman (2009) showed that excessively high levels of DJE interfered with skill acquisition. To account for such diminishing returns, we also ran models that tested for curvilinear effects of DJE on ISS and job performance. Model 2 of Table 6 shows that there is a strong positive relationship between DJE and ISS ($\beta = 0.59, p < 0.01$), but the squared term is not significant ($\beta = -0.03, n.s.$). Model 3 of

TABLE 6 Supplementary analyses.

Variables	Job performance		ISS		Job performance	
	Model 1		Model 2		Model 3	
	B	SE	B	SE	B	SE
Past performance	0.58***	0.04				
Age	0.00	0.01	-0.01	0.01	0.01*	0.01
Male	-0.05	0.08	-0.01	0.09	-0.02	0.10
Education	0.13*	0.07	0.05	0.08	0.27***	0.08
Organizational tenure	0.03***	0.01	0.00	0.01	0.03***	0.01
Team size	0.00	0.01	0.00	0.00	0.00	0.01
Company 1			-0.38***	0.14	-0.28	0.22
Company 3			0.51***	0.15	0.66***	0.22
Company 4			0.47**	0.20	-0.51*	0.28
Company 5	0.63**	0.28	0.31	0.23	-0.09	0.31
Company 6			0.44**	0.22	-0.25	0.29
Company 7	0.38*	0.20	-0.23*	0.14	0.01	0.21
DJE	0.17**	0.07	0.59***	0.08	0.22**	0.09
DJE × DJE			-0.03	0.11	0.07	0.12
Pseudo R ²	0.21		0.26		0.25	

Note: The calculation of R² is based on proportional reduction of error variance.
*p < 0.10; **p < 0.05; ***p < 0.01.

Table 6 reveals that while DJE is positively related to job performance ($\beta = 0.22$, $p < 0.05$), the squared term does not have a significant relationship with it ($\beta = 0.07$, n.s.). That is, there is no evidence of a curvilinear effect of DJE on ISS and job performance.

5 | DISCUSSION

5.1 | Theoretical implications

Our results make several contributions to the literature. First, they shed light on the relationship between DJE and job performance, which—despite its importance to organizations—has received much less research attention than outcomes such as skill acquisition or voluntary turnover. Our findings are aligned with those by Aryee and Chu (2012) and Chow et al. (2007), and also with those by Carette et al. (2013) on early-career employees: they show that in our sample of non-managerial, mostly early-career employees, there is a positive relationship between DJE and job performance. While some articles suggest that the greater likelihood of burnout and negative feelings (Courtright et al., 2014; Dong et al., 2014), as well as the increased challenge and uncertainty that accompany DJE (DeRue & Wellman, 2009), may interfere with job performance, we do not find evidence of this, perhaps because our respondents are all non-managerial employees who do not have extremely high levels of DJE. It is possible that our results on the relationship between DJE and job performance would be different among employees with very high levels of DJE or among mid- or late-career employees (Carette et al., 2013).

Second, we contribute to the literature on the relationship between DJE and job performance by answering the question of why DJE leads to higher job performance. Our results show that individuals' ISS from coworkers helps them cope with DJE; there is a significant positive IE between DJE and job performance through ISS. While the extant studies of the consequences of DJE have mostly focused on individual attributes (e.g., goal orientation, self-efficacy, or self-esteem) that helped individuals tackle DJE, our results shift the focus to how proactive behaviors may affect the relationship between DJE and job performance.

Third, we address a topic almost overlooked in the research on DJE: the importance of the work and team context in which DJE takes place. Our multilevel analyses include predictors at both the individual and the team levels and generate new knowledge on how individual and team attributes jointly relate to individual job performance. We show that the mean level of DJE on the team and team-level variance in DJE determine the strength of the indirect relationship between DJE and job performance through ISS. In teams with a high average level of DJE and low variance in DJE, individual DJE is positively related to job performance through higher ISS. In teams with a low average level of DJE and high variance in DJE, this IE is significantly smaller and, in many cases, not significant. These results imply that differences in the team context may explain why DJE is sometimes not associated with higher job performance.

TADJE is both a first-stage and a second-stage moderator—that is, it influences the relationships both between DJE and ISS and between ISS and job performance, as we proposed. TVDJE, however, is only a first-stage moderator, contrary to our theoretical arguments. The reason why TVDJE is not a significant second-stage moderator

may be that in our sample there are no large differences in teams' TVDJE. While the standard deviation of TADJE is 0.55, that of TVDJE is only 0.18. If TVDJE had had a different distribution with a bigger standard deviation, it might also have turned out to be a significant second-stage moderator. Supporting this idea, the difference between the IEs of DJE on job performance at high and low values of TVDJE is indeed significant when low and high values of the moderator are computed as 2 SD above or below the mean ($\text{difference} = -0.18$, 95% CI $[-0.36, -0.01]$).

We also show that the team's average level of DJE and team-level variance in DJE have almost independent effects on the indirect relationship between DJE and job performance through ISS. TADJE has the same positive moderating effect on the indirect relationship between DJE and job performance through ISS at different levels of TVDJE. The results on the moderating effect of TVDJE on the indirect relationship between DJE and job performance through ISS do not change after TADJE is included as a control.

These findings call attention to the important role of the work and team contexts in which DJE takes place. They take the literature on DJE, which mostly looked at individual attributes as boundary conditions on the relationship between DJE and its outcomes, in a new direction. Our findings complement the few articles that have highlighted the importance of contextual factors: mentoring networks and feedback (DeRue & Wellman, 2009; Seibert et al., 2017; Srikanth & Jomon, 2020). While previous articles showed that the support for DJE comes from the focal individual's direct superior (DeRue & Wellman, 2009; Seibert et al., 2017) or an unspecified set of others from the organization (Srikanth & Jomon, 2020), we focus on the unexplored effect of team peers and show that they help the focal individual grapple with DJE.

The literature on employee training has long recognized the important role of the work context, and within that, peer or co-worker support, and has urged researchers to take a systems perspective that goes beyond instructional design and trainee characteristics to consider the context within which training occurs (Bell et al., 2017). The meta-analysis by Colquitt et al. (2000) concluded that peer support was positively related to trainees' motivation to learn and to apply the learned skills on the job. The important role of peer support was not explored empirically in the literature on DJE before our article, although such support may have greater relevance for development through DJE than for formal training, as DJE—unlike the bulk of formal training—induces uncertainty and challenge and targets job tasks. Both characteristics may motivate individuals to turn to peers for help.

5.2 | Implications for practice

Our analyses tackle an important question in HRM research and practice: How to assign developmental tasks to individuals in such a way that these tasks do not interfere with job performance.

We find that in our sample of non-managerial employees with medium levels of DJE, DJE benefits employees' job performance, with

no evidence of a curvilinear relationship. These findings imply that DJE should be an important part of employee development plans. In populations similar to ours, it is an effective HRM technique that develops employee skills without compromising job performance. Examples of DJE that employers may assign to their non-managerial workforce include task forces to tackle a pressing business problem, short projects that make employees negotiate with a customer or deal with a dissatisfied customer, and small projects that ask employees to install a new system or troubleshoot problems. They involve working in another business unit for short periods, doing a project with another function, or even organizing a company picnic. All of these short projects emphasize learning new content quickly, dealing with groups of people with whom the employee has not worked before, and using new skills (Lombardo & Eichinger, 1989).

The findings show that development via DJE is not independent of the work context in which it takes place. Individuals engaged in DJE perform better if they seek job-related information and support from co-workers and team peers. HR professionals and supervisors, therefore, need to help develop support networks and increase peer support at the workplace. Specifically, HR professionals may design HR practices such as fair rewards or team-based pay, which encourage positive relations and open communication. Supervisors should enhance team support by modeling supportive behaviors, and by setting team rules and providing opportunities for team members to engage in support (Drach-Zahavy, 2004). They should build team cultures with low power distance, where members value egalitarian relations and collectivistic team cultures, where members are expected to serve the team's needs and interests (Drach-Zahavy, 2004).

HR professionals and line managers may also increase the benefits of DJE by paying attention not only to the DJE of the focal employee but also to the DJE of those who work with that person. Team members perform best if they are surrounded by individuals with high (but not excessive) levels of DJE. Differentiating DJE sharply among employees on the same team may interfere with employees' ISS behaviors and job performance. Since it is relatively easy for project managers or HR professionals to influence the allocation of individuals to teams, our findings give corporations a way to enhance the benefits of DJE.

5.3 | Study limitations and future research directions

We sample employees whose average level of DJE may be described as “medium” and find a positive linear relationship between DJE and job performance, with no diminishing returns. At excessively high levels of DJE, which may impose increased stress, uncertainty, and performance anxiety (DeRue & Wellman, 2009), DJE may have a curvilinear relationship with job performance. Future research should examine this possibility.

The theoretical arguments assume that team members are open and willing to share the needed resources when the focal employee engages in ISS. While our data capture the focal individual's ISS

behaviors, we do not have information on team members' willingness to share social resources, or the actual sharing of these resources. For this reason, we cannot account for phenomena such as the bystander effect (e.g., Hussain et al., 2019), in which team members do not offer information or feedback because they assume that the focal employee already knows the information.

The job performance measure used in the analyses is the organizations' official annual performance evaluation score. While this setup ensures that evaluators assign these scores after sufficient consideration, as a single-item measure the annual evaluation is vulnerable to random measurement errors and to unknown biases in meaning and interpretation (Hoepfner et al., 2011). None of the seven organizations had qualitative, text-based information on job performance, which might have complimented the scores and increased their validity. Since the seven organizations evaluated their employees' performance in slightly different ways, all the analyses controlled for employees' company affiliation to ameliorate this issue.

Ours is the first study that uses multilevel analyses to show that team characteristics influence the relationship between DJE and job performance. It invites researchers to explore the impact of other team-level attributes, such as the amount of skill on the team, team climate, or team leadership. More broadly, it invites more research on other characteristics of the work context, such as organizational policies or organizational culture, that may increase the positive impact of DJE.

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CONFLICT OF INTEREST STATEMENT

The authors have no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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ENDNOTES

¹ The construct of DJE captures the degree of on-the-job learning and development in jobs. DJE, therefore, differs from the construct of job challenge, which measures the "challenging and exciting" aspect of jobs (Meyer & Allen, 1988, p. 198), from job complexity, which gauges the cognitively demanding nature of jobs (Shalley & Gilson, 2004) and from task variety, which entails juggling a wide range of tasks (Morgeson & Humphrey, 2006). The main objective of these three job design features is to increase employees' intrinsic motivation and work satisfaction, rather than on-the-job development, which is the focus of DJE.

- ² Within-team variance or separation is defined as "differences in position [...] among unit members" that "reflect [...] horizontal distance along a single continuum representing dissimilarity in a particular attitude or value" (Harrison & Klein, 2007, p. 1200).
- ³ The only exception was very high levels of DJE, which showed a pattern of diminishing returns in skill acquisition (DeRue & Wellman, 2009).
- ⁴ The index of moderated mediation cannot be computed when TADJE is both a first- and a second-stage moderator, because in that case the relationship between the indirect effect and the moderator is estimated as nonlinear (Edwards & Lambert, 2007; Hayes, 2015).
- ⁵ The difference between high and low values is significant at $+/-2$ SD of TVDJE: ($difference = -0.18$, 95% CI $[-0.36, -0.01]$).

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