

# A relational view of shiftwork: Co-scheduling with higher performers

Patrick E. Downes  | Ella Sareum Lee 

Capitol Federal Hall, The University of Kansas,  
Lawrence, Kansas, USA

## Correspondence

Patrick E. Downes, Capitol Federal Hall, The  
University of Kansas, Lawrence, KS 66045,  
USA.

Email: [patdownes3@gmail.com](mailto:patdownes3@gmail.com)

## Abstract

Research in HR has devoted little attention to the practice of scheduling shift workers into times and places to conduct their work. Relying upon the growing literature related to relational HR, we propose a relational view of scheduling that focuses on how employees' social contexts—particularly their being co-scheduled with higher performers—relate to changes in performance over time. We apply resource dependence and social learning theories to describe how employees' performance over time depends upon their working alongside higher performers. Higher performers consume limited resources (thereby constraining peers' performance in the short term), yet also provide instructive role models for learning new skills (thereby elevating peers' performance over the longer term). We further hypothesize these effects are stronger for employees who are newer to the firm in contrast to those with more experience. We analyze scheduling and performance data from 7,893 retail sales representatives over a 1-year period. Results show co-scheduling with higher performers has an immediate negative effect on employee performance, but is positively related to employee performance over time. Unexpectedly, co-scheduling effects were present for all employees and not only for those new to the organization. Our study points to the need for HR research on employee scheduling to better understand how shift workers' schedules provide the relational context for their work. The research offers several theoretical contributions in understanding the peer effects of higher performers, and we offer practical implications for managers seeking to design employees' schedules to encourage organizationally advantageous relationships between coworkers.

## KEYWORDS

employee scheduling, higher performers, resource dependence theory, shiftwork, social learning

*“What we do is often less important than whom we do it with (Cialdini et al., 1990, p. 194).”*

## 1 | INTRODUCTION

There may be no more fundamental question for an employee than, “what time do you [the employer] want me to show up?” Employers in the modern economy juggle complex and sometimes competing

demands as they slot employees into a scheduled operation (Dunham, 1977). Shift workers represent a substantial portion of employees (Aon, 2020; Ton & Huckman, 2008): U.S. Bureau of Labor Statistics (2019) place estimates between 25 and 40% of the workforce. Many of these employees working shifts in a retail context where they independently fulfill customer demand and have incentive pay structures that encourage them to serve customers faster than coworkers. Because they are a large employee group in close proximity to customers (and thus revenue), small changes in the management

of shiftwork could have a meaningful impact on profitability (Sturman, 2000). Thus, scheduling employees involves a substantial investment for managers trying to optimize productivity while being mindful of employee abilities and customer demands.

Despite its practical importance, little research in HR guides organizations in scheduling employees. As such, organizations might rely on an operations research perspective (e.g., Thompson, 1995) that views scheduling as an optimization problem. In this view, customer demand and employee availability (along with other constraints) are used to derive the most efficient way to slot employees into available openings. One practitioner with whom we spoke referred to this as a “headcount problem” to describe the goal of matching the number of employees with the predicted customer volume at that time. However, the operations approach to employee scheduling does not take advantage of recent advancements in relational HR (Gittell et al., 2010) that emphasize the connections between employees as a source of competitive advantage for firms (Kehoe & Collins, 2017; Soltis et al., 2018).

The relational view of HR considers that HR practices form employees' social structures that ultimately affect how employees perform on the job (Methot et al., 2018). Instead of viewing employees as independent actors with knowledge, skills, and abilities that can be leveraged to achieve firm goals, the relational view sees HR practices as creating social contexts that acknowledge the social nature of human behavior. Applied to scheduling, organizations' practices dictate employees' coworkers at a given time and space, creating formal (or “structural,” see Kaše et al., 2009) connections between employees. The schedule dictates whether (and with whom) employees have opportunities to interact, encounter, or observe one another. Existing research suggests that over time, these connections affect employee performance, both because they lead to informal relationships where employees share support, affect, or belonging (Ashkanasy et al., 2014; Methot et al., 2018), and because they affect the flow of resources (Burt, 1992; Kehoe & Collins, 2017) and employees' opportunities to observe and learn from one another (Downes et al., 2021; Wood, 1989). Unlike the operational approach to scheduling (viewing scheduling as an exercise in efficiently matching independent employees with available shifts), the relational view involves managing social contexts such that employees have social encounters that benefit productivity.

One recently studied aspect of workers' social encounters involves peers' experiences working alongside higher performers. Higher performers are of particular focus in recent HR research in part because of their disproportionate effects on firm outcomes (Kehoe et al., 2018), and a primary concern in this literature has been on the desired proximity between lower-performing employees and higher performers. On the one hand, resource dependence theory (Casciaro & Piskorski, 2005) would argue that higher performers consume resources that might otherwise be available to peers (particularly in an independent context), reducing peers' performance (Kehoe & Tzabbar, 2015). For example, in a retail work context, working alongside higher performers means coworking with a more effective salesperson, leaving fewer customer opportunities available others. On the other hand, social learning theory (Bandura, 1986) suggests employees enjoy increased performance being around higher-

performing peers because higher performers become role models from whom other employees can learn and grow (Call et al., 2021; Downes et al., 2021; Lee & Duffy, 2019).

We extend resource dependence and social learning theory by highlighting the different *timing* of their expected effects. As we posit below, employees competing for resources should experience immediate performance change, whereas social learning takes time for observers to integrate new behavioral strategies and improve their performance. Following this logic, we argue higher performers might have different shorter- and longer-term effects on peers' performance in an independent retail sales context. Thus, to further theory and practice regarding employee scheduling alongside higher performers, we propose a longitudinal model for how higher performers' effects on peers play out over time.

More broadly, our objective is to bring to light the relational impact of scheduling practices and lay a foundation for developing the workforce through intentional scheduling practice. Our practical contribution lies in developing a relational view of employee scheduling—one emphasizing that scheduling dictates which coworkers with whom employees will interact. Our relational view focuses on the formal, organizationally prescribed, relationships between employees created when they work a given shift. McEvily, Soda, & Tortoriello (2014) argue that recent studies on workplace relationships heavily emphasize the effects of informal relationships yet underestimate the effects of the formal relationships, which is the way for organizations to design the interactions among employees. In this sense, our view does not emphasize the social resources (e.g., trust, liking, support) that employees may experience as they interact with coworkers (Halbesleben & Wheeler, 2015; Rouse, 2020). Instead, we focus on employees' schedules create different formal relationships that directly influence resource access and learning. Theoretically, we contribute primarily to the literature on the performance effects of working alongside higher performers. Within this literature, a number of boundary conditions have been proposed to understand how peer performance changes as a result of working alongside higher performers (e.g., Call et al., 2015, 2021; Kehoe & Tzabbar, 2015). However, the timing of these effects has to date gone understudied. To augment research on higher performers, we highlight that the social learning view of higher performers implies a lagged effect between the presence of higher performers and peers' performance. By contrast, the resource dependence argument focuses on more immediate effects: employees compete for resources during performance episodes, and employees losing this competition to higher performers would suffer immediate performance changes. By incorporating temporal dynamics into the study of higher performers, we construct a more complete theory of higher performers' effects on their peers (Mitchell & James, 2001).

## 2 | THEORETICAL BACKGROUND

Employees' schedules dictate not only *when* one works, but also *with whom* one works. As Bandura (1986) described, “The people with whom one regularly associates, either through preference or

imposition, delimit the behavioral patterns that will be repeatedly observed, and, hence, learned most thoroughly” (p. 55). Exploring shiftwork should thus be a component of the relational perspective of HR, which emphasizes the interplay between HR practices and the “... formal and informal patterns of interactions” (Gittell et al., 2021) between employees. “Formal” relationships are often thought of as reporting lines on an organizational chart (e.g., Soltis et al., 2018), but more broadly might be thought of as any organizationally prescribed relational ties (e.g., supervisor/subordinate, assigned to the same team, or work from the same location). Formal relationships are under more direct control of the organization as they represent the arrangements of coordination the organization establishes for workers (McEvily et al., 2014). However, formal relationships can influence more emergent informal relationships because formal relationships shape the pool (or “consideration set”; Methot et al., 2021, p. 732) from whom employees form more self-directed informal relationships that might reflect various qualities (i.e., trust, support, liking, friendship, disclosure, etc.) as those relationships emerge. Importantly, formal relationships do not dictate informal relationships—organizations cannot mandate any two workers to become friends. Yet research has shown that organizations can establish formal relationships that are conducive (or prohibitive) for informal relationship formation by placing employees in closer proximity or creating more opportunities for interaction (Ashkanasy et al., 2014; Brass & Labianca, 2012; Grant & Parker, 2009; Lee, 2019; Methot et al., 2021; Yakubovich & Burg, 2019).

Research within the relational HR perspective is diverse in its focus on formal relationships, informal relationships, or both (McEvily et al., 2014). Some research emphasizes that formal relationships lead to informal relationships, which benefit organizations (e.g., Gittell & Douglass, 2012; Grant & Parker, 2009; Methot et al., 2021; Millward et al., 2007). Other research focuses on the formal relationships themselves, suggesting a direct influence on outcomes regardless of the informal relationships they might shape (e.g., physical proximity, Bell & Zaheer, 2007; Lee, 2019; team assignments, Call et al., 2021; Li et al., 2020; Soda et al., 2004). Our study takes the latter approach by examining the direct outcomes of the formal coworking structures created by scheduling practice. In this sense, our study applies a relational view of scheduling practice due to its focus on employee connections (rather than an operational approach to scheduling that sees employees as independent actors). Yet it is indifferent toward the informal relationships scheduling might facilitate. Instead, we focus solely on the composition (Methot et al., 2018) of employees' formal coworking network, and how those structures differ in terms of the degree of higher performers present.

In taking this perspective, we draw primarily from the literature on the peer effects of higher performers (e.g., Campbell et al., 2017; Downes et al., 2021), which depicts higher performers in two different ways. Through one lens, higher performers have been thought of as “stars,” which includes a narrow set of coworkers meeting specific criteria. Star employees are often conceptualized as having *disproportionately* high performance (Call et al., 2021; Kehoe & Bentley, 2021; Kehoe & Tzabbar, 2015). An employee who only slightly outperforms

an average-performing individual probably does not have high enough performance to be considered a star. Disproportionately high performance, however, represents only one dimension of the star conceptualization: research also depicts stars as being highly visible and having high degree of social capital (Call et al., 2015; Kehoe & Bentley, 2021; Oldroyd & Morris, 2012). In this sense, star employees are a special type of high performer that adds value not only through high performance, but also by affecting resource flow to and within the firm.

Our study is more consistent with a second lens on higher performers, which focuses solely on the performance differences exclusive of differences in social capital or visibility. This line of research depicts higher performers as any coworkers whose job performance is relatively higher than the focal individual (e.g., Campbell et al., 2017; Downes et al., 2021), regardless of whether that higher performance is only slightly higher or disproportionately higher. This conceptualization emphasizes that all higher performers—regardless of their star status or lack thereof—inform and contribute to employees' most proximal social contexts. Additionally, because higher performers do not necessarily have high levels of visibility or social capital, they represent a larger portion of the employee population than do star employees.

We focus on this broader conceptualization of higher performers (rather than of stars) because it better aligns with our focus on peer performance in a retail context. First, our theory depicts all higher performers, regardless of the magnitude of difference in performance. The narrower star conceptualization would artificially assume only a select few higher-performing peers have influence on their lower-performing coworkers. Second, performance differences in the retail context are inherently local: coworkers can identify each other's performance (e.g., through performance feedback or informal sharing between coworkers), but may not be able to detect or relate to coworkers who are stars in the enterprise (e.g., in the top 10% of sales workers company-wide). Finally, the more general conceptualization of higher performers (rather than stars) is consistent with how we apply two prominent theories in the higher performer literatures: resource dependence theory and social learning theory.

Resource dependence theory can be applied to higher performers who would not be considered stars. Resource dependence theory positions power imbalance and mutual dependence as key factors that shape actors' ability to garner and utilize resources toward goal achievement (Casciaro & Piskorski, 2005). Power accrues to individuals based on higher performance, experience, or formal position in a hierarchy (Anderson & Galinsky, 2006; Kehoe & Tzabbar, 2015). In situations of high-power imbalance, high-power individuals are motivated to maintain their power, which results in fewer resources for low-power individuals depending upon them. Through this line of reasoning, higher performers negatively affect peer performance because they consume resources that could otherwise be used by lower performers. This is particularly true in contexts that do not require collaboration; when high-power actors mutually depend on resources alongside low-power actors, they are incentivized to share resources and thus these negative effects on peers are weaker (Kehoe & Tzabbar, 2015). Though the theory clearly applies to the presence of star employees, all higher

performers (even only slightly higher performers) consume resources that could otherwise be available for lower performers. The degree of power imbalance between a star and a focal employee is larger than the difference between a slightly higher performer and the focal employee. Yet either case creates a power imbalance that can constrain resources and affect employees' performance.

The second relevant theory, social learning theory highlights individuals' learning from their social worlds (Bandura, 1986). Individuals search for and select the role models through social interactions (Kulik & Ambrose, 1992) where they witness the role model's performance (Bandura, 1986). The more frequently they view role models' behaviors, the more opportunities they have to consider alternative performance strategies and incorporate them into their behavioral repertoire (Myers, 2018). Because employees' schedules dictate workers' more frequent interactions, they determine the nature of the social context for social learning, with some contexts replete with higher performing role models and others barren (Call et al., 2021). Social learning theory is not exclusive to stars in that higher performing role models can be any coworker from whom an employee can learn performance strategies. A star with extremely high performance probably displays more (and superior) performance strategies relatively to a higher performer with only slightly higher performance, yet the higher performer with only slightly higher performance still displays new performance strategies for the lower-performer's learning.

In the following section, we apply resource dependence theory (Casciaro & Piskorski, 2005) and social learning theory (Bandura, 1986) to depict how employee performance changes as a result of working alongside higher performers (including, but not limited to, stars). Our primary objective is to extend these research streams by applying a temporal perspective: we suggest each theory makes different predictions in regards to the timing of when peer performance changes as a result of coworking with higher performers, particularly in a retail sales context where workers are relatively independent.

## 2.1 | Higher performer effects and time

As Kehoe and Tzabbar (2015) described, resource dependence theory implies higher performers control and consume resources that limit opportunities for lower-performing peers (Coff, 1999). This is particularly true under conditions of high-power imbalance and low mutual dependence on those resources. If higher performers can complete their work without the assistance of lower-performing peers, higher performers have little incentive to share resources and otherwise give up their position (Prato & Ferraro, 2018). We add to this argument a temporal focus on how these constraints have immediate, concurrent effects in the retail sales context.

In the independent retail sales context, one of the most important resources for workers is customer opportunities. Sales workers are compensated and evaluated primarily on how many (or how well) they serve customers and sell goods and services; having more (or fewer) customers enables (or constrains) performance. Sales employees thus

highly depend on customer opportunities to be successful, and viewing customer opportunities as a key resource has several implications. First, retail employees can generally complete transactions independently. For this reason, a customer opportunity can be seen as a resource for a single employee, and there is little need for employees to collaborate and share customers as part of their job. According to resource dependence theory, this independent form of work should discourage higher performers from sharing resources, because they do not need to do so in order to maintain their higher performance (Kehoe & Tzabbar, 2015).

Second, because customer opportunities can be directly linked to performance and compensation, employees have self-interest not to share customers. In retail sales, employees have a direct financial interest to efficiently consume customer opportunities (i.e., make sales). Many commission-based retail stores manage this individualized motivation by developing some type of informal "up" system where employees take turns serving the next available customer (i.e., being "up"). Such an informal system assumes employees are available at their next turn; if they are still completing a transaction, another employee goes "up." In addition to making a larger percentage of their shares given the opportunities they have, higher performers also complete those sales more quickly, allowing them to be "up" more frequently when future opportunities arise. The presence of higher performers thus limits others' opportunities for sales and ultimately constrains others' performance.

A third implication of viewing customer opportunities within resource dependence theory offers insight into the timing of when higher performers' presence should affect peers' performance. Notably, customers cannot typically be held, maintained, or transferred to future periods—customers arrive with the expectation they will be served at that time. This presents a core implication for applying resource dependence theory to the retail sales context—the presence of higher performers should have a relatively immediate impact on peers' performance. Higher performers serve customers more efficiently than lower performers, enabling them to take on more customers in each shift. This reduces the number of customer opportunities for others in that shift but has little bearing on subsequent shifts. Subsequent shifts involve new customer opportunities and different numbers of higher performers as dictated by the schedule. Typically, there is no carryover between shifts; the fact that a higher performer constrained an employee's performance yesterday should have little bearing on that employee's performance today. For this reason, the resource constraint placed on lower-performing employees is immediate in the period of interest. For this reason, we hypothesize employee performance has a negative *concurrent* relationship with co-scheduling with higher performing peers.

**Hypothesis 1.** *The concurrent effect of co-scheduling higher performing peers on focal employee performance is negative.*

In contrast to resource dependence theory, social learning theory emphasizes the learning and upskilling that accompanies close

proximity to higher performing role models (Bandura, 1986; Call et al., 2021). As employees observe higher performing peers, they gain knowledge and skills (Downes et al., 2021; Ericsson, 2006) that help them be more efficient and make fewer mistakes over time (Bandura, 1986). A key component of social learning theory is that observed behaviors must be noticed, rehearsed, and practiced as they are integrated into individuals' performance repertoires (Bandura, 1986; Van Maanen & Schein, 1979). As Bandura (1986) points out, "Observers' capabilities for processing modeled information sets limits on the amount of observational learning that can be achieved from brief exposures," meaning that, "...repeated exposures are often necessary to acquire an adequate conception of modeled activities" (p. 53). Bandura (1986) describes several cognitive processes: employees must witness higher performance, integrate observed behaviors into their mental frameworks, then practice those behaviors and evaluate their effectiveness over time (Weiss, 1990). This process requires repetition of observation, cognitive representation, practice, and evaluation linking new behaviors to the results they produce (Bandura, 1986). Thus, successful modeling requires time for employees to translate what they have observed into higher performance.

In this way, social learning theory implies the longer-term, lagged effect of co-scheduling with higher performers should be positive. In the immediate term, performance strategies learned through role modeling have not been put into practice, and there is therefore little positive immediate effect of social learning. However, in contrast to nontransferrable customer opportunities, the learned performance strategies can be retained and applied in future periods. This means that although the concurrent effect of co-scheduling with higher performers should be negative, the lagged effect on focal individuals' performance should be positive.

The timing of exactly how long it takes for learning to translate into improved performance depends upon the characteristics of the learner, the role model, the relationship between the two, the complexity of the task, and other factors in the environment (Myers, 2018). For this reason, research relying on social learning theory does not offer specific theoretical predictions or empirical evidence regarding the timing of the predicted effects. However, research on the transfer of formal training programs has spent a great deal of time studying the timing for when learning associated with training interventions get translated into work practices. Theoretically, the expectation is that learning—which occurs in close timing with the training intervention—is put into practice, then decays over time unless the learned skills are regularly put to use (Baldwin & Ford, 1988). Although generalized predictions are difficult regarding how long it takes for immediate learning to result in subsequent transfer into practice (because contexts, learners, and tasks vary), researchers on training transfer tend to measure transfer on average 2–3 months following training (Blume et al., 2010).

In the present study, we expect the gains associated with social learning take at least 1 month to manifest. This is on the shorter side of training transfer research, yet social learning occurring through scheduling offers repeated exposure to the superior

performance strategies, which reinforce learning and provide recurring modeling over each shift. A 1-month lag is also important for connecting practiced strategies to performance feedback: the monthly performance episode is salient to sales employees who receive monthly commissions relative to targets based on their (and their role models') performance. More broadly, because social learning requires time for employees to put into practice their new performance behaviors, we hypothesize that the lagged effect of higher performers emphasizes the learning gains rather than the resource constraints of higher performers. For this reason, we formally hypothesize a positive lagged effect of co-scheduling with higher performers on peer performance.

**Hypothesis 2.** *The lagged effect of co-scheduling higher performing peers on focal employee performance is positive.*

## 2.2 | Moderating effect of tenure

Elements of both resource dependence and social learning theories also suggest the effects of higher performers on employees' performance should depend upon the tenure of the lower-performing employee. From a resource dependence perspective, the power imbalance between newer employees and higher performers is larger than the power imbalance between more tenured employees and higher performers. Employees newer to the job are still learning organization routines and building job knowledge (Ng & Feldman, 2010; Sturman, 2003; Tesluk & Jacobs, 1998); newcomers spend much of their time training and socializing as they adjust to new organizations (Kammeyer-Mueller et al., 2013). These processes can be inefficient as newcomers have to revisit their knowledge and behaviors to assess their efficacy. Newcomers may feel overloaded by the volume of new information (Klein & Weaver, 2000) and the adjustments required to integrate information into their performance repertoires (Myers, 2018). Because new employees are still forming the mental models for how to perform effectively on the job, they do not have a viable route to immediately compete with higher performers. Combined, these dynamics make it difficult when customer opportunities are constrained: newcomers working around higher performers have little margin for error given they have relatively fewer customer opportunities and relatively fewer skills to operate effectively in such a low-slack environment.

By contrast, more tenured employees are more able to compete with higher performers because they have already have a set of performance strategies that make it possible to compete with higher performers limiting customer opportunities. Employees with more tenure already have a skill base for completing the work, and perhaps need only institute minor modifications in order to compete with higher performers. Alternatively, for a more tenured employees, the performance deficit may be more motivational, and the individual only needs to try harder during the next shift to close the performance gap. This luxury is not available to newer employees who lack the foundational

skillsets—simply working harder may not be sufficient to overcome the constrained resources that accompany working with higher performers. For these reasons, we expect the negative concurrent effect of co-scheduling alongside higher performers to be stronger for employees with less tenure and weaker for employees with more tenure.

**Hypothesis 3.** *The concurrent effect of higher performing peers on performance is moderated by tenure such that the effect of higher performing peers on focal employee performance is more strongly negative for newer employees than for employees who have longer tenure with the organization.*

From a social learning perspective, newcomers are often particularly enthusiastic about learning and assimilating to the organizational context (Ostroff & Kozlowski, 1992). They also face a significant degree of uncertainty and are motivated to improve their performance quickly (Bauer & Erdogan, 2011; Wright & Bonett, 2002), accumulating skills that can be useful on the job (Judge et al., 1995). Even though, this process does not improve performance immediately, investing sufficient time in training and socialization may increase newcomers' job performance, allowing them to have role clarity and competence (Jackson & Schuler, 1985). Existing studies suggest that job performance generally improves (Ployhart & Hakel, 1998) when employees undergo a period of cognitive transition such as training and socialization (Murphy, 1989).

By contrast, employees with more tenure have already learned work skills and are familiar with organizational practices due to their time and various work experiences (Ng & Feldman, 2010; Sturman, 2003). They know how to match the organizational demands to a higher degree and get economic returns more in response for firm-specific knowledge, skills, and abilities (Slaughter et al., 2007). Because they are more familiar with tasks, they rely less on role models (Rakestraw & Weiss, 1981) and more on their own direct experiences in the past (Call et al., 2021). Moreover, as Porac et al. (1983) stated, experienced employees “perform their work with highly routinized behavioral patterns and thus may not engage in much causal reasoning simply because work has become ‘scripted’” (p. 286). Rooted in these ideas, we expect the positive lagged effects of co-scheduling with higher performers also to be stronger for newer employees than for those with greater tenure with the organization.

**Hypothesis 4.** *The lagged effect of higher performing peers on performance is moderated by tenure such that the effect of higher performing peers on focal employee performance is more strongly positive for newer employees than for employees who have longer tenure with the organization.*

### 3 | METHODS

Hypotheses were tested using archival records of a large consumer retail organization in the United States. Records included monthly

sales metrics and shifts worked in a single year. Employee ID's were also used to collect basic employment information (e.g., hire date) as well as store level information (e.g., customer traffic counts) from company databases. Employees were in sales roles with one of two titles: “sales representative” or “lead sales representative,” with the latter being employees who had been promoted through seniority and merit. Employees' jobs were relatively low in interdependence; a single employee could generally serve a customer from greeting through purchase without the assistance of other employees. Employees would occasionally coordinate with spikes in customer demand (e.g., backing up one another, assisting with minor tasks, etc.), but typically worked independently in close proximity to their coworkers. Employees worked in stores with on average seven to eight other sales representatives at a given time in a physical store location that enabled them to observe one another at work.

Schedules for each store were generally set by the manager, with a recommendation from human resources for the total number of employees who should work in the store for that month. Staffing recommendations were based on past customer demand at that location (e.g., past customer foot traffic), size and location of store (stores located in more prominent locations or more affluent areas generally anticipated more demand), and an industry market index which accounted for the overall level of expected customer demand based on a number of factors (e.g., upcoming product announcements, industry marketing campaigns, etc.). Store managers integrated these staffing recommendations as they slotted employees into shifts for the upcoming period (typically 2 weeks, although this varied across managers).

Our analysis is based on shift schedules and sales data in a single calendar year. Most employees were employed full-time, although we retained all applicable employees even if they worked part-time. The data contained 9,686 employees across a total of 81,467 shifts. Though all 81,467 shifts were included in the co-scheduling analysis, not all observations could be included in analysis. For example, because our interest was in lagged effects across months, January performance could not be analyzed (i.e., there were no co-scheduling data from the prior month). An additional source of missing data involved observations where performance data were missing (1,514 observations). This missingness caused the listwise deletion of 3,028 records (because a missing performance entry precludes analysis of that month and the immediately following month where lagged variables are required). Missing data eliminated 8,206 observations where store-level customer data were not available (results including these observations, and not controlling for customer counts, were consistent with the primary analysis reported below). After accounting for randomly missing data, our sample size was 60,130 observations from 7,893 employees, or 83.72% of the data.

## 3.1 | Measures

### 3.1.1 | Dependent variable: Sales performance

Sales performance was recorded as the number of units the focal employee sold that month. On average, employees sold about

20 units, with a SD of about 12 units. Note mean performance in time  $t$  is 19.80 while the mean of performance in time  $t-1$  is 21.03; this difference is primarily a result of truncation due to the interval of the data collection window (i.e., January had no  $t-1$  and was omitted).

### 3.1.2 | Co-scheduling with higher performers

To determine the extent to which each employee was co-scheduled with higher performing peers, we relied upon daily work schedules for each employee. From these data, we counted the number of hours an employee worked on a given day with all employees with higher sales performance than them over the month. For example, if employee A was highest performer in a store in a month, and employee B was second highest, we calculated the number of hours employee B worked with employee A over the course of that month, and entered those total hours for employee B. For employee A, the co-scheduling hours with higher performers would be equal to zero (because there were zero higher performers). Note that if the performance ranking were different for a subsequent month, the calculations would be switched and employee B would have zero co-scheduled hours with higher performers.

This operationalization is consistent with our conceptualization of higher performers as any coworker with higher performance. It also directly connects to the schedule by summing hours worked across all higher performers. However, alternative operationalizations could capture similar ideas. In the stars literature, for example, it is common to identify a star as having performance beyond some threshold (e.g., Kehoe & Tzabbar, 2015; Szatmari, 2021), which captures stars' disproportionately high performance. Once stars are identified, there are multiple ways to operationalize the social context. For example, Call et al. (2021) operationalize group star proportion as the percent of a workgroup categorized as a star; Kehoe and Bentley (2021) use a dummy code to indicate the presence/absence of a star; and Downes et al. (2021) count the number of coworkers who are perceived to have higher performance. Robustness checks for alternative approaches are described below.

To ease interpretation, we scaled the number of hours worked with higher performers by dividing the number by 40 to represent a typical full-time workweek. Coefficients thus represent the expected change in sales given an employee works one additional week with a higher performer. Using this scale, employees worked an average of 6.25 (SD = 7.49) weeks per month with a higher performer. This figure can also be thought of as employees working each shift with an average of 1.56 higher performers (i.e., 6.25 divided by 4 weeks a month).

### 3.1.3 | Tenure

We retrieved the start dates for each employee from HR records and calculated the time since the employee started at the firm. To explicitly test our hypotheses in the context of new employees, we divided the number of days between each employee's start date and the start of the focal month by 365. With this scaling, the mean tenure was 2.45 years (SD = 2.39).

### 3.1.4 | Control variables

Because a variety of individual- and store-level characteristics likely affect individuals' performance, we controlled for sales performance in time  $t-1$  throughout analyses ( $M = 21.03$ ,  $SD = 12.75$ ). This offers the additional advantage of focusing interpretation on the change in sales performance expected given the independent variables. Additionally, we included as a control the number of coworkers in the store during that month ( $M = 7.44$ ,  $SD = 3.71$ ). This is to acknowledge that employees in larger stores with more coworkers are likely to also have more higher performing coworkers. Similarly, because employees who worked more hours would likely have more sales and more hours worked with higher performers, we included the total number of hours worked in the month ( $M = 127.86$ ,  $SD = 67.85$ ). Finally, we controlled for the employee's job title (1 = lead sales representative; 0 = sales representative); this was not time varying. The mean was 0.38 with a SD of 0.48.

We also recognize factors outside employees' control may affect their performance. To control for overall customer demand, the organization provided two indices: an industry-level marketing index and a store customer count. The industry-level marketing index was assessed by marketing experts who made predictions about the "general level of customer excitement" in the upcoming month (on a z-score scale). The customer count data were retrieved from store-level counters that tracked the number of people who entered each store ( $M = 8,090$ ;  $SD = 4,470$ ).

## 3.2 | Analytic technique

Our data reflect longitudinal observations where observations are nested within employees, who are then nested within stores. To account for these multiple levels of dependence, we conducted multi-level modeling in R using Bliese's (2016) "multilevel" package. We first examined the portions of variance in performance that resided at multiple levels of analysis by computing ICC(1)'s: 9.34% of the variance in sales performance resided between stores and 25.67% varied between individuals; the remaining variance is within-person. These figures justify the use of multilevel analyses that account for nonindependence of observations.

Models thus can be depicted as three-level, with observations (Level 1) nested within employees (Level 2) nested within stores (Level 3). As such, we freed two levels of intercepts to vary (employees nested within stores). Because our interest is in the within-person effect over time (i.e., the change in an individuals' performance associated with a change in coworking with higher performers), we within-person centered higher performer co-scheduling (see Enders & Tofghi, 2007). This approach isolates within-person variance in co-scheduling with higher performers, which is of substantive interest. Because within-person centering removes between-person variance in the substantive variables, it also offers the advantage of ruling out between-person differences that might influence our results, and instead focuses exclusively on how a person's sales

**TABLE 1** Descriptive statistics and correlations

	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. Sales performance <sub>t</sub>	19.80	12.00		–	0.25	0.22	0.16	–0.05	0.17	–0.50	–0.03	–0.00
2. Lead rep dummy <sup>a</sup>	0.38	0.48	0.17		–	–	–	–	–	–	–	–
3. Sales performance <sub>t-1</sub>	21.03	12.75	0.93	0.17		0.14	0.03	–0.07	0.06	–0.02	–0.46	0.01
4. Industry market index <sub>t</sub>	0.00	1.00	–0.08	0.00	0.13		0.25	–0.04	0.13	0.08	0.06	0.01
5. Customer count <sub>t</sub> <sup>b</sup>	8.09	4.47	0.16	–0.11	0.17	0.01		0.05	0.08	0.03	0.03	0.01
6. Number of coworkers <sub>t</sub>	7.44	3.71	0.09	–0.12	0.08	–0.01	0.75		0.06	0.07	0.04	0.01
7. Total hours worked	127.86	67.85	0.16	0.17	0.30	0.47	–0.02	–0.03		0.16	–0.08	0.00
8. Co-scheduling with higher performers <sub>t</sub>	6.25	7.49	–0.04	0.01	–0.02	0.10	–0.02	–0.01	0.00		0.05	0.00
9. Co-scheduling with higher performers <sub>t-1</sub>	6.45	7.69	–0.02	–0.01	–0.04	0.12	–0.01	–0.01	–0.00	0.65		–0.00
10. Tenure <sub>t</sub>	2.45	2.39	–0.09	0.20	0.01	–0.18	–0.03	–0.00	0.03	0.01	0.01	

Note:  $N = 7,893$  employees; 60,130 observations. Correlations below the diagonal are between-person (correlations  $> |0.03|$  are significant at the 0.05 level); correlations above the diagonal are within-person (all correlations are significant at the 0.05 level).

<sup>a</sup>1 = lead sales representative, 0 = not a lead sales representative; no within-person variance (thus within-person correlations could not be computed).

<sup>b</sup>In thousands of customers.

performance changes as a function of hours worked with higher performers in the concurrent and previous months. Store customer count, the industry market index, and the number of coworkers are time-varying, store-level controls. To facilitate interpretation, they were grand-mean centered. The focal employee's sales in the previous month was a time-varying within-person control and was retained in the raw form.

## 4 | RESULTS

Table 1 displays descriptive statistics and zero-order correlations. Because the data contain repeated observations across individuals, correlations are broken down as between- and within-person. Our hypotheses emphasize the change in sales performance over time within individuals. Sales performance (at time  $t$ ) had a large negative within-person correlation with co-scheduling with higher performers at time  $t$  ( $r = -0.50$ ,  $p < 0.001$ ), and a small negative within-person correlation with co-scheduling with higher performers at time  $t-1$  ( $r = -0.03$ ,  $p > 0.001$ ).

Inferences about hypotheses are drawn from Table 2. Hypothesis 1 suggested that the concurrent effect of co-scheduling with higher performers would negatively affect employee performance. As Model 4 shows, results were consistent with this hypothesis ( $\gamma = -1.01$ ,  $p = 0.007$ ), such that working one additional week with a higher performer was associated with 1.01 fewer sales. Hypothesis 2 posited that the lagged effect of co-scheduling with higher performers would positively affect employee performance. Model 4 in Table 2 indeed shows a positive relationship between co-scheduling with higher performers at time  $t-1$  and with employee performance at time  $t$  ( $\gamma = 0.34$ ,  $p = 0.008$ ). Employees are expected to sell 0.34 units more in subsequent month when employees work one additional week with a single higher performer. Hypotheses 1 and 2 were thus supported.

Hypothesis 3 contended that the negative concurrent effect of co-scheduling with higher performers would be stronger for employees who were newer to the organization relative to those with more tenure. As shown in Model 7 in Table 2, the interaction between tenure and co-scheduling with higher performers was statistically significant ( $\gamma = 0.02$ ,  $p = 0.003$ ), such that performance of more tenured employees is less influenced by higher performers than newer. However, we note the effect size of this interaction is rather small (a change in pseudo- $R^2$  relative to the main effects model of less than 0.01). As shown in Figure 1, the interactions show that low tenure employee's performance decreases slightly more than high tenure employees. More specifically, for an employee with 4 years of tenure, working a week with a higher performer is associated with 0.97 fewer sales. By contrast, for an employee with 1 year of tenure, working a week with a higher performer is associated with 1.03 fewer sales. Thus, although Hypothesis 3 was technically supported by statistical significance, we caution the effect size (and practical significance) was small.

Hypothesis 4 suggested that the positive lagged effect of co-scheduling would be stronger for low tenure employees than for those with higher tenure. Model 7 demonstrates the interaction between tenure and co-scheduling with higher performers at time  $t-1$  was related to employees' time  $t$  performance ( $\gamma = 0.02$ ,  $p = 0.003$ ), yet was in the opposite direction as hypothesized. That is, whereas the hypothesis suggested the effect would be more strongly positive for lower tenured employees, it was slightly more positive for employees with more tenure. More specifically, an employee with 1 year of experience would be expected to sell 0.32 units more after working with a higher performer for 1 week, whereas an employee with 4 years of tenure would be expected to sell 0.38 units more. For completeness, the plotted interaction is shown in Figure 2. However, Hypothesis 4 was not supported.



**TABLE 2** Three-level analyses predicting sales performance at time *t*

	Model 1 $\gamma$ (SE)	Model 2 $\gamma$ (SE)	Model 3 $\gamma$ (SE)	Model 4 $\gamma$ (SE)	Model 5 $\gamma$ (SE)	Model 6 $\gamma$ (SE)	Model 7 $\gamma$ (SE)
Intercept	11.07* (0.15)	10.73* (0.17)	8.94* (0.15)	9.54* (0.16)	9.54* (0.16)	9.55* (0.16)	9.55* (0.16)
<i>Store level controls</i>							
Sales index <sub><i>t</i></sub>	1.08* (0.04)	1.59* (0.03)	0.85* (0.04)	1.39* (0.03)	1.38* (0.03)	1.38* (0.03)	1.38* (0.03)
Customer count <sub><i>t</i></sub>	0.59* (0.02)	0.68* (0.02)	0.51* (0.02)	0.61* (0.02)	0.61* (0.02)	0.61* (0.02)	0.61* (0.02)
Number of coworkers <sub><i>t</i></sub>	-0.37* (0.03)	-0.28* (0.03)	-0.34* (0.03)	-0.29* (0.03)	-0.29* (0.03)	-0.29* (0.03)	-0.29* (0.03)
<i>Between person control</i>							
Lead rep dummy <sup>a</sup>	1.96* (0.12)	1.71* (0.14)	1.33* (0.11)	1.49* (0.13)	1.49* (0.13)	1.50* (0.12)	1.50* (0.12)
<i>Within person controls</i>							
Sales performance <sub><i>t-1</i></sub>	0.35* (0.00)	0.28* (0.00)	0.45* (0.00)	0.36* (0.00)	0.36* (0.00)	0.36* (0.00)	0.36* (0.00)
Total hours worked <sub><i>t</i></sub>	0.01* (0.00)	0.01* (0.00)	0.00 (0.00)	0.01* (0.00)	0.01* (0.00)	0.01* (0.00)	0.01* (0.01)
<i>Within person predictors</i>							
Tenure <sub><i>t</i></sub>		0.41* (0.03)	0.31* (0.02)	0.39* (0.02)	0.39* (0.01)	0.39* (0.02)	0.39* (0.02)
Co-scheduling higher performers <sub><i>t</i></sub>		-0.99* (0.01)		-1.01* (0.01)	-1.05* (0.01)	-1.01* (0.01)	-1.05* (0.01)
Co-scheduling higher performers <sub><i>t-1</i></sub>			0.35* (0.01)	0.34* (0.01)	0.34* (0.01)	0.30* (0.01)	0.30* (0.01)
Tenure × higher performers <sub><i>t</i></sub>					0.02* (0.00)		0.02* (0.00)
Tenure × higher performers <sub><i>t-1</i></sub>						0.02* (0.00)	0.02* (0.00)
$\sigma^2$ (residual)	84.45	58.88	85.31	58.58	58.51	58.53	58.47
$\tau_{00}$ (between person)	2.55	2.87	2.15	2.50	2.50	2.50	2.50
$\tau_{00}$ (between store)	3.12	4.34	2.20	3.65	3.65	3.65	3.65
Marginal- $R^{2b}$	0.27	0.46	0.31	0.48	0.48	0.48	0.48
Within-person $R^{2c}$	0.30	0.40	0.34	0.45	0.45	0.45	0.45
Between-person $R^{2c}$	0.56	0.45	0.66	0.56	0.56	0.56	0.56
Between-store $R^{2c}$	0.35	0.41	0.41	0.48	0.48	0.48	0.48

Note: *N* = 60,130 (observations); 7,893 (employees); 1,049 (stores). Coefficients are unstandardized.

<sup>a</sup>1 = lead representative, 0 = not a lead representative.

<sup>b</sup>Nakagawa and Schielzeth's (2013) formula.

<sup>c</sup>Snijders and Bosker's (1999) formula compared to an intercept-only model.

\**p* < 0.001.

## 4.1 | Robustness checks

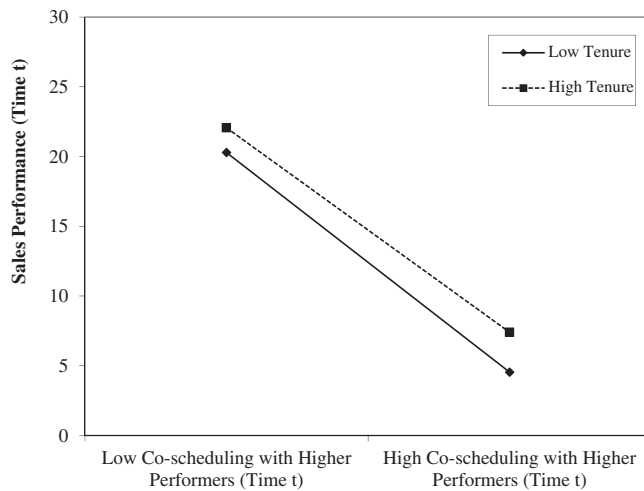
Our analytic approach involved several decisions that could have influenced our results and thus merit further robustness checks. Results for all supplementary analyses are available on OSF: [https://osf.io/z7y2f/?view\\_only=4d0882f9e76741ac9e1a916fe64448d7](https://osf.io/z7y2f/?view_only=4d0882f9e76741ac9e1a916fe64448d7).

### 4.1.1 | Operationalization of higher performers

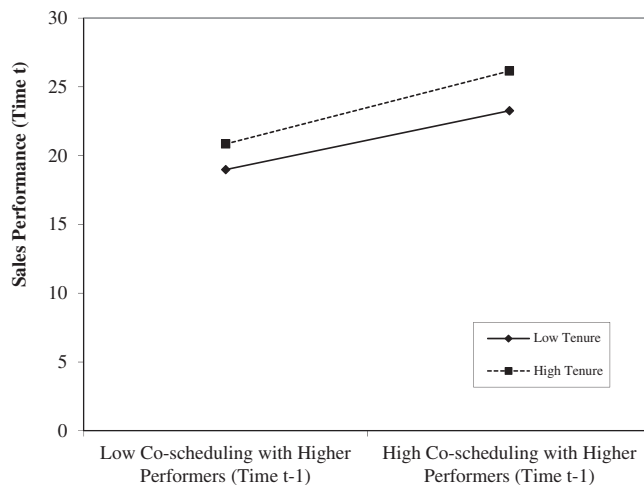
We operationalized higher performers as any coworker with a higher performance in a period than the focal employee. Although this is consistent with our broad conceptualization of higher performers, a narrower conceptualization of star performers (with disproportionately higher performance) would focus only on the top echelon of the performance distribution within an organization. The threshold for the level at which a worker becomes a star varies across the literature (e.g., 2 SDs above the mean, top 33%, top 3%, etc.), but in many cases a cutoff approach is used to delineate stars from non-stars. Although

this approach is less consistent with our conceptualization (i.e., we contend employees can learn skills both from the top performance echelon as well as those who are only slightly better performers), we analyzed the data using this approach as well. In this analysis, we applied two different thresholds, defining stars as: (a) someone with sales performance at least one store-level SD above the focal employee, and (b) someone with sales performance at least two store-level SDs above the focal employee. Results using this approach showed that it was the star performers who had stronger effects on their peers than “non-star” higher performers with only slightly higher performance. In this robustness check, although the concurrent effects of both star and non-star higher performers negatively related to performance (supporting Hypothesis 1), only star higher performers had a significant positive effect on lagged performance (in support of Hypothesis 2).

A similar method to capture this idea might be to weight the hours worked with higher performers by the performance difference between the higher performer and the focal individual.<sup>1</sup> One advantage of this approach is that it recognizes that a coworker with much



**FIGURE 1** Interaction of co-scheduling with higher performers (time  $t$ ) and tenure in predicting sales performance at time  $t$ . Co-scheduling with higher performers modeled at  $\pm 1$  SD (i.e., 0 full-time weeks and 14 full-time weeks). Tenure modeled at  $\pm 1$  SD (i.e., 0 and 4.8 years). Both simple slopes are negative and differ significantly from zero (at low tenure,  $\gamma = -1.05$ ,  $p < 0.001$ ; at high tenure,  $\gamma = -0.95$ ,  $p < 0.001$ ).



**FIGURE 2** Interaction of co-scheduling with higher performers (time  $t-1$ ) and tenure in predicting sales performance at time  $t$ . Co-scheduling with higher performers modeled at  $\pm 1$  SD (i.e., 0 full-time weeks and 14 full-time weeks). Tenure modeled at  $\pm 1$  SD (i.e., 0 and 4.8 years). Both simple slopes are positive and differ significantly from zero (at low tenure,  $\gamma = 0.30$ ,  $p < 0.001$ ; at high tenure,  $\gamma = 0.40$ ,  $p < 0.001$ ).

higher performance likely has more performance strategies to offer (and consumes more customer opportunities) relative to a coworker who is only a slightly higher performer. To conduct this robustness check we multiplied the number of hours worked with each higher performer by the difference in performance between the focal individual and the higher performer. Substantive conclusions are similar in that the main effects are as expected (in Hypotheses 1 and 2). However, the interaction effect representing Hypothesis 3 was in the

opposite direction; under this operationalization, Hypothesis 3 was not supported.

Alternatively, Call et al. (2021) conceptualized and operationalized the group star proportion as the proportion of stars in a group (i.e., those nominated for a high potential program who also had performance greater than one SD above the mean). To incorporate this logic at the shift level, we conducted two analyses: one operationalizing co-scheduling higher performers as the percent of hours a focal employee worked alongside at least one higher performer; and another operationalizing the proportion of high performers in the shift as the percent of coworkers (across all shifts) who were higher performers. This is different from the group star proportion in a way that we did not use a threshold of one SD above the focal employee. Substantive conclusions were identical using either approach.

#### 4.1.2 | Time lag

A second area requiring robustness checks revolved around the length of the lag used to examine lagged effects in performance. We examined a 1-month lag primarily for theoretical (i.e., social learning theory implies repeated episodes are required for observational learning) and practical (i.e., in retail sales, the 1-month episode is salient for performance feedback and compensation) reasons. Admittedly, however, neither social learning nor resource dependence theory offer strong predictions regarding the timing of our proposed effects. To rule out concerns surrounding a 1-month lag, we conducted additional analyses using 2-, 3-, and 4-month lags. Substantive conclusions were similar to those in our primary analysis.

## 5 | DISCUSSION

We proposed zooming in on employee scheduling practice with a focus on how employees' rotating schedules create their social environments. We specifically applied a temporal lens to research on higher performers to examine *when* co-scheduling with higher performers influenced employee performance. We argued resource dependence predicted that co-scheduling with higher-performers would negatively relate to peers' concurrent performance because higher performers would consume opportunities that may otherwise be available to lower performers. By contrast, a temporal view of social learning theory expects peers to exhibit improved lagged performance as lower performers learn new performance strategies and increase their abilities over time. Our data, drawn from a retail sales sample, bore this out: co-scheduling with higher performers reduced peer performance in the same month, but increased focal employee performance in subsequent months.

We further expected these effects would be more strongly negative immediately (and more positive over time) for employees newer to the organization. Newer employees are particularly low in power (making them vulnerable to competition) yet highly attentive to their environments (making them more ready for rapid skill acquisition over

time). Results in this regard were at best equivocal. Newer employees showed a more negative immediate effect of co-scheduling with higher performers, but this effect was small. Further, the positive lagged effect was stronger for those with higher tenure than with lower tenure. The learning gains associated with working alongside higher performers appeared to be important for all employees and not only for those new to the job. These findings offer several implications for theory and practice.

## 5.1 | Contributions to theory

Our research provides several theoretical contributions related to employee scheduling practice and peer effects. First, we augment theory on the peer effects of higher performers by integrating time as a boundary condition for the direction of these effects. The ongoing conversation in this space has highlighted the characteristics of higher performers (Kehoe & Tzabbar, 2015), characteristics of peers (Downes et al., 2021), or broader social context (Call et al., 2021) to understand the conditions under which peer effects are positive or negative. To this list we add time, which enables a more precise understanding of when we should expect peer effects to manifest (Mitchell & James, 2001). Our results suggest that higher performers have an overall initial negative effect on peer performance, but over time this exposure to higher performers increases peer performance.

Finally, we build theory on employee scheduling that extends the emerging interest in the connection between HR practices and employees' interpersonal relationships (e.g., Methot et al., 2018; Soltis et al., 2018). We point out that employees' schedules—particularly in a rotating shiftwork context—determine employees' relational opportunities because the schedules dictate which employees are likely to have the most interaction over time. Building interpersonal relationships requires repeated interactions (Jo & Ellingson, 2019). Frequent exposure to higher-performing coworkers provides a freer flow of information (Methot & Cole, 2021) thus making performance strategies more readily accessible to the learner. In this sense, our research highlights how employees' schedule shapes employee social contexts and leads to the formation of role model-observer relationships that influence employees' performance over time.

## 5.2 | Contributions to practice

The findings offer several implications for scheduling practice. First, we encourage HR practitioners to consider a relational approach to scheduling. In contrast to a “headcount” approach, a relationally derived schedule seeks to create opportunities to initiate the interaction by having employees be physically proximate to each other, which influences future job performance. In our study, this physical proximity defined employees' contexts in terms of competition and opportunities for learning. However, schedules could serve as a foundation for many kinds of relationships, including friendship, mentorship, support, and task coordination (Methot et al., 2018). Because

relationships play an important role in job attitudes and citizenship behaviors (Chiaburu & Harrison, 2008; Methot et al., 2021), scheduling practice could have a substantial impact on employee's performance improvement.

A relational perspective of employee scheduling may seem daunting at scale. As the number of employees grows, the number of relationships to track grows exponentially. For example, with 5 employees, there are 10 relationships to track; with 10 employees, there are 45 relationships; and with 15 employees there are 105 relationships. However, the ramping up of HR analytics makes relational scheduling practical to implement for larger organizations (Leonardi & Carpenter, 2018). Scheduling algorithms that capture employees' co-scheduling require more advanced data tracking and modeling, yet take advantage of these social effects that are otherwise missed opportunities for organizations. The operational approach to scheduling may be simple and straightforward, but it overlooks valuable relational phenomena.

Second, practitioners should expect a shift to relational scheduling to take time. Our results suggest practitioners introducing a new co-scheduling practice can expect to see reduced performance initially. However, our results suggest practitioners can expect to see performance gains over time: observational learning requires employees to have time and space to digest their observations and fold them into their own performance repertoire (see also Myers, 2018). Practitioners may be able to accelerate this process through learning-oriented reflections that help employees learn more effectively.

Finally, we advise practitioners to view relational scheduling practice as affecting all employees, and not only those newest to the organization. Our results suggest the short-term costs and long-term gains of co-scheduling with higher performers are about the same for new and more tenured employees. Thus, our research shows co-scheduling is not solely an onboarding or socialization tactic, but can be used as a more general employee development practice. For this reason, we advise practitioners to view scheduling practice through a relational lens, asking not only “when do I need this employee?,” but also “with whom should this employee work?”

## 5.3 | Limitations and future research

As with any research, our study contains several limitations that encourage future research. First, we did not directly examine the social or cognitive processes through which learning and resource flows influence workers. For example, social learning theory describes deliberate cognitive processes through which learning occurs (Bandura, 1986); although our theory applies these principles, we could not actually observe individuals' thought processes or social interactions. One limitation in this respect is our ability to detect whether employees are aware of and accurately perceive role models' higher performance. In the retail sales context that involves close interaction, it is common for employees to informally share performance information, particularly at monthly intervals when commission

and performance feedback are issued. Theoretically, however, the accuracy of employees' perceptions regarding others' performance is not a prerequisite within social learning and resource dependence theories. In social learning theory, for example, employees can learn novel performance strategies from others' even if they misperceive role models' actual performance level. These arguments notwithstanding, future research would be valuable on the degree to which employees accurately detect role models' performance and how social learning and resource dependence theories play out in cases where employees misperceive their coworkers' performance.

Second, we are not able to address a plausible alternative explanation that incorporates how store managers influence employees' development over time. Research has demonstrated leaders' influence on follower performance, particularly when leaders have close interaction with followers (Howell & Hall-Merenda, 1999). Leaders help followers interpret their environment and identify opportunities for learning and growth (LePine et al., 2016). For this reason, co-scheduling with managers might have the positive effects of co-scheduling with higher performers without the negative effects from resource-dependent competitions. Our data precluded testing this idea given that managers' schedules were not tracked in the database. However, future research might explore how co-scheduling with managers could lead to longer-term performance gains among followers without the immediate costs we find in our study.

Third, co-scheduling may have different effects depending upon the task, organization, and overall human capital contexts. We note the specific sales and shiftwork context of our study, where workers work independently and to some degree competitively given the nature of customer opportunities. In other contexts (e.g., knowledge work), resources flow through different patterns, changing how peers experience coworking with higher performers. For example, in an inbound customer service call center, workers have substantial opportunity to practice (e.g., high volume of calls), and higher performing peers likely do not consume customer opportunities in the same way as a retail sales context. This could mean the initial negative effects of higher performer co-scheduling could be smaller, and the social learning effect over time might be more dramatic. Moreover, contexts with greater interdependence (i.e., basketball players, firefighters, nurses, etc.) may show different results from our sample from a more independent context. In knowledge work, for example, Kehoe and Tzabbar (2015) found star scientists' interdependence with other scientists were generative for peer performance. We encourage further exploration of the task context as a potential moderator of the direction, timing, and relative strength of co-scheduling effects over time.

Fourth, our findings with respect to the moderation effects of employee tenure also merit future research given our results were not consistent with those from Call et al. (2021). Call et al. found that the presence of stars had a stronger positive relationship with non-star performance for newer non-stars than for more tenured non-stars. Although we hypothesized a similar effect (Hypothesis 4), we did not find support for this idea. Further, our results suggested the opposite: the presence of higher performers was more positively related to future performance for employees with more tenure in the

organization. These different findings may be due to contextual differences—whereas our study examined shiftworkers in retail sales, Call et al. studied more interdependent corporate workers in commercial real estate management. These contexts differ in several ways (e.g., in our sample, employees all held the same sales role, whereas in Call et al. employees came from multiple roles; in our sample, performance was measured using an objective sales metric, whereas in Call et al., performance was measured using supervisory rating; in our sample, the average tenure of an employee was 2.45, whereas in Call et al., the average tenure was 6.48 years) that merit further study on additional samples. However, one possible theoretical interpretation involves differences the interdependence of the work. The retail sales context we studied was low in interdependence and collaboration, whereas the corporate workers in Call et al.'s sample had relatively higher levels of interdependence. Collaborative environments encourage stars to share resources (Kehoe & Tzabbar, 2015), upon which new employees to the firm rely. This interpretation is also consistent with our finding that the concurrent effect of higher performers—which we argue is due to higher performers' effects on available resources—did interact with tenure. Taken as whole, these findings imply the moderating effects of tenure on higher performers' effects on lower performers' performance may be due more to the reliance of new employees on firm resources rather than the social learning processes new employees experience. These arguments are of course based on limited post-hoc conjecture, and future research resolving the inconsistent findings would be valuable.

Fifth, the finding that the learning effects were primarily driven by star performers (with disproportionately higher performance) offers another avenue for future research. This finding was unexpected given that social learning theory posits performance strategies can be learned from any role model. One explanation might be that non-star higher performers utilize performance strategies that are idiosyncratically effective, so emulating a non-star higher performer may not be effective in future performance episodes. More broadly, our findings encourage future research on when and why stars with disproportionately higher performance might affect coworkers differently than those coworkers with marginally higher performance.

Sixth, our focus on working with higher performers does not allow us to explore how daily customer demand influences scheduling to fulfill unit-level performance. For instance, during times of high customer demand, an operational approach to scheduling might be more ideal to be economically efficient in maximizing productivity at the lowest possible labor cost (e.g., Easton, 2014). The relational view of scheduling takes time to benefit the organization, which for some firm strategies and life cycles might be suboptimal. Future work is needed to unravel when the operational approach to scheduling is best, when the relationship approach is best, or when they should be used in combination.

Finally, one area for future research might investigate how co-scheduling along higher performing workers affects employee turnover. On the one hand, it may be the case that higher performers elevate the expectations for performance, increasing employee strain, and ultimately resulting in voluntary turnover as employees seek jobs

with more achievable goals. On another hand, higher performers also enable learning, which is tightly linked to employee thriving (Kleine et al., 2019), thus reducing employees' desire to leave. Further, being associated with high performers has a positive impact on one's self-image (Cialdini et al., 1976); leading lower performers to stay in roles in part due to their affiliations. Although the focus of our research in on the performance effects of co-scheduling with higher performers, we encourage future research considering how the presence of higher performers affects turnover.

## 5.4 | Conclusion

In the broadest sense, our study illustrates the importance of employee scheduling in performance outcomes. By considering how schedules create shift workers' social contexts, our perspective moves beyond a headcount approach to scheduling and takes advantage of the substantial research literature on the effects of higher performers on their coworkers. Moreover, we extend resource dependence theory and social learning theory by highlighting the timing through which different social processes influence employees. Most notably, co-scheduling with higher performing peers appears to improve focal employee performance over time: although higher performers constrain others' performance in the short term, the promote learning that elevates others performance in the longer term.

## DATA AVAILABILITY STATEMENT

Research data are not shared.

## ORCID

Patrick E. Downes  <https://orcid.org/0000-0002-8944-020X>

Ella Sareum Lee  <https://orcid.org/0000-0003-0397-8138>

## ENDNOTE

<sup>1</sup> Thank you to an anonymous reviewer for this suggestion.

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## AUTHOR BIOGRAPHIES

**Patrick Downes** is an assistant professor of management at the University of Kansas School of Business. His research interests are in employees' social contexts and motivation, as well as research methods.

**Ella Sareum Lee** is a PhD student at the University of Kansas School of Business. Her research interests are in workplace relationships, socialization, and training/development.

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