Organization Science

Publication details, including instructions for authors and subscription information:
http://pubsonline.informs.org

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To cite this article:
Leroy Gonsalves (2023) Work Un(Interrupted): How Non-territorial Space Shapes Worker Control over Social Interaction. Organization Science

Published online in Articles in Advance 11 Jan 2023

. https://doi.org/10.1287/orsc.2022.1649

https://pubsonline.informs.org/journal/orsc

ORGANIZATION SCIENCE
Articles in Advance, pp. 1–21
ISSN 1047-7039 (print), ISSN 1526-5455 (online)

Work Un(Interrupted): How Non-territorial Space Shapes Worker Control over Social Interaction

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Received: February 28, 2019
Revised: January 12, 2021; September 14, 2021; November 14, 2022
Accepted: November 21, 2022
Published Online in Articles in Advance: January 11, 2023

https://doi.org/10.1287/orsc.2022.1649

Abstract. Organizational research has long emphasized the importance of physical space in structuring opportunities for social interaction among workers. Using 14 months of field research during an office redesign at a large team-based sales company, I find that the adoption of non-territorial space—a change from assigned cubicles to an unassigned mix of spaces—substantially increased worker control over social interaction. Whereas the old territorial space rendered workers constantly accessible to others, the new non-territorial space altered information about workers' location and availability preferences, enabling new strategies for hiding in the space and signaling availability to others through workspace selection. This led to greater reliance on virtual or asynchronous communication technologies, and less unwanted interruption in the new non-territorial space. The findings identify how the non-territorial dimension of office space affects worker control over social interaction. They also reveal the social practices through which individuals actively use material and symbolic resources in the physical environment to avoid cognitive and temporal costs of unwanted interruption. The study complements dominant structural accounts with a richer theorization of individual agency—while physical spaces certainly structure opportunities for social interaction, they also structure the strategies that individuals can use to actively manage social interaction.

Keywords: physical space • office design • non-territorial space • materiality • social interaction • interruption • collaboration

Physical space structures how social interaction unfolds in organizations. Workers assigned in close proximity to one another are highly likely to interact and become friends as compared with more spatially distant pairs (Festinger et al. 1950, Reagans 2011, Dahlander and McFarland 2013). Social interaction occurs throughout the workday as individuals encounter each other in the space. It is for this reason that managers often redesign offices with the explicit goal of increasing interaction and collaboration (Bernstein and Turban 2018). Spatial layouts can trigger emergent interaction, particularly in areas where workers are likely to cross paths (Sailer and McCulloh 2012, Wineman et al. 2014). This research demonstrates that physical space is not a passive backdrop for the unfolding of organizational life but an active ingredient facilitating interaction between workers (Finnegan 2008, Kellogg 2009, Lawrence and Dover 2015). Managers' concerns about creating a collaborative culture are also salient in popular press accounts of a return to the office (White 2021, Nohria 2022, Raval and Edgecliffe-Johnson 2022, Telford 2022). Commercial real estate professionals estimate that 63% of firms are considering redesigning their offices for the postpandemic era, with 80% of these firms focused on the design of collaboration spaces (CBRE 2021).

Yet, too much social interaction can be detrimental to individual task activities. In collaborative contexts, individuals often struggle to balance their individual tasks with their professional obligations to help others (Grant and Parker 2009, Okhuysen and Bechky 2009, Oldham and Hackman 2010). When individuals engage in complex tasks, unwanted interruptions can disrupt their focus of attention and make it difficult to transition back to the focal task (Leroy 2009). For example, a software engineer writing complex code may be interrupted by a colleague stopping by her desk with a question. After pausing to answer the question, she would then have to recall the disrupted task, remember which section of code she had left unfinished, and refamiliarize herself with the problem she was troubleshooting. These task transitions can frustrate employees, consuming already limited cognitive and temporal resources. When unwanted interruptions become too frequent, this can create a crisis mentality with employees experiencing feelings of time scarcity, depletion, and emotional exhaustion (Perlow 1999, Jett and George 2003, Leroy et al. 2020).

Empirical studies find two major obstacles to workers' ability to control the timing of social interaction and to ward off unwanted interruptions. First, extant

work assumes that interaction is largely a function of spatial design rather than individual behavior—social ties form when individuals are assigned in proximity to one another, and social ties activate and produce interaction as individuals cross paths with each other in the space. Although scholars of social interaction acknowledge that individual behavior matters, critics note that empirical studies mostly capture the effects of structural factors, leaving individual agency undertheorized (Emirbayer and Goodwin 1994, Gulati and Srivastava 2014, Casciaro et al. 2015, Small 2017). Second, individual agency is limited by workers' reluctance to overtly decline social interaction for fear of reputational damage. This is because declining requests for help, socializing, or collaboration is seen as violating ideal worker norms of constant availability and self-sacrificial devotion (Flynn 2003, Correll et al. 2014, Reid 2015, Tewfik et al. 2018). This is why workers rarely decline opportunities for social interaction when they emerge throughout the workday. Taken together, the current state of knowledge implies that physical space is central to shaping social interaction and that people have difficulty dealing with unwanted interaction because they are constrained by expectations to behave collaboratively.

In this paper, I examine the role of physical space in shaping workers' experience of unwanted interruptions. Drawing on 14 months of in-depth field research during an office redesign at a large team-based sales organization, I find that a reconfiguration of physical space, from territorial space with assigned cubicles to non-territorial space with a mix of unassigned spaces, substantially increased workers' ability to manage social interaction. The adoption of non-territorial space decreased information about workers' location and increased information about workers' availability preferences, with workers beginning to hide in the space or signal availability to others through their workspace selection. These strategies had implications for social interaction, with greater reliance on communication technologies and a decline in the frequency of unwanted interruptions. After the office redesign, workers experienced much greater control over the timing of social interaction.

The paper offers two important contributions. First, it identifies non-territorial space as an overlooked factor affecting workers' experience of unwanted interruption. Prior research on physical space characterizes non-territorial space as highly constraining because employees can no longer claim and personalize their workspace and thus experience less psychological control over their environment (Elsbach 2003, Brown et al. 2005, Brown and Robinson 2011). Instead, I identify a tension between control of one's assigned workspace and control over one's availability to others. Second, I complement structural perspectives on physical space by offering a richer theorization of individual agency. Prior research finds that spatial designs trigger social interaction as individuals encounter one another in the office, and that collaborative expectations make it difficult for individuals to avoid unwanted interaction. I build on these accounts by showing how individuals actively manage social interaction, with certain spatial configurations enabling or constraining individual agency through the material and symbolic resources provided by the physical space. The study reveals how physical spaces structure not just opportunities for interaction, but the strategies that workers can use to manage social interaction.

Unwanted Interruption and Non-territorial Space

Social relationships represent a source of both benefits and burdens for individuals (Portes 1998, Labianca and Brass 2006). Whereas classical research emphasized important information and control advantages (Burt 2004), it is becoming clear that maintaining positive social relationships at work requires considerable effort. Studies of executives, star employees, and teams illustrate how social interaction consumes scarce time and attention (Perlow 1999, Jett and George 2003, Oldroyd and Morris 2012), with coworkers' resource demands often imposing a burden for highly embedded individuals.

Although there are many ways to categorize social interactions (e.g., work vs. nonwork, homophilous vs. nonhomophilous, positive affect vs. negative affect), I focus on social interactions that are interruptive. Interruptions are an intrusive form of social interaction which "compels a switch away from the interrupted task despite one's commitment to completion of the initial task and one's preference for continuing that work" (Leroy et al. 2020, p. 663). I refer to this intrusive form of interruptive social interaction as unwanted interruption to distinguish it from welcome interruptions that occur during downtime or low-concentration tasks. Unwanted interruptions can also be triggered by both work and nonwork interactions, because the initiator's mere request for attention will interrupt the individual's task, regardless of the subsequent content of the interaction.

Team-based work involves a high level of social interaction to coordinate task activities. Task interdependence is a defining feature of knowledge-intensive work (Thompson 1967) and requires workers to simultaneously balance individual task activities with their professional obligations to help team members. In collaborative settings, individuals have to manage multiple priorities with varied temporal horizons and competing demands from their team (Grant and Parker 2009, Okhuysen and Bechky 2009, Oldham and Hackman 2010). Social interactions occur frequently and unpredictably in these contexts as individuals engage in knowledge

exchange within and across team structures (Zellmer-Bruhn 2003, Young-Hyman 2017).

In collaborative contexts, unwanted interruptions can impede progress for individuals focusing on individual task activities. For example, Perlow's (1999) study of a software engineering team found that constant interruptions produced a shared crisis mentality focused on short-term problems, rather than advancing long-term priorities. The chaotic nature of emergent interaction is consistent with the analogy of Kellogg et al. (2006, p. 40) of a "trading zone," which they use to describe the web of emergent interactions among team-based employees at a marketing firm. They find similarities between their study and Perlow (1999), noting that "Adweb's norms of constant availability similarly perpetuated a sense of unrelenting temporal pressure." Other qualitative studies of team interaction describe similar consequences of frequent unwanted interruption, with expectations of responsiveness and availability producing feelings of time scarcity, depletion, and emotional exhaustion (Mintzberg 1973, Mazmanian et al. 2013).

Laboratory-based studies provide insight into why unwanted interruptions are so cognitively taxing. Interruptions are known to reduce task performance (Zijlstra et al. 1999, Altmann and Trafton 2007, Altmann et al. 2014, Leroy and Schmidt 2016), especially for complex tasks that require a sustained focus of attention (Speier et al. 2003, Foroughi et al. 2015). This is because interruptions break individuals' focus of attention, forcing them to switch tasks unexpectedly. Moreover, the disruptive effect of interruptions continues even after the interruptive event comes to an end, with individuals experiencing difficulty resuming their task activity. Interruptions leave "attention residue" with individuals expending cognitive and temporal resources in their transition back to the focal task (Leroy 2009). These task transitions require individuals to disengage from the interruption, recall their task activity, refamiliarize themselves with it, and identify where they left off. Temporal and cognitive resources spent on task transitions can quickly accumulate, with individuals experiencing negative emotions as a result of frequent unwanted interruptions (Kirmeyer 1988, Mark et al. 2008, Carton and Aiello 2009, Weigl et al. 2017). This may help explain why intermittent breaks from interaction seem to improve team performance (Bernstein et al. 2018).

Individuals can find it difficult to ward off unwanted interruptions because of their professional obligations to help their team members. This is what Tewfik et al. (2018) call the "help-decliner's dilemma" because declining requests can result in reputational damage and reduce colleagues' desire to interact with them in the future (Bolino 1999, Newark et al. 2014). Employees understand that rewards accrue to those who cultivate a reputation consistent with the ideal worker image of constant availability, help-giving, and self-sacrificial dedication (Flynn 2003, Correll et al. 2014, Reid 2015). When unwanted interruptions occur, employees are unlikely to risk reputational damage, particularly because the request itself will have already disrupted their focus of attention. This is why individuals hesitate to decline requests for help, despite this impeding progress of their individual task activities and work goals (Koopman et al. 2016, Leroy and Glomb 2018).

Organization-level solutions to this help-decliner's dilemma appear promising. For example, Perlow (1999) examined the effects of introducing synchronized "quiet time" three days a week among engineering teams. The engineers in her study reported less unwanted interruption and enhanced productivity as a result of this intervention. Perlow's (2012) study of management consultants also found that unwanted interruptions outside of work could be reduced with a "predictable time off" intervention consisting of teams discussing and agreeing to a unit of time off where they would be off work and unreachable, along with weekly team meetings to assess progress. Finally, Metiu and Rothbard (2013) examine how workers avoid interruption while collaborating on software development projects in shared space. Specifically, they describe how group engagement with task-related artifacts such as whiteboards create "task bubbles" that ward off interruptions from others. These studies highlight the cognitive and temporal costs of interruptions in interdependent work contexts, and indicate that team-level or organization-level resources may help empower individual workers. Building on this approach, I consider how non-territorial workspace might affect workers' ability to control social interaction.

The Potential Role of Non-territorial Space

A growing body of work recognizes that the physical space in organizations has consequences for social relationships between workers. This is an important insight given that research on space has historically focused on physiological outcomes of lighting, temperature, and cleanliness (Zhong and House 2012). Ironically, the classic Hawthorne studies that set out to examine the effects of lighting on worker productivity concluded that the physical environment mattered less to workers than how they were treated by managers (Roethlisberger and Dickson 1939). Only recently have researchers have begun to rethink this conclusion and to begin uncovering the complex ways in which the physical environment structures social life in organizations (Elsbach and Pratt 2007, Khazanchi et al. 2018, Small and Adler 2019, Stephenson et al. 2020, Ashforth et al. 2022). Empirical studies increasingly find that the physical environment has relational consequences, shaping how workers relate to one another and coordinate work activities (Carlile 2002, Millward et al. 2007, Kellogg 2009, Bernstein 2012, Beane and Orlikowski 2015, Lawrence and Dover 2015).

I focus on the interactional consequences of non-territorial spaces, which eliminate employees' assigned workspace (Elsbach 2003). These office designs typically take the form of hoteling, where employees must book an individual workspace in advance, or they offer a mix of unassigned spaces available to all employees at all times (Davis et al. 2011). Studies examining territorial behaviors suggest that negotiating space with others can be fraught with tension and conflict, particularly when there are constraints on available workspace (Altman 1975, Brown et al. 2005, Brown 2009, Brown and Robinson 2011). Hence, non-territorial offices may affect individual behaviors and collective norms by requiring employees to relinquish individual ownership of workspace, introducing uncertainty as individuals share workspace with others.

Studies of physical space in organizations (Elsbach and Pratt 2007, Khazanchi et al. 2018, Stephenson et al. 2020) provide two suggestive insights for how non-territorial spaces might affect unwanted interruption. First, non-territorial spaces could increase unwanted interruption by expanding the potential set of interaction partners. Studies have found that proximity increases the likelihood of social interaction in elementary schools (Reagans 2011), universities (Festinger et al. 1950, Dahlander and McFarland 2013), Congress (Chown and Liu 2015, Parigi and Bergemann 2016), private workplaces (Kleinbaum et al. 2013), and interorganizational collaborations (Powell et al. 2005). Within offices, areas with high movement choice—those on the shortest path between others' workstations—tend to encourage emergent interaction triggered by collisions with moving others (Wineman et al. 2014). Because non-territorial offices do not limit employees to a single assigned workspace, this may encourage more movement, with proximity between individuals changing throughout the course of a workday. Hence, we might expect more serendipitous encounters between employees working in non-territorial office spaces and thus more unwanted interruption.

On the other hand, non-territorial spaces might reduce unwanted interruption if they provide less privacy for engaging in "thick" or emotive conversations (Sundstrom et al. 1980, Becker et al. 1983, Lee and Brand 2005, Kim and de Dear 2013). For example, Bernstein and Turban's (2018) innovative sociometric badge study found a sharp decline in face-to-face interaction and a rise in email interaction following the adoption of open office space. Less enclosure has been shown to intensify experiences of work fatigue and emotional exhaustion (Fried 1990, Laurence et al. 2013). However, these effects are thought to be mediated by interpersonal experiences rather than representing direct effects of physical features (Oldham and Rotchford 1983). From this perspective, non-territorial spaces could reduce unwanted interruptions if they reduce privacy and exert a chilling effect on social interaction. However, it is difficult to draw conclusions about the effects of territoriality because these studies largely focus on open offices, which eliminate walls and partitions, rather than non-territorial spaces, which remove assigned seating.

Although few empirical studies directly examine non-territorial spaces, the few studies that exist suggest they may affect social interaction. Elsbach (2003) found that employees working at a non-territorial office tend to express valued identities in conversation, because they cannot rely on material artifacts. Millward et al. (2007) provide survey evidence from a large consulting firm showing that employees working in unassigned space (vs. employees working at assigned desks) perceived electronic communication as more valuable, a variable that mediated greater identification with the organization rather than work team (though see De Been and Beijer 2014). These studies suggest that non-territorial spaces likely affect how employees interact with one another. I build on these insights, leveraging an office redesign at a large sales firm—a change from assigned cubicles to a mix of unassigned spaces—to explore how non-territorial space shapes employees' experience of social interaction.

Methods

I conducted 14 months of in-depth field research during an office redesign at a regional sales division of a Fortune 500 company which I refer to by the pseudonym "BigCorp." The site was one of several sales offices that comprised the global BigCorp company's sales operations. The research site was responsible for managing BigCorp product sales and had more than 500 employees working at the office.

Several features of the research site made it an ideal context to examine the effects of non-territorial space on employees' experience of unwanted interruption. First, the office redesign allowed me to exploit variation over time to examine changes in social interaction patterns by comparing the same employees' experience at Time 1 (old territorial space) with their experience in Time 2 (new non-territorial space). Second, the work context featured high interdependence with employees engaging in frequent social interaction to coordinate work activities within teams. Most employees belonged to either a customer team managing sales with a specific large customer account, or on a brand team managing sales across product categories. Teams generally had regular standing meetings throughout the week and coordinated sales efforts with their peers, as well as cross-functional employees (e.g., finance, market research, logistics) assigned to their work group. Third, the office redesign was initiated by cost-reduction efforts unrelated to concerns about social interaction, mitigating

potential endogeneity issues about signaling management intent for less unwanted interruption. Finally, the office redesign was the only major change that occurred during the study period with all data collected a few years prior to the 2020 COVID-19 pandemic. For example, there were no mergers, acquisitions, management changes, downsizing initiatives, or restructuring during this time, allowing reasonable comparisons between the old and new office spaces.

I did not enter the field site with a rigid set of predetermined hypotheses about social interaction. Rather, I began the research embracing a discovery epistemology approach (Locke 2011), focused on broadly understanding the consequences of the change in physical space for a wide variety of employee outcomes. This strategy is often described as abduction (Locke et al. 2008, Tavory and Timmermans 2014, Behfar and Okhuysen 2018) and involves searching for unexpected findings that existing theories cannot explain. The goal of abduction is to engage in theory development by inductively identifying a surprising empirical puzzle and then deductively developing and refining the emergent explanation. By combining induction and deduction, the abductive method aims to avoid common pitfalls of a rigid field research design—namely forcing the qualitative data to fit a preselected theory or collecting qualitative data that simply confirm what is already known. Thus, although I did not begin the research intending to study unwanted interruption, this emerged as an interesting finding after the office redesign. Informal discussions with employees led me to develop a provisional theory of what occurred and led me to collect additional data to refine the emergent explanation.

Data Collection

I collected several types of data to assess the effect of non-territorial space on social interaction. These included (1) observation, (2) semistructured interviews, and (3) company survey data. Triangulating between these data sources gave me greater confidence in my interpretations, ensuring a strong fit between emergent theory and data.

Observation

I conducted approximately 1,400 hours of observation over the span of 14 months. This was divided roughly evenly between the prechange (Time 1) and postchange (Time 2) periods. Observation was enabled by BigCorp giving me an employee badge, a desk, a company email address, and full access to talk to anyone in the organization. I entered BigCorp six months before the change in physical space and spent about three days a week at the site. I intended to gain insight into the functioning of the office spaces by experiencing the territorial space and non-territorial spaces firsthand and passively examining how employees used the office space. I integrated myself into the organization, attending group meetings with sales teams and the human resources team, and taking on a special projects role, with tasks such as maintaining the company's internal intranet website, cleaning and analyzing pay equity data, and providing an analysis of employee engagement data. I also scheduled and took meeting minutes for the ongoing biweekly lunch series with employees and the company's senior executives, where employees could share their opinions about how to improve work at BigCorp. I opportunistically joined meetings, training sessions, corporate events, and social activities to deepen my understanding of the work context. I jotted daily field notes in a physical journal that I digitally transcribed. Taking on an active participant observation role as a paid entry-level worker facilitated access and enabled richer theorizing through deeper insight into the work and organizational context (Pratt 2000, Lamont 2009, Bernstein 2012, Anteby 2013). I sought to uphold professional distance and personal involvement by identifying myself as an academic researcher and being transparent about my access and observations in the company being facilitated by BigCorp executives. My immersion in the research site prior to the office redesign allowed me to gain familiarity with the organizational context, offices spaces, and employee routines, facilitating meaningful comparison of Time 1 to Time 2.

Semistructured Interviews

I conducted 50 semistructured interviews during the period after the office redesign (Time 2) in order to further develop and refine the theory that emerged from observation and informal discussions with employees across the organization. Informants were randomly sampled from a population list of employees located at the research site. This included diversity of gender, rank, and department, with women (n = 28), administrative employees (n = 14), junior managers (n = 11), middle managers (n = 16), senior managers and executives (n = 9), sales employees (n = 21), marketing employees (n = 16), logistics employees (n = 5), and internal function employees (n = 8). Interviews ranged between approximately 30 and 90 minutes in length and took place at a location of the informant's choosing—typically in meeting rooms inside the office or a nearby café. Informants were recruited with a message that indicated general interest in hearing "their opinions and insights on the new office space." I began each interview with open-ended questions about their opinions about the office redesign in general (e.g., What do you think about the office redesign? How has it affected your experience at work?). To understand their comparative experience of unwanted interruption between the two spaces, I asked, "Has your experience of unwanted interruption changed in the new office? When you are trying to focus on individual tasks, do you find that people interrupt you

more, less, or the same amount compared to in the old office?" I introduced myself to informants as an academic researcher, was transparent about my access being facilitated by BigCorp executives, and promised confidentiality of responses. Interviews were audio recorded and transcribed with participant consent. I present interview data with labels for gender, function (sales, marketing, logistics, or internal) and interview number.

Interviews are well suited for an analysis of employees' experience of salient events such as a change in office space, as well as understanding their subjective experience of unwanted interruption. They are especially useful for allowing privileged access to the motivations underlying individual behavior (Lamont and Swidler 2014, Langley and Meziani 2020). For example, although I observed employees sitting in remote sections of the office, my interviews surfaced their intention to avoid team members, leading me to view this as a hiding strategy. This combination of observation and interviews allowed for a situated understanding of informants' descriptions of individual strategies that they used to manage social interaction. Although interviews alone can be less reliable for studying behavior, combining interviews with other data sources such as observational and survey data can improve the reliability of informant accounts. The interviews allowed me to gain insight into the motivations underlying individual decisions to use the space to manage social interaction, their perceptions about their subjective sense of control over interaction, and their comparative experience of unwanted interruption in the two offices spaces.

Company Survey Data

I conducted a supplementary analysis to validate some of the qualitative findings, using results from a company survey that BigCorp administered six months after the office redesign (Time 2). The post-redesign company survey provided a unique opportunity to assess whether decreases in unwanted social interaction generalize beyond the employees I interviewed. The survey was administered six months after the office redesign with a response rate of about 69%. This included 312 respondents for 624 person-period observations with a retrospective design asking respondents to provide separate ratings for the old and new office spaces.

I obtained the survey data after I had already collected and analyzed the qualitative data. Hence, the survey data did not directly contribute to the development of theory but were used to provide additional evidence in support of my qualitative interpretations. This provided a rare opportunity to triangulate between data sources, which bolstered my confidence in the fit between my empirical context and emergent theory. I integrate discussion of the survey evidence alongside the main qualitative findings because they help validate aggregate patterns suggested by the qualitative data.

Analytic Approach

The analytical strategy was to generate a processual theory by exploiting variation over time (Tavory and Timmermans 2014). This involved examining the effect of the office redesign using Time 1 (old office space) versus Time 2 (new office space) comparisons. Rather than comparing the experiences of employees assigned to different physical spaces (a between-subjects comparison), the research design compared the experience of the same employee in the old office space and the new office space (a within-subject comparison). This approach improves the accuracy of interpretations by ruling out alternative explanations arising from differences in stable individual characteristics or work contexts. Hence, I compared my own observations before and after the office redesign, and my interview informants and company survey respondents compared their own experiences before and after the office redesign.

The Time 1 versus Time 2 comparisons occurred prospectively in the observational data and retrospectively in the semistructured interviews and company survey data. My interview informants seemed perfectly willing and able to recall the information they provided. However, several features of my research design mitigated against bias from factors known to affect respondent recall accuracy in retrospective accounts—the passage of time, temporal landmarks, event distinctiveness, and topic importance (Tourangeau et al. 2000). First, respondents were asked to compare their experiences working in the old and new office spaces, which were separated by a relatively short time interval of about six months. Second, the office redesign provided a distinct temporal landmark, eliminating uncertainty about the reference period by clearly separating Time 1 (old office) from Time 2 (new office). Third, the event they were asked about—the office redesign—occurred only once, eliminating any confusion about which office space they were being asked about. Finally, the topic of the research was important to employees given the magnitude of the change, and the relevance of the office space and unwanted interruption on employees' experience at work, their level of discretion, and their ability to get their work done. These features of my field site should facilitate respondent recall accuracy and reduce measurement error in retrospective accounts.

The qualitative data were stored, organized, and analyzed using NVivo qualitative research software. The analysis involved constant comparisons between Time 1 and Time 2. In the first round of analysis, I conducted open coding (Strauss and Corbin 1998), focusing on identifying empirical themes relating to how informants described their experience of social interaction in

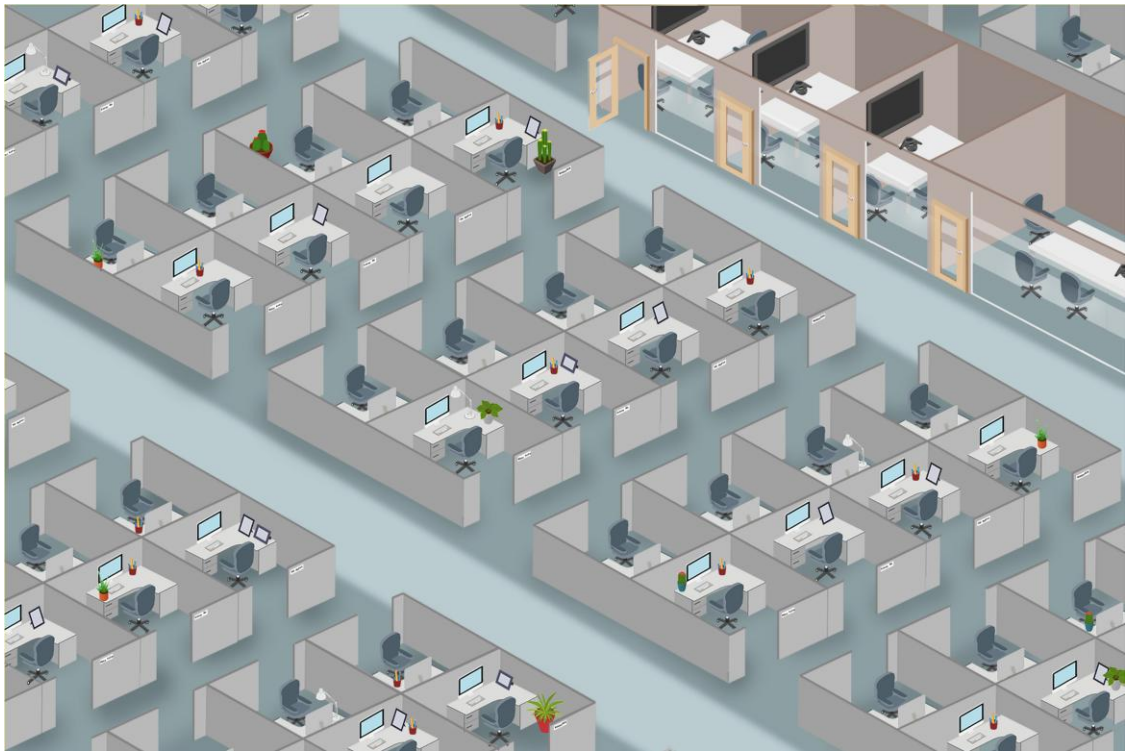
the old and new office spaces. These codes were then grouped into second-order codes with empirical themes being distilled into conceptual categories that corresponded to either Time 1 (old office) or Time 2 (new office). Triangulation between observations, interviews, and survey data provided me with confidence in my interpretations, ensuring strong fit between emergent theory and empirical data from my field site.

Organizational Context: From Territorial Space to Non-territorial Space

BigCorp's old office featured a territorial space, with cubicles assigned to each employee. Most floors had a traditional assigned cubicle design where employees sat with their work group, with each group member assigned to a cubicle within the cluster. Some floors had a nearly identical design with slightly lower partitions between cubicles, and clusters of cubicles assigned to each work group rather than to individual employees. However, in most groups, employees would use the same cubicle each day, effectively resulting in an informally assigned cubicle arrangement, functionally identical to the first layout. Meeting rooms designated for different work groups were also available in each section of the floor. Figure 1 presents artist renderings of the territorial office space.

Because the BigCorp building was located in an expensive city center, executives were interested in finding ways to use the space more efficiently to reduce the total footprint of the office. Their commercial real estate partner advised them that space-reduction opportunities existed because assigned cubicles were never fully utilized due to normal business activities taking place away from the cubicle (e.g., meetings, phone calls, customer visits, breaks, vacation time). An office redesign that did away with territoriality (removing assigned workspace) could offer substantial cost savings by reducing the number of floors leased in the building by BigCorp. Many companies have taken this approach, moving to non-territorial designs, which reduce office space by accounting for normal employee time away from their desk (Needleman 2009, Bennett 2014, Park 2014, Rosenberg and Campbell 2014). The site leader announced plans for the office redesign during the annual end-of-year meeting attended by all employees. He explained that there was "substantial underutilization of the office space" and that the redesign would "present a smart opportunity to reduce costs while also maintaining a comfortable and modern work environment." Senior leaders were transparent in informing employees that the office redesign was motivated by cost-reduction efforts, rather than trying to frame it as an effort to improve the current office space. They anticipated a variety of potential problems related to crowding, noise, storage, and logistics, and gathered employee feedback to proactively address these issues through town halls and planning committees. Expectations were clearly mixed prior to the launch of the BigCorp Campus,

Figure 1. (Color online) Renderings of the Territorial Space (Time 1)



particularly because this was a cost-savings initiative rather than an effort to improve the comfort or functionality of the space. As informants explained:

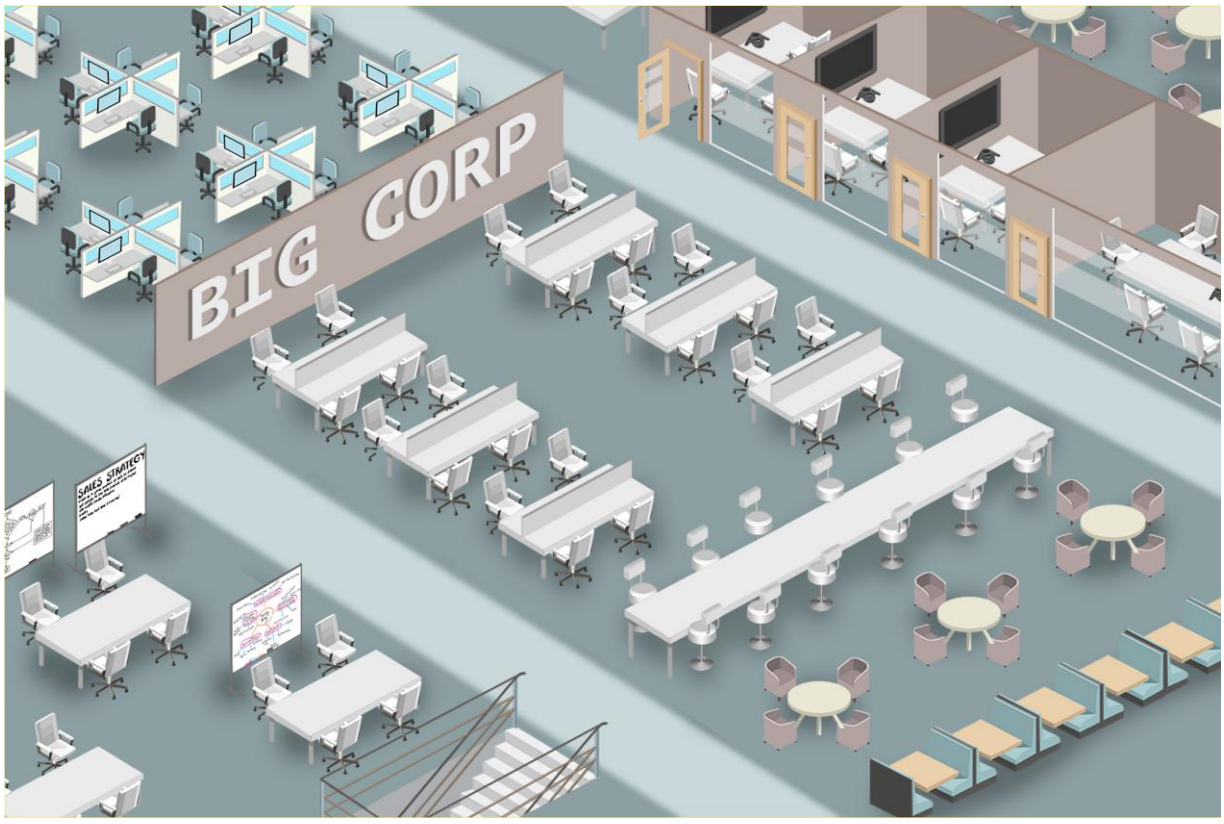
> We are in a culture of productivity at BigCorp where we obviously were in a recessionary period and trying to find ways to improve our costs, whether it is from expenses, or head count, or office space. It is probably better to maximize the space than to cut elsewhere and that's the way I initially heard about the project when it was kicked off. It was productivity driven. It is an expensive building, it is a core intersection. Before we were looking at moving locations and this was one option to reduce floors and it involved asking if we can reduce floors while also delivering on productivity. That's the part I think more people were skeptical about—whether this would be functional. I think people understood the cost of the floors and that letting go of half the leased space would save half the cost. (FI18)

> I was a little nervous about how they are going to fit everybody in [the new office]. I mean, everybody is very connected to their space. How do we function on an everyday basis? How do I have a conversation without everybody listening? I was a bit apprehensive to say the least. I had read a few articles about companies doing something like this, but I had doubts about whether it was going to work. (FS44)

The new office space featured a non-territorial space (Elsbach 2003), which the company referred to as the BigCorp Campus. This involved replacing the former assigned cubicles with an unassigned mix of workspaces with no booking requirements. All BigCorp floors were sequentially ordered and connected by elevators and staircases, and employees could access any workspaces on any floors throughout the day as needed, with no booking requirements (except for large conference rooms). Library space consisted of large clusters of study carrels, usually located on far ends of the office, away from louder high-traffic areas. Open areas featured modern furniture with minimal or no partitions. These included a mix of long high tables, low comfortable chairs, and small tables. Similar to a lounge, these areas were intended for casual conversations or work requiring relatively low concentration. Breakout rooms were small closed-door rooms located throughout the office, in tended for one-to-five-person meetings or for private phone calls. Finally, conference rooms were large closed-door rooms varying in size (six to 20 people) that required advanced booking. Figure 2 provides artist renderings of the new non-territorial office space.

Employees were explicitly told that the new office was designed to provide "space for the task" rather

Figure 2. (Color online) Renderings of the Non-territorial Space (Time 2)



than "space for the day." This meant that in the old office space, employees were expected to complete all their daily work tasks from their assigned cubicle. By contrast, in the new non-territorial office, employees were expected to use the right space for the task at hand, switching workspaces throughout the day as their task needs changed. Employees were told that the new office would instead feature a mix of spaces that were designed to provide the optimal level of auditory and visual stimulation for different tasks. Library areas with high partitions and study carrels were designed to provide employees with a quiet space to conduct focused tasks. Open areas with minimal partitions, comfortable furniture, and whiteboards were designed for collaborative tasks or individual tasks requiring less concentration. Rather than providing one assigned cubicle where employees would conduct all their tasks, the new office would instead provide a mix of spaces based on their task needs:

> It is not a cookie cutter layout. It appears to me a lot of thought was put into it. This floor is probably the most collaborative space . . . it's got a lot of sitting areas and if you want some noise during the day that's the spot to go. Other floors have more breakout rooms or conference rooms, where I spend a lot of my days in meetings. Go up a floor and you'll find more of a mix of library areas and open areas and breakout rooms. [The general manager] always talked about that. A space to do the task. (FS13)

> I use an analogy to describe it to my friends outside of work. I say imagine being under house arrest and having to spend all your time in one room in your large home. Compare that to being allowed to move around in your home. Moving to different physical spaces, sitting somewhere different every day. It's energizing. It's not as stifling as being tied to a desk for a large part of the day. (MS32)

This space for the task direction was not done to reduce unwanted interruption. Rather, it was done to prevent territorial behaviors that could decrease the space utilization rate (e.g., personalizing or reserving workspaces, simultaneously occupying multiple workspaces). This was crucial because the smaller footprint of the new non-territorial office relied on the assumption that employees would only occupy one space at a time. The emergence of territorial behaviors could undermine this space-efficient design, potentially causing shortages of space and crowding. When announcing the upcoming office redesign during the mandatory end-of-year meeting, the site leader explained that the initiative would only work if everyone followed the space for the task approach because occupying multiple spaces would result in a situation where there may not be enough workspaces for everyone. For example, leaving one's belongings at a workspace while holding a meeting in a meeting room would violate this norm by occupying two spaces at once. The space for the task concept was contrasted with the space for the day concept of the old territorial office, to emphasize that as employees used different workspaces throughout the day, they were expected to carry their belongings with them, leaving the last workstation unoccupied. This messaging was consistent with informant accounts of the rationale for changing shifting norms of space use:

> They had enough information to say that we did not spend that much time in our cubicles. You dropped off your stuff at your cubicle and you went to meetings all day. At least for my role, that's a lot of what I did, so that made a lot of sense to me . . . there is a lot of unused space and if we are paying millions of dollars for it, how do we become more efficient. I totally agree and get it. So it was important [in the new space] that people don't fall back into the habit of taking up a spot and leaving their stuff there all day. Because that defeats the purpose of doing this. They told us you have to take your stuff with you or leave it in a locker because otherwise it won't work. (ML43)

> [The general manager] always said "space for the task." You have to pick up your laptop or whatever and take it with you. You can't leave a coffee cup or your purse behind. Because then you're taking up a seat that you're not actually using while you're sitting in the conference room in a meeting. That's a seat someone else might want to sit in. So that was very clear . . . . And so, you have to get used to leaving your things in a locker and maybe paring down some of the clutter or unnecessary items, like your teapot or mugs or those kinds of things. (FM6)

Employees were told that they would begin their days by storing personal items such as coats, shoes, or bags in lockers scattered throughout all floors of the building with reprogrammable passcodes. This would allow them to move from space to space as needed throughout the day without having to carry anything other than their laptop computer. Prior to the office redesign, the company had provided optional document digitization services for the contents of filing cabinets, as well as optional training sessions on digital notetaking. This helped to further reduce the risk of territorial behavior by limiting the number of items employees would carry around with them. These efforts appeared to be successful—I noticed that most employees in the new space had few items with them at any given time. Most carried just their laptop with them, and some carried a bag or purse. This allowed employees to easily move between workspaces without having to pack anything up, reinforcing the expectation that they use the right space for the task, instead of taking up a space for the day.

Table 1. Summary of Changes in Physical Space, Emergent Worker Strategies, and Worker Ability to Control Social Interaction

	Territorial assigned cubicles (Time 1)	Non-territorial unassigned mix of spaces (Time 2)
	Emergence of worker signaling strategies →	
Information about individual . . . *Availability preferences*	Low Worker is assumed available if they are sitting at their cubicle	High Worker is assumed available if sitting in an open area; assumed busy if sitting in a library area, or breakout room
Individual agency Worker ability to control social interaction	Low Worker is reluctant to overtly decline social interaction	High Worker can subtly signal unavailability through their choice of workspace
	Emergence of worker hiding strategies →	
Information about individual . . . *Work location*	High Worker is usually at their assigned cubicle	Low Worker could be on one of multiple floors
Individual agency Worker ability to control social interaction	Low Worker is usually accessible to others	High Worker can hide, sit in high-traffic areas, or post their location virtually

Findings

The findings reveal that the reconfiguration of physical space—from territorial space to non-territorial space—afforded workers greater control over social interaction. In the old territorial office, employees experienced frequent unwanted interruptions. Their location was known as they conducted the majority of their work from their assigned cubicles, and they had difficulty signaling their availability preferences to others. Employees accepted the inevitability of social interactions because they were reluctant to overtly state unavailability for fear of being perceived as shirking their professional obligations. By contrast, the new non-territorial space facilitated emergent strategies for actively managing social interaction, with employees subtly signaling availability through workspace selection and hiding in the space. These emergent individual strategies had implications for how social interaction would unfold, with greater reliance on asynchronous or virtual communication technologies, and less unwanted interruption. After the office redesign, employees experienced greater control over the timing of social interaction.

Emergent Strategies for Managing Social Interaction

The change in physical space decreased information about individual workers' location and increased information about individual workers' availability preferences. This transformed sources of constraint in the old office into emergent strategies for managing social interaction in the new office: (1) from inadvertently signaling availability through mere presence to intentionally signaling unavailability through workspace selection, and (2) from constant access to others to hiding in the space. Importantly, emergent hiding and signaling strategies did not involve overtly declining requests for social interaction, allowing employees to discreetly and tactfully evade interaction in moments when they preferred to work on individual tasks. Table 1 summarizes these changes in physical space, emergent worker strategies, and individual agency.

Emergence of Worker Signaling Strategies. Before the office redesign, workers' availability preferences were difficult to discern by coworkers. Many attempted to indicate they were busy working on complex or time-sensitive tasks through their appearance and posture, avoiding eye contact or staring intently at their laptops. However, such cues were too subtle to be reliably understood by colleagues. As one informant explained, "If I didn't want to be disturbed I kind of did the thing you do on the subway where you put in the earphones and get into that do not disturb kind of body language" (FM42). These efforts to signal availability were not particularly effective given their ambiguous meanings. For example, wearing headphones could simply indicate a preference for listening to music while working rather than signaling unavailability: "I've put my headphones on, and it should be clear that [I'm trying to say] 'no, go away.' But it's hard to be kind of rude and say 'no not right now'" (MS3). Informants explained that mere presence at their assigned desk signaled that they were available to others:

> [In the old space], people would see me working at my desk and assume that I was free to chat with them. But that may not have been true. Sometimes I was just trying to get my work done when they'd chat me up. But there wasn't anything I could do about that other than

> to try to look busy, which obviously doesn't work. But now, in this new environment that's not an issue since people can get a hint about if I'm busy by seeing where I am [sitting]. (MM34)

> Before, it was hard to show that you didn't want to be bothered. I could try and hunch over at my desk, you know, stare intensely into my screen, type away furiously. But people have a hard time picking up on that . . . . It's too subtle. They would come over and interrupt me anyways. (MS23)

These ambiguous signals of availability contributed to feelings of frustration when social interactions unfolded unpredictably throughout the day. I would frequently observe employees walking over to their colleagues' desks to socialize, ask routine questions, or even for the occasional urgent situation—referred to by employees as "fire-fighting"—often involving unexpected customer issues. However, whereas employees would welcome social interactions in some moments, other requests for their attention could come at inopportune moments: "When you are working on something that requires a lot of concentration and then, you know, someone just stops at your desk and starts talking to you, it can be a bit frustrating" (FI28). Frequent interruptions led some to feel a loss of control over how they spent their work time:

> In a typical day I'm usually going from meeting to meeting. And when I'd get an hour of downtime, I'd go to my desk, and there'd be other people around saying "just one question, just one question!" . . . It was like a revolving door . . . . And before I knew it the hour was over. (FS4)

> I want to be helpful to my team, so I'd pause what I'm doing and chat with them. But not everything is urgent, and sometimes you'd prefer to work on your own priorities rather than being pulled into other stuff. Sometimes that could be annoying, but you can't really do much about it. (MS29)

Employees expressed reluctance to overtly decline interruptive requests as they worried about being perceived negatively. Telling colleagues that they were too busy or to come back later could give the impression that they were not fulfilling their professional obligations. Informants generally described interruptions as a taken-for-granted aspect of their workday and did not consider overtly declining requests for fear of being seen as unhelpful or rude:

> Part of being in a team means you need to be a team player and help people out when they have questions or need your input or whatever. You don't want people to think you're not someone they can count on. So I would just go with it . . . . I didn't feel like there was a nice way to say "not right now." (ML14)

> People will walk over and they would say "Oh can I talk to you about something?" It's kind of hard to say no since they're right there, unless you're really really desperate to do something. So 90% of the time you would say yes. (FI22)

In the new non-territorial office space, employees began to signal their availability preferences through their selection of workspace. This strategy relied on the multiple differentiated spaces that the new office design provided to employees. Employees used their selection of workspace to signal whether they were open to social interaction or whether individual tasks required their uninterrupted attention: "now you can clearly say, today I want to have four hours of quiet time to do data analysis and just think. You can go to a library area where everyone is quiet . . . . [Your team] wouldn't come find you there" (MM9). When sitting in these library areas, I observed uninterrupted silence with ambient sounds of typing or the occasional employee sitting down at a desk or picking up belongings and leaving the area. Informants expressed that team members avoided approaching them for conversation in these areas:

> So whereas before if we were in our cubicles, I found it a bit hard to make it evident that I was doing project work and people would come stop by and visit. So now [in the new office space] it's very clear that you're in a library area, it's nothing of my own doing, it says Library there, so immediately people think "I'm really not going to go over there and chat." So for me that's a help because before I didn't know how to control that. (FS2)

> [In the old office] people had no problem interrupting you. But if you're in a library area, it really is quiet and people don't interrupt you. I mean, they can still send me an [instant message], which is fine, but they won't drop by. Whereas, when you have a cubicle, people would drop by all the time. Sometimes it's okay, sometimes it's not. (FI22)

Employees also used open areas to signal that they were available for social interaction. Sitting in these more casual spaces signaled that they were engaging in tasks that were not particularly complex or time sensitive. When I would sit in these areas, I would often observe employees sitting around small tables in comfortable chairs, talking very openly. These open areas resembled the atmosphere of a busy coffee shop, with a steady flow of employees passing through and talking at a normal conversational volume. Because open areas signaled a willingness to engage in interaction, employees no longer wondered whether interrupting others in these spaces was appropriate. This signaling strategy eliminated much of the uncertainty that had existed about whether to engage in social interactions:

> [P]eople will see me and assume "oh he's got a minute, he's sitting in the open area." So, I have learned that I

> have to be careful that if I sit down, because I have five minutes before a meeting, if I sit in the open area, it's signals others that I'm available. If I instead move to a library area, then they are not going to come over and bother me. (ML40)

> Now when I sit at a table [in an open area] with people on my team, we'll talk about an email that we might have gotten or a request that we might have gotten where it's instant. Whereas before you would have to go to see someone or talk over the workstation or feel like you are interrupting the group in order to be able to talk about a situation. Or I'd wait for a one-to-one [meeting] with my manager. But now if you are sitting beside them, when you're in the open areas you're a lot more collaborative than you were before and you get things resolved a lot quicker. (MI11)

In short, informants explained that in the old office, they would attempt to signal availability preferences from their assigned cubicle using physical presence (e.g., appearing busy), which was a noisy signal often misinterpreted by others. In contrast, the new non-territorial office space enabled them to more clearly signal availability preferences. Employees could signal their preference for isolation by sitting in parts of the office with high partitions that were understood to be designed for focused tasks. Conversely, they could signal their willingness to engage in social interaction by moving to open and bustling parts of the office. This new signaling strategy allowed them to convey their availability preferences and subtly evade social interaction without overtly declining requests from others.

Emergence of Worker Hiding Strategies. In the old office, employees experienced constant exposure to others as a result of working from an assigned cubicle. Employees' location was stable and widely known, allowing group members to visually scan their floor to identify where they were working. Employees knew the location of their team members, and if they did not immediately know the location of more distant colleagues—those who were not directly part of their team—it could be readily accessed through the electronic company directory. Informants explained that this location knowledge facilitated social interaction and made it difficult for employees to avoid unwanted interruptions:

> Before you were on the ninth floor and that's where you where, on the ninth floor . . . you didn't really go anywhere else. You tended to have a lot of meetings on the same floor as well. They knew where you were since you had your own desk. If they wanted to talk to you, they could always find you. (FI28)

> I'd be trying to focus on a [sales project] that I needed to prepare before a customer visit, and even though I set aside the time for it, like in my calendar, it might not happen in that time. I'd get someone on my team coming by to chat about a customer issue that they were working on or someone asking a question about something else. (MS29)

It was also difficult for employees to seek out isolation to proactively avoid social interaction in the old territorial office because they were limited to their assigned cubicle. One informant explained that sometimes he would take advantage of time in between meetings to focus on individual tasks and use the meeting room for himself: "I would be on the phone, I'd finish the call and then I've got 15 minutes [before my next meeting in the room]. So it comes down to these gap periods" (FS2). Although I would occasionally notice employees sitting alone in small meeting rooms, these rooms were intended for group meetings. Hence, many informants expressed hesitation to use meeting rooms to conduct personal tasks: "There are people with side conversations, people walking by . . . . You can't control your surroundings. But I'd always feel guilty taking a meeting room for myself" (MS29). Moreover, each floor only had a limited supply of small meeting rooms, which meant that these were prioritized for collaborative activities where they were needed most. As another informant explained, "The only time I'd ever go to a meeting room is for a meeting. I'm not going to take up a meeting space for one person" (FL35). Hence, there were limits to employees' ability to use meeting rooms for individual tasks requiring isolation.

In the new office, employees began to use the physical space to actively hide in the space when they wanted to avoid social interaction. Employees could take advantage of the multiple workspaces spread across several floors to proactively reduce others' ability to find them. As one informant explained: "Now [in the new office] I'll go find an isolated spot when I need to be really focused. If I'm doing data crunching, I can't be distracted or else I'll forget what I'm doing" (MS45). Employees proactively hiding out would sit in areas of the office that featured high partitions and limited visibility, as well as low traffic flow. These secluded spaces provided them with the isolation needed to work on complex or time-sensitive tasks requiring their undivided attention. These areas tended to be located around the perimeter, away from the more social open areas where they were likely to be spotted by colleagues. Informants described hiding out occasionally to avoid others and prioritize individual task activities:

> There are some times—I'd say two or three times a month—where I do go to that back area, near the bicycle storage room, because I absolutely don't want to hear anything. I might be on a spreadsheet or something and I require lots of details and attention. Or a new [sales project] is coming up and I really need to understand it. So I go through the PowerPoint and make sure I'm really up to date. (FS10)

> I like that I don't see my team all the time. Because my team bugs me constantly. I have 10 people that always want to talk to me. If they knew where I was all the time, I'd never get anything done. So I like that they can't find me all the time. (FS26)

Although the new non-territorial space enabled employees to hide from others, this was a strategy used occasionally as employees dynamically adjusted their level of exposure to social interaction throughout the day. Although avoiding interruptions was helpful in some moments—particularly when working on highly focused or complex tasks—there were also periods of work time where employees welcomed interruptions by sitting in more visible parts of the office: "If I am sitting somewhere where there is a high-traffic area, to me I am sort of saying in this task that I am doing, I am happy to be interrupted" (FM5). In addition to sitting in high-traffic areas, I observed that employees would sometimes make themselves accessible by writing in their location virtually, for example "4th floor NE side," on the Lync instant messenger program byline below their name. Although some workers chose to post their location virtually, it was not expected of them: "I'd guess 15% of my team has [their location] posted right now. I do it sometimes, but it just depends on what my day looks like and if I want people to come talk to me" (FL8). Informants generally explained that hiding was not the default strategy, but they instead used the space to engage or avoid social interaction, as their desire for social interaction changed throughout the workday:

> To me, the new space is like working in a huge library. That's how I think about it. I personally have loved the library. So, to me it is very new, very modern, very fresh and it is fluid. So, I can come in and I can go to the spot where nobody is going to find me. Then I can go to a new spot where I know I can see people because that's where they hang out. If I am in a rush, I could go to the quickest place I could find. So, to me it is very flexible. (FM21)

> I like how there are different spaces depending on the work you're looking to do. So if you want to just hide somewhere for a little bit, you can do that. Or if you want to be in an area where there is lots of buzz, you can do that as well. (MS45)

The survey analysis supports qualitative findings that employees had greater ability to hide in the new office space. Table 2 reports responses to a survey item

Table 2. Means and Mean Differences from Retrospective Company Survey (N = 312)

Item	Item text	Old office rating Mean (S.D.)	New office rating Mean (S.D.)	Within-subject change Mean difference (S.E.)
Unwanted interruption	"When you are working at the office, do people interrupt you when you are trying to do focused work?"	2.91 (0.81)	2.45 (0.92)	−0.46*** (0.07)
	Medium baseline subsample (n = 225)	3.32 (0.53)	2.48 (0.92)	−0.84*** (0.07)
	High baseline subsample (n = 64)	4.11 (0.31)	2.34 (0.98)	−1.77*** (0.12)
Location information	"When you are working at the office, if someone has a question for you, would they know where to find you in the office?"	4.42 (0.73)	3.32 (1.07)	−1.10*** (0.07)
Ease of socializing	"When you are working at the office, when you are in a social mood can you easily find colleagues to chat with?"	3.60 (0.90)	3.70 (0.97)	0.10 (0.08)
Satisfaction	"When you are working at the office, do you feel satisfied with the overall office space?"	3.54 (0.82)	3.89 (0.89)	0.35*** (0.07)
Days worked from home per week	"As part of the flexible work program, BigCorp strives to promote a work environment where employees feel comfortable leveraging flexible options to enable work/life balance. Last week how many days did you work from home? In the previous office space, how many days did you work from home in a typical week?"	1.43 (1.14)	1.70 (1.29)	0.27*** (0.06)

Note. All items (except item 5) use a five-point Likert scale: 1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = all the time.
***$p < 0.001$.

measuring location information by asking "When you are working at the office, if someone has a question for you, would they know where to find you in the office?" Employees reported a statistically significant decline of 24.89% in others' knowledge of their location in the new office ($b = -1.10$; $p < 0.001$). Based on the response anchors, this represents a substantive shift from colleagues knowing where to find them often in the old office to just sometimes in the new non-territorial office. This strong decline is consistent with qualitative accounts of employees hiding in the new office space.

These employee accounts of change indicate a shift in hiding strategies after the office redesign. This involved constant access to others in the old territorial office with a reliably known and visible cubicle, but then a change toward actively hiding from others in the new non-territorial office that had a mix of unassigned spaces. In the new space, employees could manage social interaction by hiding in low-traffic areas, sitting in high-traffic areas, or choosing to post or not post their location virtually.

Consequences for Social Interaction

Next, I explain how these emergent strategies had consequences for social interaction by lowering collective expectations about face-to-face communication and reducing the frequency of unwanted interruption. With coworkers sometimes signaling unavailability or hiding in the new non-territorial space, employees accepted that real-time face-to-face interactions would not always be possible, and they expressed greater willingness to engage in asynchronous or virtual communication through email or instant messenger. Employees experienced substantially less frequent unwanted interruption as a result of these changes.

Reliance on Virtual or Asynchronous Communication. Informants described greater willingness to receive a response by email in the new office space, because unlike the old office, they did not always know where their colleagues were. As an asynchronous form of communication, emails avoid forcing a real-time response during an employee's protected worktime and instead provide flexibility for a later response. For routine requests that were not time sensitive, email could help avoid unwanted interruptions by allowing the receiver to defer responding to a convenient moment: "I always try to respond [to emails] within an hour or two. Within the business day, I think is probably reasonable for less important stuff" (MS17). Informants explained that it was not always easy to initiate a face-to-face conversation in the new office space, and that email was often a good alternative form of communication:

> We've all adapted to the fact that it's no longer possible to chat with your team members all the time. So you need to find new ways to communicate with your team. [In the new space] sometimes I will spot someone and remember that I had something to ask them. But more often I just default to emailing them if it's not that urgent. I think we're more reliant on email than we were before. (FM48)

> I think previously there was more of an understanding that since you were there, you were available. But in this new environment, I think that's changed a bit. It depends where they're sitting. Often you don't know where they're sitting, so it depends if they're green online. That's going to determine whether I go talk to them or if it's better to just send a quick email. (FM7)

Others described greater expectations for interactions occurring through instant message in the new non-territorial office space. The instant message program Lync allowed employees to "ping" others, sending a flashing message that appeared at the bottom of their laptop screen: "Not being physically near your team doesn't matter really very much if you can see electronically if I am available and ping me" (ML40). Although this software was implemented years before the office redesign and had always automatically launched when employees turned on their laptops, it became a crucial means of finding others in the new office: "There is always the expectation that you are available through Lync" (FL35). The program also allowed employees to set their status to available, busy, away, or do not disturb. Instant messaging allowed employees to avoid having to move across floors to initiate a face-to-face conversation with a colleague:

> I find that people are more active in using Lync now. People know that now you don't have the cubicle, so the only way they'll find you is through Lync or email. So people are actually more active responding to you. (FM38)

> Now that people are no longer sitting chained to a desk, people don't look at your desk to get a cue on whether or not you are around. They go to Lync where they will see the green ball, which means I'm online working, and they can send me a message. That's one thing that has changed. People are not coming to your desk looking for you anymore. (MI30)

Employees also had greater expectations that face-to-face interaction in the new non-territorial office would occur through scheduled meetings rather than through spontaneous face-to-face interaction. They described relying more heavily on scheduled meetings, using Microsoft Outlook's calendar system, which was used by all employees in the periods before and after the office redesign. The calendar system displayed employees' blocked and available slots of time, allowing them to easily initiate a meeting request by selecting a mutually available timeslot and triggering an automatic email request to accept the meeting. After the office redesign, informants

described being more willing to schedule meeting or use already scheduled meetings instead of expecting to initiate real-time face-to-face interactions:

> [In the old office] when you were working at your assigned desk, they'd feel comfortable to walk over and say "hey, can I ask you some questions?" Whereas now it's like okay, you're showing busy, your Lync status is busy, people are more inclined to schedule a meeting or ask "are you are free later today?" or something to that effect. Or, maybe group their requests. Like, okay, I need to know this from [informant name], but he is not sitting across from me and we have a team meeting tomorrow. (MS49)

> I have a large team . . . . There are often a few of us who are working but don't want to be interrupted and so they are not online. So I have to send them an email. But with other people, I have to go through their calendar to book a meeting. So okay, they are showing blocked for half a day, maybe they are on a customer call. (MS23)

After the office redesign, employees accepted that they could not access coworkers at all times and began to collaborate in new ways. Informants described relying more heavily on virtual and asynchronous communication and seeking scheduled opportunities for social interaction. These changes would have consequences for reducing the unwanted interruption that previously occurred frequently in the old territorial office space.

Less Frequent Unwanted Interruption. With lowered expectations of spontaneous face-to-face interaction in the new non-territorial office, employees experienced less unwanted interruption because those interactions were more likely to unfold during mutually available timeslots. For example, although employees were expected to be responsive to email, as an asynchronous form of communication, email requests were not as interruptive because they did not necessitate an immediate response: "I don't mind the emails. I usually set aside blocks of time to answer them. Or I'll get to them when I'm tired and need a break" (MI30). Similarly, instant messages could be more easily deferred, compared with a colleague walking over to their desk with a question: "I really prefer for a lot of these things to come by email or Lync because I can respond when I have a moment" (FL19).

After the office redesign, employees described a shift away from unwanted interruptions and toward wanted interruptions taking place when they were working on low-concentration tasks or work that was not time sensitive. Whereas employees described frustration in the old office where it was difficult to ward off unwanted interruptions at their assigned desks, shifting strategies and expectations of availability in the new office encouraged welcome or wanted interruptions initiated when both parties were available. Informants described feeling greater autonomy over their allocation of time between individual work tasks and professional obligations as a result of fewer unwanted interruptions:

> In the old space, sometimes I would be trying to do focused work and people would bother me . . . . But now that isn't really an issue because I can just go where I want to get work done. And at the same time if I just want to be in an area that's more lively, where people are around and talking, that's there as an option. (MI36)

> After going to [the new office space], I can more consciously choose what I'm doing with my time. Like is this time where I'm gonna go and sit with my team—working on something with them and be collaborating with them and building a sense of team with them—or am I going to plow through something that I need to deliver for [the business]? So now I can really deliberately choose. (FS4)

The survey analysis strongly supports the qualitative findings that employees experienced less unwanted interruption in the new office space. Table 1 shows that employees reported a significant overall decline in unwanted interruption of about 15.81% ($b = -0.46$; $p < 0.001$). However, the magnitude is considerably larger when considering employees' baseline level of unwanted interruption in the old office. For example, the medium baseline subsample ($n = 225$) who reported experiencing unwanted interruption at least sometimes in the old office reported declines in unwanted interruption of 25.30% ($b = -0.84$; $p < 0.001$) in the new office. The high baseline subsample ($n = 64$) who reported experiencing unwanted interruption often or all the time in the old office reported declines in unwanted interruption of 43.07% ($b = -1.77$; $p < 0.001$). I conducted a supplementary analysis using random effects models but did not find that the effect of the new office space on unwanted social interaction varied by demographic characteristics. This suggests that the office redesign produced similar effects on unwanted social interaction for employees, regardless of gender, tenure, department, and rank.

I did not find evidence of a general chilling effect on all social interaction arising from difficulty finding others to talk to or from a lack of conversational privacy. First, employees did not report a statistically significant change ($b = 0.10$; $p > 0.05$) in the ease of finding colleagues to chat with when in a social mood (Table 1, item 3). Second, during my time spent at the non-territorial office, I noticed that whereas the library areas were quiet, most other spaces in the office felt like a coffee shop with enough ambient noise to hold a comfortable conversation. It was also possible to hold more sensitive conversations: "If there's a need for you to have a confidential conversation, there are breakout rooms, or more private seating areas . . . . There are a lot of different options" (FM27). Consistent with my observations, none of my interview informants described a

general chilling effect and many described the new non-territorial office as having more ambient noise which made it comfortable to converse with others:

> It's definitely noisier [in the new space] . . . . But I actually prefer to be in open areas. I kind of find the background noise and buzz is an enabler. It kind of energizes me a bit more than total silence, which is a benefit . . . . People have adapted more to being out in the open. (FS25)

> [Before the office redesign] I was worried it might be too open. But that's not really been an issue for me. People are coming and going and moving around and talking. And so there's naturally a lot of noise but in a good way. It's like being in a public space or a restaurant. Yes there are lots of people around, but everyone is talking and so you don't feel like everyone can hear what you're saying. (MM15)

Finally, more working from home with the new office space does not explain declines in unwanted interruption. Employees used flexible work policies more frequently in the new office space, describing less pressure to put in "face time" in the office as a way to signal commitment (Gonsalves 2020). However, although employees reported working from home more often with the new office space—about 14 days per year ($b = 0.27$; $p < 0.001$) as shown in Table 2, this did not appear to significantly explain changes in unwanted interruption. I conducted a supplementary regression analysis predicting unwanted interruption as a function of days worked from home and demographic characteristics. The coefficient on the variable for days worked from home was not a statistically significant ($b = -0.015$; $p = 0.612$) predictor of unwanted interruption in random effects or fixed effects models. This suggests that employees' experience of less unwanted interruption in the new space was not a simple consequence of greater flexible work policy utilization.

Discussion and Conclusions

Physical spaces structure social life in organizations by bringing workers together and facilitating social interaction throughout the workday. Managers often design office spaces to increase collaboration (Bernstein and Turban 2018), which is a trend that appears likely to accelerate in the coming years (CBRE 2021). However, the resulting social interaction can become disruptive when it interrupts individual task activities, resulting in feelings of depletion, emotional exhaustion, and time scarcity (Perlow 1999, Jett and George 2003, Leroy et al. 2020). Yet it remains unclear how and when workers can exert individual agency over social interaction, particularly because declining requests to interact with others can tarnish their reputation for being helpful and sociable (Newark et al. 2014, Tewfik et al. 2018).

This study uses field research during an office redesign to identify non-territorial space as a novel factor affecting unwanted interruption, revealing social practices through which a change in physical space increased individual control over social interaction. The implementation of non-territorial space altered information of workers' location and availability preferences, enabling new strategies for managing social interaction, and allowing employees to subtly avoid unwanted interruption and balance individual task activities with professional obligations to colleagues. These findings offer important theoretical contributions, laying a foundation for addressing long-standing calls to better theorize agency and interaction, and advancing our understanding physical space and interruption in organizations.

Theoretical Contributions

Controlling Social Interaction. The findings offer a path for addressing calls to better theorize individual agency in the study of social interaction. Despite ongoing critiques of structural determinism (e.g., Emirbayer and Goodwin 1994, Gulati and Srivastava 2014, Casciaro et al. 2015, Small 2017, Tasselli and Kilduff 2021), empirical studies of physical space focus on the structures that individuals find themselves in, leaving unanswered the question of whether individuals meaningfully shape their social interactions. For example, it is now well-established that physical spaces facilitate opportunities for social interaction by fixing proximity between individuals and thus the odds of tie activation (Festinger et al. 1950, Powell et al. 2005, Rivera et al. 2010, Reagans 2011, Dahlander and McFarland 2013, Kleinbaum et al. 2013, Chown and Liu 2015, Parigi and Bergemann 2016). This evidence is compelling and implies that the spaces where employers choose to initially assign workers will determine their everyday social interactions, as well as the more enduring downstream patterns of friendship formation, advice seeking, and knowledge transfer.

My findings complicate this dominant explanation, affirming the classic network insight that physical spaces structure opportunities for social interaction, but countering that physical spaces also structure strategies that individuals use to manage social interaction. Critics note that the "explaining away of agency" relies on the assumption that interactional or network opportunities are always realized (Tasselli and Kilduff 2021, p. 68). In the context of physical space, most empirical work assumes this static position of actors being passively moved through space with tie activation triggered by random collisions between moving nodes. My findings instead reveal a more dynamic position of actors who move through space with intention and deliberately forgo opportunities for social interaction. Individuals in my study managed social interaction by using the material and symbolic resources in the physical environment to engage social ties or to avoid them altogether. These

choices depend on their work tasks, which changed throughout the day. The study highlights the need for future research to account for both random collisions and strategic behavior in order to better theorize the dynamics of social interaction in organizations.

The findings do not imply boundless individual agency. They instead point to a paradox of structured agency—physical spaces circumscribe the repertoire of strategies available for individuals to negotiate interaction with others. Certain configurations of space enable considerable individual agency to forgo opportunities for interaction, whereas other spatial configurations substantially constrain strategic behavior. In my field setting, traditional accounts of spontaneous tie activation better characterize the old territorial office where workers were colocated with their teams and could not tactfully ward off social interaction. However, interactions were much less structurally determined in the new non-territorial space, as workers actively used the multiple differentiated spaces to make themselves more or less available to others throughout the day. These findings suggest that interactions are more structurally determined in some spaces than in others. Physical spaces determine the extent to which individuals experience agency over interaction through the provision of material and symbolic resources.

Interruptions at Work. My findings build on our understanding of interruptive events in three important ways. First, by identifying the physical space—specifically the territorial dimension—as an overlooked factor affecting interruption, the study helps to emplace studies of collaboration and interdependence in organizations. Empirical work on interruptions and productivity tends to focus on the cognitive costs for workers engaging in different types of tasks (Leroy et al. 2020), but largely ignores how the work context generates frequent interruptions. My findings highlight the material dimension of interruptions, revealing how the physical space undergirds patterns of interruptive events. Rather than interruptions occurring at random or varying by work context, the same individuals in my field site experienced different patterns of interruption after the adoption of non-territorial space.

These findings have clear implications for designing organizational interventions aimed at reducing interruptions in collaborative work environments. Empirical studies of interventions are rare and sustaining such interventions in the long-term remains a challenge. For example, whereas Perlow (1999) found that synchronized quiet time reduced frequent interruptions, she also found that the engineers eventually fell back into their old work patterns and stopped scheduling quiet time when faced with short-term crises (e.g., falling behind on the product launch schedule). A challenge with many interventions is that they require ongoing effort to sustain. However, my findings suggest that non-territorial space might be a more sustainable intervention because it is a more permanent structural change. A reconfiguration of physical space requires considerable upfront effort, but eventually fades into the background, powerfully structuring social life while remaining taken for granted and requiring little ongoing effort to sustain. Because cost reduction is often the motivating factor for adopting non-territorial offices, this may be present a particularly attractive option for managers who identify frequent interruptions as a problem in their organization.

Third, I complicate the dominant view that non-territorial spaces reduce workers' sense of psychological control over the environment (e.g., Elsbach 2003, Brown et al. 2005). It is true that workers may value the ability to display personal artifacts such as family photos, professional awards, and tchotchkes in territorial spaces (Bechky 2003, Byron and Laurence 2015). Yet, conceptualizing psychological control narrowly as the ability to personalize space overlooks other aspects of worker discretion that are meaningful. In my field setting, the adoption of non-territorial space certainly led to a loss of personalization, but it also led to much greater worker discretion over the timing of social interaction. Workers relinquished control over their assigned desks but gained control over their time as a result of less frequent interruptions from coworkers. Thus, the findings broaden our understanding of physical spaces and workers' experience of psychological control, identifying how non-territorial spaces shape their discretion over social interaction and unwanted interruption.

Although these two forms of discretion are substantively different, the study suggests that both affect workers' ability to signal information through the physical space. For personalization, workers display artifacts to signal information about valued social identities (e.g., I am a father, I am an engineer, I am a senior leader), whereas to ward off interruption, workers' choice of workspace signals information about their availability preferences (e.g., I am busy working on high-concentration or time-sensitive tasks; I am available and working on low-concentration/nonurgent tasks). Although the dimension of worker discretion may be different, the findings highlight how certain configurations of physical space convey individual information. My findings indicate that in the old territorial office, workers' signals about their availability preferences were noisy and often inaccurately perceived by others, whereas the new non-territorial office facilitated new signaling strategies that were easier to interpret by others. Whereas workers often want to convey individual information to others, the success of their signaling efforts depends on the recipient recognizing and accurately decoding the signal. Future research should further examine how features of the

physical work environment enable workers to effectively signal individual identities, preferences, and work activities to others.

Prior studies find that employees desire privacy in order to feel comfortable learning, experimenting, and engaging in productive deviance. Although some management surveillance is necessary to maintain employee compliance with internal and external rules (Stanko and Beckman 2015, Huising and Silbey 2016), excessive monitoring is thought to dampen creativity and collaboration (Lee and Brand 2005, Bernstein 2017, Anteby and Chan 2018). Although my study focuses on social interaction, rather than management efforts to observe employee activities, the findings have implications for how employers might heed calls to offer "zones of privacy" to facilitate learning (Bernstein 2014). My findings point to non-territorial space as one operationalization of this idea, by offering employees a variety of workspaces depending on their privacy needs. Rather than maximizing privacy in all areas of the office (e.g., through uniform barriers and partitions), the company I studied instead offered heterogeneous workspace options with different levels of enclosure. Although my study focused on the consequences for unwanted interruption, it seems likely that this design would also affect employees' subjective sense of observability by managers. Future research should examine how non-territorial designs might affect employee perceptions of privacy, with consequences for learning and experimentation.

Limitations and Boundary Conditions. Whereas my study involved exploring the implementation of non-territorial space at a single firm, the theoretical model should generalize to other organizations adopting similar designs. The experience of unwanted interruption that my informants described was similar to employees working in other corporate, team-based environments (Perlow 1999, Jett and George 2003, Kellogg et al. 2006). Non-territorial space may be a useful intervention in similar contexts, where work is interdependent but the pace of knowledge exchange does not need to be instantaneous. However, reducing interruptions may be less desirable in work contexts where continuous availability is crucial for the coordination of highly time-sensitive, high-stakes tasks (e.g., emergency rooms, trading floors, disaster response units). Additionally, the change I observed involved an organization changing from assigned cubicles to non-territorial space. We may see different outcomes for organizations whose baseline condition involves a noncubicle design. For example, employees asked to give up individual offices may react negatively to a non-territorial space, because individual offices can be stronger symbols of status and professional identity. It is possible that more territorial behaviors, such as claiming and defending space (Brown and Robinson 2011), could occur when the baseline office condition involves a higher level of individual personalization as compared with when employees move from open cubicles.

The study suggests boundary conditions for the emergence of territorial behaviors, such as employees claiming and defending space (Brown et al. 2005). Territorial behaviors were not salient in the new office space at my field site. This was perhaps due to clear expectations that employees use the right space for the task rather than take a space for the day, and because there were always many workspaces available to employees. We might expect territorial behaviors to be more salient when norms of space use are uncertain, or when workspaces are a scarce resource. A promising direction for this research would be to examine the conditions under which different configurations of physical space encourage or discourage territorial behavior among employees.

Future research should assess whether less unwanted interruption improves productivity in different work contexts. The findings indicate that non-territorial space provided greater employee discretion over the timing of social interactions, leading to less unwanted interruption. There are reasons to expect this to increase employee productivity. For example, my informant accounts of unwanted interruption were consistent with laboratory-based studies suggesting that interruptions harm productivity by disrupting sustained focus, imposing task transitions, and creating negative emotions (Zijlstra et al. 1999, Altmann and Trafton 2007, Altmann et al. 2014, Leroy and Schmidt 2016). Additionally, whereas fewer daily interruptions could inhibit knowledge transfer, there were no obvious signs of this becoming a problem at my field site. For example, employees and managers I spoke to did not complain about difficulty obtaining information from others, and management saw no need to implement additional measures to increase communication. Informants' descriptions of their professional obligations suggest that though they could avoid unwanted interruptions during periods engaging in intense individual work tasks, they also needed to offer a reasonable level of availability, including timely—though not instantaneous—response to others' email and instant message requests. Whereas these insights are suggestive, future research should systematically examine whether non-territorial spaces improve productivity, and whether different types of interruptions are more beneficial for the transfer of knowledge.

The findings are especially relevant as organizations increasingly seek new ways to configure the physical space to account for greater remote work. Non-territorial spaces may grow in popularity with the rise of hybrid models of remote and in-person work following the 2020 COVID-19 pandemic (Brynjolfsson et al. 2020, Kelly and Moen 2021). Whereas non-territorial space has previously been thought to reduce employees' feelings of control over their environment, the present study highlights an unexpected upside for employees—greater

discretion over the timing of social interaction, with less unwanted interruption. The findings suggest that non-territorial space can achieve goals of cost reduction, while also affording employees discretion ability to manage social interaction with others. The study advances our understanding of territoriality and social interaction, contributing to an emerging stream of relational research that reveals the complex ways in which the physical environment powerfully structures social life in organizations.

Acknowledgments

The author thanks András Tilcsik, Curtis Chan, Ethan Bernstein, Frank Dobbin, Julie Battilana, Mario Small, Michel Anteby, Tiziana Casciaro, the anonymous reviewers, and Senior Editors Melissa Mazmanian and Ruthanne Huising for their insightful comments on earlier versions of the paper. The study would not have been possible without the support and participation of employees at BigCorp. The author is very grateful for their time.

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