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Article

## Space and Interaction in Civil Society Organizations: An Exploratory Study in a US City

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### Abstract

Civil society organizations (CSOs) are sites for creating and strengthening social ties among participants. Ties are developed when participants in CSO convenings (meetings, events, activities) interact, but convenings vary in the amount of interaction they generate. Theory and research suggest that the physical spaces where convenings occur may impact participant interaction. However, previous methods lack sufficient scale to formally test related hypotheses. We introduce a method for collecting data at scale to examine how CSO convening spaces influence social interaction. The method—systematic social observation (SSO)—assembles comparable, quantitative data from many CSO convenings. As part of an exploratory study, we collected data from 99 CSO convenings from three organizations in Indianapolis, Indiana. For illustrative purposes, building on theories of spatial propinquity and configuration, we highlight two dimensions of spatial variation in CSO convenings—footprint and permeability—and examine how they relate to three indicators of participant interaction. Our findings suggest that controlling for the number of participants and other convening characteristics, medium-sized spaces foster more interaction than small or large ones. More broadly, this study demonstrates the viability of the SSO method for collecting data at scale and provides a model for future work on space, interaction, and networks.

### Keywords

civil society organizations; interaction; social network ties; space; systematic social observation

### Issue

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### 1. Introduction

Civil society organizations (CSOs) play essential roles in democratic societies (Edwards, 2014). Of central importance is bringing participants together at “convenings” (Baggetta & Bredenkamp, 2021)—meetings, events, and activities—where they interact with others, forming new social ties and strengthening existing ones (Rivera et al., 2010). While interaction in CSOs is common, its scope and form vary substantially across convenings (Blee, 2012; Eliasoph, 1998; Long, 2003; Staggenborg, 2020). What explains differences in interaction? While organi-

zational characteristics play a role (Andrews et al., 2010; Han, 2014; Weisinger & Salipante, 2005), the physical space where convenings occur is also a likely contributor (Small & Adler, 2019).

Social science research on space has flourished in recent years (Fuller & Low, 2017; Logan, 2012; Small & Adler, 2019). While research has examined settings from businesses to hospitals to schools, the perspective has made limited inroads into the study of civil society. Space is occasionally a dimension of analysis in ethnographic work on CSOs (e.g., Fine, 2012), and in studies of the geographic distribution of civic events (e.g., Sampson et al.,

2005). However, most studies of voluntary associations, civic engagement, and social movements leave the role of space implicit. Civil society scholars often note the critical role CSOs play in knitting society together through the interactions they facilitate (Baggetta, 2009; Fulton & Wood, 2018; Putnam, 2020). However, the field's insufficient attention to spatial analyses limits our understanding of how CSO convening spaces influence participant interactions.

This exploratory study examines the conditions conducive to informal interactions: What is the relationship of convening spaces to social interactions at CSO convenings? We analyze data from an exploratory study in Indianapolis, Indiana, that used systematic social observation (SSO) to collect comparable, quantitative, observational data from the convenings of three CSOs (Fulton & Baggetta, 2021). We find that the size of a convening space is related to the amount of informal interaction that occurs before and during the convening. In particular, medium-sized spaces facilitate greater interaction than smaller ones—and potentially also more than larger spaces (controlling for the number of participants and other convening characteristics). This finding suggests that participants interact more when they can easily move about a space but are constrained from spreading out too much. While data from the exploratory study are limited, our study highlights the importance of studying how physical space influences interaction in CSOs and is the first to apply SSO to the CSO context. Our study demonstrates the viability of using this method to collect such data and provides a model for future studies on space, interaction, and networks.

## 2. Theory and Hypotheses

CSOs bring people together in “convenings”—meetings, events, and activities (Baggetta & Bredenkamp, 2021). While convenings held by organizations like book clubs (Long, 2003), daycare centers (Small, 2009), choral societies (Baggetta, 2009), community organizing coalitions (Wood & Fulton, 2015), and social movement groups (Staggenborg, 2020) will look quite different, all of them function as “opportunities and inducements” for interaction among people connected to the CSO (Small, 2009, p. 62). Interactions at convenings can then lead to the formation or strengthening of social network ties (Rivera et al., 2010).

Convenings facilitate ties by repeatedly putting CSO participants close enough to interact (Small & Adler, 2019) and then, in some cases, giving them structured ways to do so (Han, 2014). Variations in participant proximity and the frequency and depth of interactions can produce different types of network ties. Participants who regularly see each other at convenings, but have no more substantial interaction, can build “invisible ties”—the “nodding relationships” among people who recognize one another (Felder, 2020). Interactions with some information exchange can produce “weak ties” through which

useful information flows (Granovetter, 1973). Longer, deeper interactions with substantial personal conversation can produce stronger, intimate ties that can be leveraged for social, material, and emotional support (Small, 2009).

A variety of factors influence the types of ties formed in a CSO, one of which is the level of interaction at its convenings. Studies based on ethnographic observation (Blee, 2012; Eliasoph, 1998; Long, 2003; Staggenborg, 2020), leader interviews (Andrews et al., 2010; Baggetta, 2009; Fulton, 2021b), participant surveys (Fulton, 2021a; Quintelier, 2013; Verba et al., 1995), and historical records (Skocpol, 2003) reveal substantial variation in the amount of convening interaction within organizations, across organizations, and over time.

Why might levels of interaction vary across CSO convenings? Organizational characteristics undoubtedly play a role. Some organizational structures, such as those that rely on deliberative decision-making, make interactive convenings more likely (Andrews et al., 2010; Baggetta, 2009; Han, 2014; Skocpol, 2003) and some convening organizers deliberately design activities (e.g., dividing participants into small groups) to allow or require participants to develop shared identities and stronger relationships (Braunstein et al., 2014; Han et al., 2021; Weisinger & Salipante, 2005). Beyond organizational characteristics, other dimensions such as time, culture, and environment can influence social interactions. For example, Can and Heath (2016) found that Turkish urban dwellers engaged in substantially more stationary interactions in public spaces on weekdays than Sundays. Guéguen et al. (2011) revealed that individuals who perceive cultural similarity with strangers (through the belief that they own similar objects) spend more time in proximity to those strangers; and McCreery et al. (2015) show that in virtual environments that loosely mimic real-world spaces, users interact more frequently when the environment encourages greater conversational intensity in each interaction.

In this study, we focus on the physical spaces where convenings are held and their impact on interactions among participants (Angelucci, 2019; Fuller & Low, 2017; Small & Adler, 2019). We theorize that convening spaces moderate CSO convenings' ability to facilitate social ties by impacting the amount of informal interaction among participants.

A convening space is a physical environment where a convening occurs, like a meeting room in an office building, the worship hall of a church, a café, or an outdoor public plaza. Fine (2010) conceives of convening space as an “arena” of activity that “provides participants with a context by which some performances are encouraged and others rejected” (Fine, 2010, p. 363). While groups adjust spaces to fit their purposes, the fixed nature of many space features can constrain or encourage various forms of convening activity. As Fine (2010, p. 364) summarizes: “Just as groups colonize settings, settings colonize groups.”

Our overarching hypothesis emerges from this literature: Space matters for participant interaction at CSO convenings, which sets the stage for creating and strengthening network ties. Space is not a unitary force, however. Several important dimensions of variation have been identified in spatial network analyses (Small & Adler, 2019). Two primary spatial mechanisms for fostering (or inhibiting) interaction are spatial propinquity (the physical closeness of participants) and spatial configuration (the segmentation of space).

### 2.1. Spatial Propinquity

Spatial propinquity is “the degree of physical proximity between actors” (Small & Adler, 2019, p. 115). While technically not a characteristic of space itself, the concept focuses on space features that encourage participants to be close together for long enough to interact. Studies have repeatedly shown that social network ties are more likely to form among people who are closer together (Small & Adler, 2019).

Of particular relevance to CSO convenings are studies of organizational settings in which individuals are placed very close together. For example, US Air Force soldiers became “best buddies” with soldiers randomly assigned to nearby sleeping bunks (Loether, 1960), and police academy cadets were more likely to befriend trainees assigned to adjacent classroom seats (Conti & Doreian, 2010). In settings like these, participants are assembled for a common purpose and put in very close physical proximity to one another—contexts that make longer, deeper interactions likely. Although these examples relate to very specific roles and ones that have tended to be relatively homogenous (i.e., white men), they provide evidence that spatial propinquity impacts the likelihood of social interaction even when controlling for racial and gender differences (as illustrated in Conti & Doreian, 2010).

CSO convenings may function similarly. The convening assembles participants and provides a shared focus. The space can then encourage participants to be closer together or farther apart. Space boundaries distinguish convening territory from surrounding space, and this space footprint helps determine how many participants come close enough to interact.

A footprint that limits the distance between participants is essential. Hall (1966) argued that Americans only interacted with others inside of 12 feet. While the maximum interaction distance varies somewhat by context (Albas, 1991; Gillespie & Leffler, 1983; Mehta, 2020), generally speaking, smaller distances increase interaction. For example, Allen (1977) demonstrated sharp declines in communication among engineers located farther apart, while companies whose workspaces foster employee “collisions” see increases in interactions (Waber et al., 2014). In a civic context, Zhao (1998) found that mobilizing for the 1989 Tiananmen Square protests was facilitated by high levels of spontaneous

interaction among students within Beijing’s walled university campuses.

Although smaller footprints increase propinquity, they may only increase social interaction to a point. Very crowded spaces restrict the ability of individuals to move through—even if a crowd as a whole can move from place to place (Sieben et al., 2017). In such situations, many people are close, but an individual can only interact with the handful of others next to them. If those adjacent people are not already intimate ties, interaction is unlikely (Hall, 1966). When strangers invade personal space, individuals’ stress levels rise significantly (Evans & Wener, 2007). If a convening space starts to feel like a crowded bus, an individual will have high levels of propinquity with everyone, but can only communicate with a small fraction of them, and may feel so uncomfortable that they choose to interact with no one.

These counteracting expectations for footprints suggest that ideal spaces must allow for a comfortable amount of space between participants, but not so much space that participants spread out beyond the zone of easy interaction. Experimental studies suggest that, within such Goldilocks parameters, individuals will optimally array themselves for interaction (e.g., Hendrick et al., 1974). As such, our hypothesis for space footprint is curvilinear:

Hypothesis 1: Relative to the number of participants, medium-sized convening spaces will have more interaction than small or large spaces.

Some CSO convenings take place outside. Unbounded outdoor spaces could function like very large indoor spaces, allowing participants to spread out, but the lack of a clear boundary could lead participants to cluster closer together. As such, our expectations for outdoor spaces are open-ended.

### 2.2. Spatial Configuration

Spatial configuration is “the segmentation of space into subunits with physical boundaries and pathways between them” (Small & Adler, 2019, p. 115). Examinations of cities (e.g., O’Brien et al., 2017), neighborhoods (e.g., Small, 2004), and buildings (e.g., Toker & Gray, 2008) have identified physical features that act as barriers to keep people apart or pathways that bring them together, with predictable impacts on social interaction. Marcuse (1997) distinguishes between different forms of spatial segregation and discusses their implications for social interaction. CSO convenings, however, require a tighter spatial focus as they often take place in a single, enclosed space.

One measure of spatial configuration is the *permeability* of a convening space—the ability the space affords to organizers to limit participation only to intended participants. Convenings are often private affairs—the CSO brings together a select set of

participants. Relatively impermeable spaces—those with limited, controllable access points—are more likely to shield participants from outsiders, which may encourage participants to interact more. For example, in business settings, employees with access to semi-private spaces (e.g., cubicles with high walls, offices with doors) compared to those in open floorplans interact with colleagues more often (Hatch, 1987) and form more network ties with co-workers (Fayard & Weeks, 2007; Taylor & Spicer, 2007; Zagenczyk et al., 2007). In the public sector, legislative assembly chambers and committee rooms that shield lawmakers from outside observers make for more collegial debates (Parkinson, 2012). In civil society settings, elite social clubs (Kendall, 2008) and broad-based fraternal orders (Skocpol, 2003) have long used exclusive spaces (country clubs, lodge halls) to allow members to interact and form strong social ties away from the eyes and ears of non-members. Similarly, Beijing's walled university campuses facilitated interaction among the 1989 Tiananmen Square protesters by shielding them from the gaze of authorities (Zhao, 1998). These studies all suggest a negative effect of space permeability on interaction at CSO convenings:

Hypothesis 2: More permeable convening spaces will have less interaction.

### 3. Data

We test our hypotheses using data from the first, exploratory wave of the Observing Civic Engagement project (Fulton & Baggetta, 2021), the first effort to use SSO techniques to collect data from community-based CSOs. The SSO approach sends trained observers into the field with a standardized form to collect detailed, quantitative, observational data on what occurs in social situations. Data are collected in closed-ended categories or counts based on preliminary qualitative observations and concepts in the literature. Non-participant observers—who can devote all of their attention to data collection—fill out the forms as the observed phenomenon occurs. SSO data can, therefore, be more detailed than data from surveys that rely on participant recall. SSO cannot, however, capture components of a situation that were not anticipated by the closed-ended items, as ethnography can. SSO has been fruitfully used to study a variety of phenomena, including police-citizen interactions (Reiss, 1971), the use of public spaces (Whyte, 1980), retail shopping behavior (Underhill, 1999), protest events (Schweingruber & McPhail, 1999), and urban disorder (Sampson & Raudenbush, 1999).

The SSO tool applied in the Observing Civic Engagement project collects data that describe characteristics of convenings—where they happen, who is there, what they do, and how they do it. Our tool is based on the one used by Baggetta and Bredenkamp (2021) to study college student organization convenings. We adapted that tool for use in community-based CSOs

throughout our 15-month study. We iteratively developed and revised items, categories, and observer instructions, expanding some areas of focus and eliminating others (for extended discussions of this process for the original tool see Baggetta & Bredenkamp, 2021; for our adaptation see Fulton & Baggetta, 2021). At the conclusion of the study, our tool included 97 items grouped into 10 thematic modules: physical space, participants, interaction, leadership, symbolic boundaries, norms and procedures, activities, decision-making, public-sphere focus, and group style.

We observed convenings held by three large CSOs: a business association, a community organizing coalition, and a neighborhood council. We selected these types of organizations for several reasons. First, each organization is a nonprofit membership organization whose members are organizations (businesses join the business association; religious congregations and other individual membership organizations join the community organizing coalition; neighborhood associations and other major community institutions join the neighborhood council). Second, while there are no data on the prevalence of organizations-of-organizations among all CSOs, similar organizations exist in every major US city and in many smaller cities as well (Bennett, 2011; McCabe, 2016; Wood & Fulton, 2015). Third, the organizations meet regularly and host a variety of convenings for members, constituents, and (occasionally) the general public. Lastly, the organizations vary somewhat in their political orientations (the neighborhood coalition hews to the center, the business association is center-right, and the community organizing coalition is center-left) and collectively represent the broad center of American politics at the local level.

All three organizations are located in the US in the city of Indianapolis, Indiana. Indianapolis, the capital of and largest city in the state of Indiana, is the 33rd most populous of the 384 metropolitan statistical areas (MSAs) in the US (US Census Bureau, 2022) and the 159th most racially/ethnically diverse (Logan, 2011). Politically, Marion County, the central county of the Indianapolis MSA, leans Democratic, voting roughly 60% for the Democratic candidate in the last two presidential elections, while its surrounding counties lean Republican, voting roughly 60% for the Republican candidate (“Election 2016: Indiana results,” 2017; “Presidential election results,” 2020).

The selection of organizations with similar organizational structures located in the same city provided advantages for an exploratory study. We could “hold constant” macro-political and economic contexts and local civic culture while looking for variation across an array of convening types and locations. Of course, such a design necessarily limits the generalizability of findings as interaction dynamics vary substantially across contexts (Sorokowska et al., 2017). While our exploratory, single-city study can offer a proof-of-concept that an SSO approach to studying convenings has analytic potential, it will leave open



questions about variation driven by local population demographics, national and local interaction cultures, organizational types, and other contextual dimensions.

Within our limited sample of organizations, we attempted to observe every convening held by the three organizations during the study period. The organizations collectively held 184 convenings during the study; we observed 99 of them. We missed observations for several reasons including one organization barring us from top-level board meetings, ticketed events selling out before we could schedule an observer, last-minute schedule changes leaving observers unable to attend, and other logistical difficulties. A wide range of convening types was observed including business/planning meetings, member training workshops, networking events, community outreach sessions, and protests.

Observations were conducted by research assistants who had been oriented to the overall project, educated on coding categories and definitions, and trained on entering data during convenings. Data were entered on tablet computers into an online survey form hosted on Qualtrics.com (see Supplementary File 3). Unlike ethnographers, research assistants were not trying to observe all aspects of a convening; rather they focused on predetermined areas of interest that they recorded in predefined categories. This narrowing of focus, along with the easy-to-use electronic survey format, limited the cognitive demands of coding a convening in progress. Before conducting official observations, research assistants conducted practice observations (using the tablet computer survey tool) at convenings held by organizations not in the sample. To ensure accurate and consistent codes, observers regularly debriefed their observations with the project manager and with each other. In addition, 36 convenings were observed by more than one observer to assess inter-observer reliability. Coders regularly agreed on most items and most disagreements were due to confusion over code definitions which were clarified through additional training. When multiple debriefings suggested that coder disagreements were a function of categories or definitions, we revised the tool, fielded the new version, and assessed again. Given the small number of observations between revisions, we did not calculate intercoder reliability statistics at each iteration (or for the study overall, as the items had changed). Items that observers continued to struggle with were removed from the tool.

Because some items were revised or added over the course of the study, the effective Ns in our data vary from variable to variable. Older, established items have more useable cases than newer or revised items.

## 4. Measures

### 4.1. Dependent Variables: Interaction Through Conversation

While theoretically some interactions can be non-verbal (hugs, handshakes, winks), we limit our consideration

of interaction to two or more people intentionally talking to each other. Our analytic concern is the density of conversational interaction among a set of collocated persons. Conceptually, then, we are informed by Goffman's (1983, p. 2) definition of social interaction as "that which uniquely transpires in...environments in which two or more individuals are physically in one another's response presence," while focusing more narrowly on conversation as a type of interaction that can lead to network tie creation or maintenance. Three of our measures of conversational interaction had a sufficient number of useable cases for analysis: (a) whether informal conversation occurred *during* the convening, (b) the number of convening participants who arrived at the space and conversed *before* the convening began, and (c) the number of convening participants who remained in the space conversing *after* the convening ended. Each measure provides a different perspective on convening-level interactions that foster network ties.

The first measure offers a broad view of interaction during the planned portion of a convening. We capture whether *any informal conversation occurred during the convening*. Informal conversation is coded in contrast to conversation that has been requested and structured by the conveners (e.g., facilitated discussions, planned deliberations, professional "networking"). Informal conversation can happen before, after, between, and—illicitly—during structured activities. In all cases, informal conversation is talk that is not requested or structured by the conveners (making it easily visible to observers). We collected data on informal conversations as part of a battery of 24 activity options included on the SSO form (for all items, categories, and code definitions used in this analysis see the Supplementary Files). Most of the listed activities involve interaction of some kind, but informal conversation is conceptually distinct, as it is both essentially interactive (one cannot converse alone) and participant-driven (other interactions are prompted by conveners). We measure informal conversation as a dichotomous variable where 1 indicates that informal conversing occurred.

While most of the time that participants spend at a convening is during the scheduled and planned convening activity, pre- and post-convening time often offers the kind of unstructured situation most suited to interaction—especially if the formal proceedings are largely non-interactive (e.g., watching a movie). In these pre- and post-convening moments, when conveners have the least control over participant behavior, the effects of space characteristics may be most evident. As such, our second measure is the *number of participants present seven minutes before the convening who were engaged in extended pre-convening conversation*, and our third measure is the *number of convening participants who were engaged in extended post-convening conversation seven minutes after a convening ends*. The pre-convening count happens relative to the scheduled convening start time. The post-convening count

happens relative to the actual conclusion time (i.e., when planned activity ends), which does not always correspond to the scheduled end time. Early observations suggested that seven minutes pre- and post-convening were appropriate times for counts relative to trends in participant arrivals and departures and other start- and end-of-convening attention demands on observers.

#### 4.2. Independent Variables: Space Characteristics

Our first independent variable captures the space's physical footprint (i.e., size). Convening spaces can be inside or outside and can be of varying sizes. We capture *space footprint* features through four binary indicator variables: outside, inside-large (suitable for 100+ people, like a gymnasium), inside-medium (suitable for 26–99 people, like a lecture hall), inside-small (suitable for 25 people or fewer, like a meeting room). Inside-medium is the excluded reference category, allowing us to best test our nonlinear footprint hypothesis. Once we control for the number of participants and other convening characteristics, we expect both small and large inside spaces to have less interaction than medium-sized spaces. Relationships may differ across inside and outside spaces.

*Space permeability* is captured through an indicator for whether a space is controllable by the convener. A *convener controllable* space is one where the physical infrastructure allows the convener to effectively exclude unintended participants—often a room with a door that closes. Uncontrolled spaces are those where participants—intended or not—can enter the space without encountering a physical barrier. Meetings held in cafés or events in public parks are not convener controllable spaces. This measure is a dichotomous variable where 1 indicates a convener controllable space.

#### 4.3. Controls

Several factors beyond the convening's physical space could influence its estimated relationship with interactions. Of primary concern are the choices made by conveners—they must decide where to hold the convening and what to do during it. However, these decisions may not be primarily (or even largely) a function of space characteristics; organizers often face constraints in the spaces available. Still, a convener could select one space over another for reasons that might include geographic location, meaningfulness to the participants, or suitability for certain activities (e.g., choosing an auditorium for a public panel discussion). Similarly, while conveners likely choose activities that need to be done, they may also choose activities because of the availability of space types. For example, a convener with access to an auditorium with rows of fixed seats might design a training event that primarily features lectures rather than group breakout sessions. As such, we control for decisions made by conveners about the convening's nature that could shape interactions. In particular,

we control for convening types that typically include significant amounts of *intended interaction*. This measure is a dichotomous variable where 1 indicates a business meeting (where strategy discussion is typically intended), a member-benefit activity (where networking is typically intended), or a social/recreational event (where socializing is typically intended). These types stand in contrast to other convening types (performance/game, recruitment/call-out, rehearsal/practice, other member-based activity, other convening types) that could include interaction, but that also could be executed in ways where intended interaction is limited or absent.

Conveners also have options about who to invite. Convenings can be fully public (anyone can attend without registration or credentials, like an open meeting), excludable public (anyone can register and get credentials, but no one can enter without them, like a ticketed event), and exclusive (only people designated by the organization can attend, like an invitation-only event). We include the dichotomous variable *restricted attendance*, where 1 is exclusive or excludable public and 0 is fully public.

Beyond the selected space and planned activities, the number of participants sets an interaction baseline; with more people present, more interaction can occur. We include the log of the number of participants.

## 5. Results

How much interaction occurs in CSO convenings? Table 1 presents descriptive statistics. The statistics for our interaction variables show that about two-fifths of convenings included informal conversation (i.e., talk not prompted or structured by conveners) during the convening. During the other three-fifths of convenings, participants only interacted “formally” as requested by conveners.

The moments before and after convenings are other times for interaction. The distributions of convening pre- and post-talkers are skewed. At seven minutes prior to the posted start time, the average convening had 20 people engaged in conversation, while the median convening had nine. At seven minutes after the actual end time, the average convening had 28 people engaged in conversation, while the median convening had 13. Pre- and post-convening talk does not appear to replace informal conversation during a convening. There is no statistically significant difference between the numbers of pre- or post-convening talkers at convenings with and without informal conversation during the convening.

While the average values demonstrate that conversational interaction regularly occurs, they mask substantial variation among convenings (the ranges and standard deviations for the interaction measures are quite large)—which space characteristics may help explain. In what ways are features of physical space related to social interaction at convenings? Table 2 presents the results of regression models explaining variation in our three dependent variables. While we use consistent sets

**Table 1.** Descriptive statistics for interactions, space characteristics, and convening characteristics.

	N	Mean	Standard Deviation	Minimum	Maximum
Conversational interaction					
Any informal conversation	99	0.41	0.50	0	1
# of pre-convening talkers	68	20.22	33.67	0	200
# of post-convening talkers	68	28.00	60.13	0	400
Space characteristics					
Small footprint	92	0.16	0.37	0	1
Medium footprint	92	0.59	0.50	0	1
Large footprint	92	0.20	0.40	0	1
Outdoors	92	0.05	0.23	0	1
Convener controllable	99	0.82	0.39	0	1
Convening characteristics					
Intended interaction	99	0.81	0.40	0	1
Restricted attendance	99	0.84	0.37	0	1
Total # of participants	99	59.51	114.21	2	980

Note: The log of total participants is used in the analyses. Source: Based on the authors' analysis of the first wave of the Observing Civic Engagement project.

of independent variables throughout our analyses, we tailor our models to each dependent variable. For the dichotomous *any informal conversation* measure, we use a logit model. We use negative binomial models for the count variables.

The relatively small number of useable cases per model limits the precision of our estimates (i.e., standard errors are relatively large). Still, our tests for relationships between space footprint and interaction loosely support Hypothesis 1. Across all three models,

the coefficients for small and large footprints (relative to medium-sized footprints) are negative, and in two instances reach conventional statistical significance at  $p < .05$ . Controlling for the number of participants and other convening characteristics, compared to medium spaces, small spaces have lower estimated levels of conversational interaction among participants before, during, and after each convening.

Regarding permeability, the estimates for convener controllable spaces are positive for socializing during

**Table 2.** Estimated effects of space characteristics on conversational interaction.

	Any informal conversation	# of pre-convening talkers	# of post-convening talkers
Space characteristics			
Small footprint <sup>a</sup>	-2.557* (1.10)	-0.742* (0.34)	-0.432 (0.33)
Large footprint <sup>a</sup>	-0.216 (0.68)	-0.324 (0.30)	-0.282 (0.33)
Outdoors <sup>a</sup>	0.001 (1.26)	0.117 (0.49)	-0.573 (0.50)
Convener controllable	0.754 (0.71)	-0.119 (0.27)	0.204 (0.29)
Model type	Logit	Neg. Binomial	Neg. Binomial
Alpha (ln)		-0.567**	-0.541**
Model log-likelihood	-53.612	-216.930	-233.875
$\chi^2$	17.519*	45.968***	62.583***
Pseudo-R <sup>2</sup>	0.140	0.096	0.118
N	92	61	61

Notes: \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ ; standard errors in parentheses; all models control for intended interaction, restricted attendance, and the log of total participants; <sup>a</sup> medium footprint spaces are the reference category. Source: Based on the authors' analysis of the first wave of the Observing Civic Engagement project (for complete sets of estimates, see Supplemental File 1, Table S1).



the convening and post-convening conversation, as anticipated by Hypothesis 2, but negative for pre-convening conversation. None of these relationships, however, reach conventional levels of statistical significance. The estimated magnitudes of the relationships for space permeability are small (and substantially smaller than the estimates for space size), suggesting that space permeability may not impact interaction, at least in the way that we have measured it, or that substantially larger samples are needed to detect a significant relationship.

To aid in the interpretation of results from these non-linear models, we derived predicted probabilities (from the logit model) and predicted values (from the negative binomial models) for the impacts of space footprint on conversational interaction. All predictions are for a convening where conveners intend participants to interact during the convening, where the convener controls the space, and where attendance is restricted. Predictions are generated for the mean number of convening participants within the relevant footprint category (generating estimates using the overall mean for participants does not make sense for small spaces where 60 people could not fit in the space).

As the regression results suggest, the predicted probability of any informal conversation occurring at a convening is quite similar for convenings held in medium (.46), large (.46), and outdoor (.50) spaces. Close to half of all such convenings are expected to have some side conversation unprompted by conveners. Convenings in small spaces, on the other hand, have a very low predicted probability (.06). Less than 10% of small convenings have unprompted side conversations. Some of the differences between small spaces and larger ones may be explained by high rates of intended interaction in small convenings; very small groups are convened in very small spaces so participants can engage in structured discussions. The hypothesized effects of footprint are likely also playing a role. Small spaces are inhibiting informal conversation as participants refrain from side conversations in settings where most or all participants can see the conversation occurring and hear what is said.

The substantial difference between small- and medium-sized spaces holds for pre-convening conversations as well. Predictions from the pre-talk model suggest that seven minutes prior to the convening, the typical small-space convening has about five participants talking while the typical medium-space convening has about 12 participants talking. In medium-sized spaces where there is more room to move about to find conversation partners and to create enough distance from other participants to attain a semblance of private conversation—more people interact.

The predicted number of pre-convening talkers for large spaces and outdoor spaces is about 26 and 28 respectively, suggesting that the positive impact of the larger number of participants in these spaces is overshadowing any potential negative effect of a larger space footprint (because the predicted values are derived from

the mean number of participants for each space size). The same is true for talking after convenings. The predicted number of post-convening talkers scales with the number of participants: small (8), medium (14), large (38), outside (18). While participants are spreading out more at convenings in large spaces, on average there are enough participants to ensure that people can still relatively easily engage in informal conversation despite the additional space.

## 6. Conclusion

Scholarly attention to the relationship between physical space and social ties is increasing (Small & Adler, 2019); its application to civil society settings, however, has been limited. We have taken an initial step toward expanding that focus by examining settings where much civil society activity occurs: CSO convenings. Using data from an exploratory study of CSOs, we analyzed the relationship of space characteristics to the amount of participant interaction in a set of convenings. Although our study is limited to three CSOs in one city, we found evidence suggesting that the size of a convening space may have a curvilinear relationship with interaction—small spaces have less interaction than medium-sized spaces; large spaces may also have less interaction net of the number of participants, although it is difficult to determine given the constraints of a small sample size. Evidence that spaces with features that shield participants from nonparticipants is equivocal; more information is needed.

Beyond the limited specific findings, our exploratory study provides proof-of-concept that SSO works for studying space and interaction in CSOs and provides a foundation for expansions. As an exploratory study intended, in part, to develop, refine, and test a tool, our sample was limited in scope, and data collection tools changed over time. Subsequent rounds of data collection with consistent variables, more-precise measures, more organizations, and more convenings will open opportunities to address more areas of theoretical interest. For example, future studies can include additional spatial propinquity and configuration measures such as the subdivisions of a space, the linear distance across different spaces, the measured area or maximum legal occupancy of the convening space, and the number of intermediate spaces between two or more participants. In addition to spatial propinquity and configuration, tremendous variation exists in the composition of convening spaces (Small & Adler, 2019). Moveable objects like chairs, tables, and podiums and built-in features like stairs, stages, and pillars break up a space and can encourage or inhibit interaction (e.g., Underhill, 1999; Whyte, 1980). More broadly, spatial morphology and the transformability of a space can influence organizers' control over a space and a convening's ability to facilitate social interaction (Habraken, 2000; see also the research developed by the Spatial Morphology Group at Chalmers University).

Methodological extensions of our SSO approach using photos or videos (e.g., Pallotti et al., 2020; Odgers et al., 2012) could allow for even more fine-grained accounting of convening spaces and set-ups, while further reducing the cognitive demands on coders, who could view materials multiple times. Combining such data with passively-collected interaction data (e.g., using RFID tags; see Cattuto et al., 2010) or surveys of participants (e.g., using field surveys at convenings; see Fisher et al., 2005), could provide additional insights into the relationship between space and social interaction.

Substantive extensions of the work will need to branch out well beyond a single city. Comparisons across neighborhoods, cities, states, regions, and countries will allow for the examination of the ways that space characteristics intersect with local and national cultures. Broader organizational samples within those geographies will allow for more careful examinations of variations in impacts across demographic groups, enabling researchers to ask, for example, whether certain spatial arrangements extend or reduce the marginalization of demographic groups in deliberations at convenings.

There are also important extensions of this work to be done at higher levels of analysis. Local markets for convening spaces can be tight, especially for marginalized groups (Lefebvre, 2020), meaning different CSOs may often rent, borrow, or share the same spaces. Future work should move beyond an analysis of space alone and into the intersection of space and organization. How much does interaction within one organization vary across different spaces—or across different organizations that use the same space at different times?

Findings from studies that successfully build on this exploratory study will have implications for practice and policy. The physical spaces where convenings are held impact interactions among participants. If CSOs want to foster interaction, conveners should seek spaces that are sized and designed most effectively to do so. In quarters that are too tight, participants may find it awkward to interact with each other, but with too much space they may spread to the point of non-interaction. Policymakers, architects, and developers should take note as well. The spaces available for CSO convenings are part of “social infrastructure” (Klinenberg, 2018)—elements of the built environment that foster social connection and civic engagement. The institutions that build, maintain, and provide such spaces in the hopes of fostering civic benefits should design spaces with the most interaction-amenable features possible.

More broadly, CSO convenings are vital sites for the creation and strengthening of network ties. The physical spaces where they occur, then, are the settings where valuable information is passed through weak ties (Granovetter, 1973), where communities extend networks that can foster a shared identity (Putnam, 2020), and where both elites (Kendall, 2008) and marginalized groups (Han et al., 2021) build the relationships that form the foundations of political power. To better under-

stand, and potentially shape, the trajectories of individuals, communities, and groups, a focus on CSO convening spaces and the interactions they foster will be important.

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### Conflict of Interests

The authors declare no conflicts of interest.

### Supplementary Material

Supplementary material for this article is available online in the format provided by the author (unedited).

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