Exploring the conditions that promote intergroup contact at urban parks

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Abstract:

Urban parks have the potential to serve as places that facilitate intergroup contact between racially and ethnically diverse users.However, there is limited evidence identifying the conditions under which intergroup contact occurs in urban park settings. Existing literature suggests that the psychosocial conditions of safety, community engagement, psychological ownership, and sense of welcome and belonging may be related to park-based intergroup contact. The purpose of this study was to test the hypothesized structural relationships between these factors and intergroup contact among park visitors at three parks in Philadelphia, PA (n = 324). Results demon-strated that intergroup contact is more common when visitors feel a greater sense of welcome and belonging at parks. Moreover, indirect relationships suggest that efforts to engage community residents indecision making, stimulate psychological ownership, and improve safety can help diverse users to feel more welcome, and in turn,engage in more intergroup contact.

Keywords: Community engagement | belonging | intergroup contact | ownership | social equity | urban parks

Article:

Introduction

In an increasingly diverse society, conflict between different groups (e.g., ethnic, racial, cultural)

is both prevalent and problematic; issues of prejudice, racism, and discrimination related to intergroup conflict are concerns for individual wellbeing and community cohesion (Priest et al., 2013; Reitz & Banerjee, 2007). Positive intergroup contact between people of different races and ethnicities, can help ameliorate these concerns and has been documented as a viable strategy to build cultural awareness, reduce levels of prejudice, and in turn, affect a variety of desirable outcomes including civic engagement (Allport, 1954; McKeown & Taylor, 2017; Pettigrew & Tropp, 2006; Turoy-Smith et al., 2013). Park and recreation settings, where people pursue hobbies or interests of their choosing, are ideal for examining the occurrence and extent of intergroup contact due to individuals' duration and frequency of use (Shinew et al., 2004; Wessel, 2009).

Moreover, due in part to their histories as contested spaces and locations of intergroup conflict (Harris et al., 2020; Lee & Scott, 2016; Philipp, 2000; Stodolska et al., 2011), urban parks are a unique setting to study intergroup relations. However, relatively little scholarly attention has been given to the topic of intergroup contact in urban parks (Hillier et al., 2016). Evidence suggests that intergroup contact can occur in urban parks, but the conditions under which it occurs are less understood. A limited body of qualitative research on park-based intergroup contact, and research on contact from related fields, has suggested the importance of safety, connection to place, sense of welcome and belonging, and community engagement in promoting positive intergroup contact (Hewstone et al., 2006; Laurence, 2019; Liu et al., 2018; Peters et al., 2010; Selim, 2015). However, the connections between these concepts have not been collectively examined in park spaces. A better understanding of those conditions which promote intergroup contact could inform better design of spaces, programs, and engagement efforts to promote interaction among racially and ethnically diverse park users. Thus, this study specifically investigated the factors which relate to intergroup contact at urban parks.

Literature review

Intergroup contact

Intergroup contact refers to contact between people from different socio-demographic groups (Allport, 1954; Hodson & Hewstone, 2013). Intergroup contact can apply to a variety of different socio-demographic attributes including, but not limited to, race, ethnicity, socioeconomic status, religion, and nationality. One's own group is often referred to as the "ingroup," while individuals belonging to a different group are considered to be members of an "outgroup." Intergroup contact theory suggests that under positive conditions, intergroup contact is associated with improved relations between groups including increased understanding and a reduction in intergroup prejudice (Allport, 1954; Hewstone, 2015; Hodson & Hewstone, 2013; Pettigrew & Tropp, 2006). Intergroup contact can directly influence proximal outcomes like prejudice and indirectly influence more distal outcomes mediated by prejudice reduction (e.g., civic attitudes; Bowman, 2011; Hodson & Hewstone, 2013). Allport's (1954) original intergroup contact hypothesis suggested there were four conditions necessary for positive contact including equal status, common goals, intergroup cooperation, and support of authorities, law, or custom. Subsequent research has found that these conditions are facilitators of positive outcomes, but are not all necessary (Pettigrew, 1998; Pettigrew & Tropp, 2006). Positive outcomes of intergroup contact occur as a result of several processes, including when one: learns about the outgroup, changes their behaviors and attitudes toward the outgroup, generates ties to people in the

outgroup, and reexamines their perspective of their own group (Hodson & Hewstone, 2013; Pettigrew, 1998). Finally, it is important for individuals to have repeated contact over time with multiple people from the outgroup (Matejskova & Leitner, 2011; Neal et al., 2015; Pettigrew, 1998). As evidenced by Pettigrew and Tropp's (2006) meta-analysis, a large body of work supports intergroup contact theory.

Intergroup contact in parks

The greatest effects from intergroup contact are likely to emerge from recreation settings as these spaces have the potential to bring together people with shared interests (Wessel, 2009). They also have the potential for repeated visitation, and therefore repeated contact– a dimension of Pettigrew and Tropp's (2006) suggested contact processes. As stated by Neal et al. (2015), "parks can work as animators of social interactions, participatory practices, and place affinities across ethnic and cultural difference" (p. 463). Intergroup contact in park and recreation settings can increase intercultural awareness, reduce prejudice, and improve outgroup attitudes (Kim, 2012; Neal et al., 2015; Peters & De Haan, 2011; Seeland et al., 2009). Even if people do not interact, parks and other public spaces provide opportunities for people to be peacefully co-present and see each other in the same space, which creates the potential for interaction (Peters, 2010). Moreover, even if not everyone engages in intergroup contact, just the act of seeing others engage in positive contact can create positive contact norms and indirectly influence attitudes (Christ et al., 2014).

As Allport (1954) and others have emphasized, certain conditions promote intergroup contact which leads to favorable outcomes, but not all contact is positive (Amin, 2002; Harris et al., 2020; Matejskova & Leitner, 2011; Valentine, 2008). For example, research has suggested that when intergroup contact in parks is fleeting, it can reinforce preexisting stereotypes or have little effect on outgroup attitudes (Amin, 2002; Matejskova & Leitner, 2011; Valentine, 2008). Unfortunately, contact occurring in unfavorable conditions (e.g., conflicting park uses) can also lead to discrimination or violence (Harris et al., 2020; Low, 2013; Pettigrew & Hewstone, 2017). Some research suggests that intergroup contact occurs frequently in parks (Neal et al., 2015; Seeland et al., 2009), while other research suggests intergroup co-presence and interaction are more infrequent (Hillier et al., 2016; Matejskova & Leitner, 2011; Peters et al., 2010). Given these differences, it is important to examine the barriers to intergroup contact in parks.

Barriers to intergroup contact in parks

There are several barriers to intergroup contact in urban parks including residential segregation, a lack of diversity of park visitors, intimate segregation, and a desire to not interact with others (Harris et al., 2020; Peters et al., 2010; Schmid et al., 2014). Diversity is a precondition that creates the opportunity for intergroup contact (Schmid et al., 2014). Thus, in the context of parks, intergroup contact can only occur when the park is used by a diverse audience. While not the focus of this study, various constraints can limit or reduce the use of parks among certain populations. These include but are not limited to constraints of time, distance, information, safety, fear, conflict, racial discrimination, cultural characteristics, low socioeconomic status, history of racial oppression, landscape features of the built environment, and availability or acceptability of desired activities (Byrne, 2012; García et al., 2016; Gobster, 2002; Lee & Scott, 2016).

Moreover, factors such as discrimination, landscape features, fear of conflict, informal policing of others' behavior, and a history of exclusionary practices can impact the spatial use of urban parks, particularly for people of color (Byrne, 2012; Harris et al., 2020). Due to safety concerns or not feeling welcome, people of color may avoid certain spaces where they risk experiencing discrimination, conflict, and an overall hostile environment (Harris et al., 2020; Mumm, 2008). This avoidance can cause groups to self-segregate in park and recreation settings, which is known as intimate segregation. Intimate segregation, emerging as a result of racism, discrimination, and conflict can limit intergroup contact because different racial or ethnic groups are no longer in spatial proximity of one another and have self-segregated to an extent that prevents both co-presence and interaction (Byrne & Wolch, 2009; Harris et al., 2020; Peters et al., 2010). Efforts to address racism and discrimination in parks could help make parks safer and more welcoming for people of color, and in turn support more positive interactions among racially and ethnically diverse users. Finally, some people use parks with the desire to spend time alone or with preexisting social groups, which can limit intergroup contact (Peters et al., 2010). While these factors may serve as barriers to intergroup contact, there are other conditions that may stimulate intergroup contact in parks.

Conditions promoting intergroup contact in parks

Geographic and situational factors such as neighborhood diversity, presence of park management staff, and programming are associated with opportunities for, and engagement in, intergroup contact (Hillier et al., 2016; Matejskova & Leitner, 2011; Peters et al., 2010; Priest et al., 2014). Consistent with research suggesting diversity as a precondition (Neal et al., 2015; Schmid et al., 2014), the co-presence of diverse groups is more likely in parks located in diverse neighborhoods (Hillier et al., 2016). With regard to management, meaningful intergroup contact requires significant, intentional effort (Hillier et al., 2016; Matejskova & Leitner, 2011). External stimuli such as events, activities, or landscape features (e.g., open space conducive to activities, a playground for children to play together) can stimulate contact (Neal et al., 2015; Peters et al., 2010; Stodolska et al., 2017). For example, the co-presence of diverse groups is more likely to occur in the presence of supervised events or activities, emphasizing the importance of Allport's condition of the support of management/authority to facilitate intergroup contact (Hillier et al., 2016). Moreover, as Stodolska et al. (2017) identified, interaction between racially and ethnically diverse park visitors is more likely to occur with some type of "conversation hook"; for instance, at a playground, children playing together may facilitate communication between their respective parents. Beyond these situational factors, research supports, but has not empirically tested, the importance of several psychosocial factors in promoting intergroup contact: park conditions and safety, community engagement in park activities/planning, psychological ownership of the park, and a sense of welcome and belonging in the park.

Park conditions and safety

With regard to safety, lack of lighting, poor maintenance, crime, and discrimination can all negatively affect park use (McCormack et al., 2010; McCormick & Holland, 2015; Stodolska et al., 2011). It is possible these elements of safety and park quality could influence visitors' use of the park, and in turn, interest or willingness to engage in intergroup contact (Hewstone et al., 2006; Selim, 2015). For example, if people feel unsafe in a public space due to presence of an

outgroup (especially when there is a history of discrimination, conflict, or violence with that group), they are likely to alter their use patterns to either avoid the space altogether or visit at times when members of the outgroup are not present (Selim, 2015; Stodolska et al., 2020). It is important to remember that outgroups may be characterized in different ways. For instance, with regard to race or ethnicity, histories of exclusionary practices and unsafe, discriminatory environments may lead people of color to avoid certain parks or areas within them with large proportions of White visitors, which reflect one type of outgroup (Harris et al., 2020; Mumm, 2008). Also related to safety, individuals may avoid parks with high rates of crime or gang activity, but in this scenario, they may perceive members of gangs to represent the outgroup (Stodolska et al., 2011). Overall, given research on intimate segregation in parks and public spaces, it is possible that perceptions of park conditions and safety would influence visitors' spatial patterns and therefore their opportunities for proximate co-presence, one type of intergroup contact (Harris et al., 2020). Additionally, when co-presence does occur, individuals who perceive safer park conditions–perhaps because of their social status or power– could potentially be more comfortable interacting with people outside of their own socio-demographic group.

Community engagement

Community engagement may both directly and indirectly relate to intergroup contact in parks (Peters et al., 2010). Park agencies and nonprofits exhibit varying levels of community engagement in park planning, decision making, design, and management. Working with neighborhood organizations, engaging citizens in planning processes, and organizing culturally relevant programming or events are just a few examples of how parks can engage with surrounding communities (Byrne, 2012; Gomez et al., 2015; Peters et al., 2010). Various types of community engagement from youth initiatives to encouraging community input in park design may also stimulate intergroup contact (Laurence, 2019; Peters et al., 2010). Moreover, activities or programs designed to bring together diverse audiences in a safe atmosphere, especially those which encourage conversation and interaction among attendees have the potential to support intergroup contact (Wei & Munyikwa, 2017). Thus, engagement of diverse communities in planning and programming within a park setting may foster an environment that supports more frequent and positive intergroup contact among park visitors. Community engagement has also been shown to directly impact perceived psychological ownership (Mullenbach et al., 2019; Shu & Peck, 2018); thus, the relationship between engagement and intergroup contact may be mediated by psychological ownership of these public spaces.

Psychological ownership

Perceived psychological ownership is the extent to which someone feels that a place or item is "theirs." Psychological ownership can be felt at both a personal and group level. In a recreation context, perceived ownership of a park can help foster a sense of responsibility and stewardship (Shu & Peck, 2018). Studies have demonstrated that sense of psychological ownership is higher when people are engaged in decision making, have a financial stake in the place (e.g., through donations), and have more knowledge of and emotional connection to the place (Mullenbach et al., 2018; Shu & Peck, 2018). Research has also suggested that connection to place, which tends to increase one's visitation to the place, could promote intergroup contact

through encouraging frequent contact between the same people, or public familiarity (Blokland, 2003; Dines & Cattell, 2006; Paulos & Goodman, 2004; Peters et al., 2010), but the specific relationship between ownership and intergroup contact has not been empirically tested.

Sense of welcome and belonging

For diverse park users to meet and interact in public spaces, racially and ethnically diverse individuals first need to feel like they are welcome and belong in these spaces (Byrne, 2012). This is especially relevant for people of color who have historically been excluded from these settings. Physical and social attributes of the park including park conditions and perceived safety could influence the extent to which someone feels welcome in a park. Moreover, it stands to reason that those who feel a greater sense of psychological ownership over a space may be more likely to feel that they belong there. Research has investigated sense of welcome and belonging in neighborhood contexts, finding that for some racial and ethnic groups, a sense of neighborhood belonging was related to higher quality intergroup contact (Liu et al., 2018). However, there has been limited investigation of this construct specific to park and recreation settings, though it is possible that perceptions of a sense of welcome and belonging could also impact intergroup contact in park settings (e.g., Shinew et al., 2004). Additionally, given that community engagement, park conditions and safety, and psychological ownership could impact sense of welcome and belonging, these variables may also have indirect relationships with intergroup contact through this mediation; however, these complex relationships have not yet been tested in an urban park context.

Study purpose

As demonstrated above, a variety of factors, including park conditions and safety, community engagement, psychological ownership, and sense of welcome and belonging, may affect intergroup contact at urban parks. However, these relationships in combination have yet to be empirically tested. Therefore, the purpose of this study was to examine the conditions that promote intergroup contact at urban parks. The following hypotheses were generated based on existing literature and were subsequently tested in a sample of Philadelphia, Pennsylvania park visitors (see Figure 1):

> H1: Park Conditions and Safety, Community Engagement, Psychological Ownership, and Welcome and Belonging will have direct, positive relationships with Intergroup Contact.
>
> H2: The impact of Park Conditions and Safety, Community Engagement, and Psychological Ownership on Intergroup Contact will be partially mediated by Welcome and Belonging; that is, each of these variables will have a direct, positive relationship with Welcome and Belonging.
>
> H3: The impact of Community Engagement on Welcome and Belonging will be partially mediated by Psychological Ownership; that is, Community Engagement will have a direct, positive relationship with Psychological Ownership.

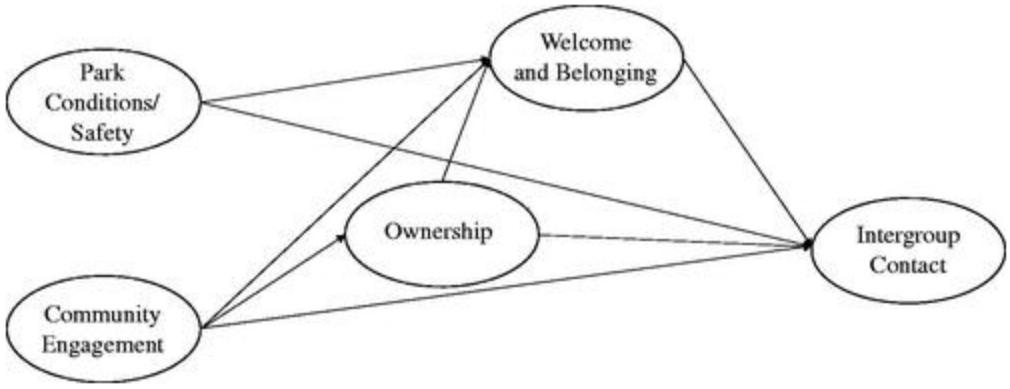

Figure 1. Hypothesized structural model.

Methods

Data for this study were part of a larger research effort concerning the impact of park capital improvements, which included intercept surveys (n = 324) of park visitors at three urban parks in Philadelphia, Pennsylvania: Bartram's Garden, West Fairmount Park, and the Rail Park. These parks are collectively part of the Reimagining the Civic Commons Initiative in Philadelphia, a multi-year collaborative effort of investment in civic assets. The overall intent of the Civic Commons initiative included not only revitalization of these civic spaces, but also goals of increasing community engagement, connecting people of different backgrounds, and cultivating civic trust (Reimagining the Civic Commons, 2020).

Setting

West Fairmount Park is a large urban park that received a capital renovation, creating a living room concept community gathering space, known as the Parkside Edge, located at the edge of the park adjacent to the surrounding East Parkside neighborhood. This area is primarily Black/African American (87%) and low income (59% of households with annual income below $24,999; U.S. Census Bureau, 2018). Within the Parkside Edge, physical changes included the installation of many benches and "porch" swings, the addition of rain gardens to manage stormwater, new lighting, a new path, enhanced landscaping, and traffic calming measures on the adjacent street. Moreover, programmatic changes have also occurred at the Parkside Edge; for example, two nonprofit community organizations, the Fairmount Park Conservancy and the Centennial Parkside Community Development Corporation, provide a monthly Fresh Food Fest here.

Bartram's Garden is a public botanical garden and park in Southwest Philadelphia that is operated by the nonprofit John Bartram's Association in conjunction with Philadelphia Parks and Recreation. The park is located in a neighborhood that, like East Parkside, is primarily Black/African American (92%) and low income (53% of households with annual income below $24,999; U.S. Census Bureau, 2018). As part of the capital and programmatic investments, Bartram's Garden developed a new multi-use, paved trail; expanded program operations to include community gardens, free boating programs, and an urban farm; and made intentional efforts to engage community members at the park. For example, they have expanded their outreach to the community through establishing a community advisory board, increasing youth

programs, hiring local residents, marketing in surrounding neighborhoods, and obtaining community buy-in for new programs.

The Rail Park is an elevated linear park constructed atop an abandoned railway line in Philadelphia, Pennsylvania. The park is adjacent to two culturally distinct neighborhoods, Callowhill and Chinatown (Pearsall, 2018). Callowhill has historically been a predominately White (46% White, 27% Asian), mixed-income neighborhood, and Chinatown a predominately Asian (60% Asian, 22% White) mixed-income neighborhood (Pearsall, 2018; U.S. Census Bureau, 2018). The two neighborhoods had competing visions for what the abandoned railway line should be used for, and differing levels of influence on Rail Park planning (Pearsall, 2018). Thus, this represents an important context for investigating intergroup contact. After many years of planning, the Rail Park opened in June of 2018. Currently the completed section of the park is ¼ mile long, but there are plans to extend it to 3 miles in the future. Friends of the Rail Park, a nonprofit organization that supports the park, holds a variety of events and programs at the park including movie nights, festivals, and exercise classes. The park itself includes a gravel path, some greenery, benches, and large swings.

Survey administration

Face-to-face intercept surveys of park visitors were conducted post-renovation at West Fairmount Park in the summer and early fall of 2018, Bartram's Garden in the summer and early fall of 2017, and the Rail Park in the summer of 2019. The in-park sampling schedules allowed systematic coverage of weekday and weekend hours between 8 AM and 8 PM across the surveying time-periods. Interviewers were trained in survey administration and data management procedures. Systematic random sampling was used at all park locations. Parks were split into several zones, and staff began their surveying at rotating sub-zones dependent upon the schedule framework. The data collection staff approached each adult visitor (alone or one per group) they encountered in various zones within the parks, explained the purpose of the survey, and asked visitors for 15 minutes of their time. Visitors had to be 18 years or older to participate in the survey. Visitors who agreed to participate were shown a map of the study area to clarify the scope of the questions. This study was approved by the first author's university's institutional review board and informed consent was obtained from all participants.

Overall, response rates (based on number of surveys taken) for the various parks were as follows: 59% (n = 172) at West Fairmount Park, 59% (n = 357) at Bartram's Garden, and 77% (n = 200) at the Rail Park. Some of the items (e.g., items about intergroup contact) used in the current study's analysis were asked only of repeat visitors to the parks, as we anticipated that first-time visitors would be unable to provide accurate responses. For this reason, we focused on repeat visitors. At West Fairmount Park (WFP), 54% (n = 93) of the overall sample were repeat visitors, at Bartram's 51% (n = 183) were repeat visitors, and at the Rail Park 56% (n = 111) were repeat visitors. Cases of repeat visitors asked all relevant questions and with at least 80% of complete data were retained for full analysis (n = 87 for WFP, n = 126 for Bartram's, and n = 111 for Rail Park).

Measures

Measures for this study were developed for a park context based on previous literature from youth development, environmental psychology, and civic engagement. Conversations with

community nonprofits were also helpful in the measure development.

Intergroup contact

Intergroup contact was measured via four items designed to capture an individual's experience with park visitors from different backgrounds as well as the extent to which they see others engage in intergroup contact with people of other backgrounds at the park. Both of these concepts were deemed important due to previous literature suggesting benefits of both personal engagement in contact and broader contact norms that emerge from seeing others engage in contact or feeling that a place is conducive to intergroup contact (Allport, 1954; Christ et al., 2014; Peters, 2010). The wording of each item was kept broad to capture intergroup contact with people of different backgrounds. The interpretation of "people from different backgrounds" was thus left up to the survey respondent, aligning with relational demography literature suggesting that one's perception of difference based on visual cues is how one forms ingroup and outgroup perceptions (Cunningham, 2007; Riordan, 2000). Respondents were asked to rate their frequency of agreement with the following four items on a scale from 1 = rarely to 5 = always: "when I am here I greet or say hello to people from different backgrounds," "I interact with people of different backgrounds at this park," "this park is a good place for people of different backgrounds to meet," and "I see people of different backgrounds interacting at this park." These four items demonstrated strong reliability with a Cronbach's alpha of .868.

Park conditions/safety

The park conditions and safety measure was operationalized by three items. These items were part of a satisfaction battery and were selected based on a review of the park conditions which impact an individual's perception of safety (McCormack et al., 2010; McCormick & Holland, 2015). Respondents were asked to rate their satisfaction with the quality of "the cleanliness of the park," "the overall maintenance of the park," and "safety from criminal activity in the park" on a Likert scale from 1 = extremely poor to 5 = excellent. These three items demonstrated sufficient reliability with a Cronbach's alpha of .780.

Community engagement

Community engagement was captured with two items reflecting an individual's perception of their involvement in the planning and management of the park. These items were originally developed for a park context based on broader community engagement research (e.g., Doolittle & Faul, 2013) and very similar versions of them were used in a previous community park study (Mullenbach et al., 2019). Respondents were asked to rate their level of agreement on a scale from 1 = strongly disagree to 7 = strongly agree for the following two items: "my voice was represented in the renovations/plan for the park" and "my input is valued by [the community organization stewarding the park]." For each park, the respective community organization was inserted into this item. Given that this was a two-item measure, reliability was examined with the Spearman Brown split-half method, which produced a coefficient of .760, demonstrating sufficient reliability.

Psychological ownership

This study used a personal ownership measure which was developed based on psychological ownership literature including Pierce et al. (2001) and Shu and Peck (2018) and modified to fit a community park setting. Respondents were asked to rate their agreement on a

Likert scale of 1 = strongly disagree to 5 = strongly agree on four items. These included: “this is my park,” “I sense that this park is mine,” “I feel a very high degree of personal ownership for this park,” and “this park is for people like me.” These four items demonstrated strong reliability with a Cronbach’s alpha of .838.

Sense of welcome and belonging

The sense of welcome and belonging measure was developed based on literature from youth development (Gambone & Arbreton, 1997). Four items capturing the extent to which someone feels welcome and that they belong at the park were measured on 7-point Likert scales from 1 = strongly disagree to 7 = strongly agree. These include: “I feel welcome in this park,” “I feel like I belong at this park,” “This park is a comfortable place to hang out,” and “At this park, I feel like I matter.” These four items demonstrated sufficient reliability with a Cronbach’s alpha of .789.

Analysis

Analysis was conducted in SPSS version 26 and AMOS version 26. Structural equation modeling (SEM) was the primary method of analysis. Data for all three parks were analyzed together[1]. Prior to analyzing data in AMOS, missing value analysis was conducted in SPSS. Little’s MCAR test was not significant, suggesting data were missing completely at random. Overall, only 1.3% of data were missing. To retain the sample size, we applied a Markov Chain Monte Carlo multiple imputation procedure with 10 iterations. As Lacerda et al. (2007) suggested regarding this procedure, “distributional convergence is rapid and only a few imputations are necessary in order to produce accurate point estimates and preserve multivariate relationships” (p. 1).

Data were analyzed with Anderson and Gerbing’s (1988) two-step approach which includes the assessment of a measurement model and subsequent testing of a hypothesized structural model. To account for a lack of multivariate normality (Shapiro-Wilk tests demonstrated $p < .001$ for each variable; Razali & Wah, 2011) and to minimize the potential of producing a Type-1 error, we utilized a maximum likelihood Bootstrap (n = 500) with 95% bias-corrected confidence intervals (Brown, 2015; Byrne, 2001). Confirmatory factor analysis (CFA) was used to test the structure of the hypothesized measurement model of the five variables. If the initial model did not exhibit good fit, a revised model was tested; revisions were informed by modification indices (Kim, 2017). Cronbach’s alpha coefficients (in the case of a two-item measure, Spearman-Brown split half coefficient) were generated for the final measurement model, and values greater than 0.65 were deemed acceptable (Vaske, 2008). SEM was then used to test the hypothesized relationships between the latent variables. Several model fit statistics including the χ^2 statistic, Tucker-Lewis Index (TLI), comparative fit index (CFI), root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR) are reported for both the CFA and the SEM. Model fit was established using the following cutoff points: >.90 for TLI and CFI (Hu & Bentler, 1999), <.10 for RMSEA (Kline, 2016), and <.08 for SRMR (Kline, 2016).

Results

Sample characteristics

Table 1 provides demographic information for repeat park visitors included in analysis for the current paper[2]. Thirty-nine percent of repeat visitors were from Bartram's Garden, 34% from the Rail Park, and 27% from West Fairmount Park. Overall, repeat visitors were relatively diverse in terms of income and race and ethnicity (Table 1). Fifty-eight percent of the sample was female, 61% were residents of nearby neighborhoods, and the average age was 37.

Descriptive statistics

Park visitors reported moderate levels of intergroup contact (M = 3.45, SD = .88), with means for all items above 3 on a 5-point scale (Table 2). Visitors felt a relatively strong sense of welcome and belonging (M = 5.81, SD = .84, 7-point scale) and were generally satisfied with park conditions/safety (M = 4.26, SD = .62, 5-point scale). However, they were less likely to feel engaged in decision making (M = 3.72, SD = 1.14, 7-point scale) or feel a sense of psychological ownership of the parks (M = 2.94, SD = .95, 5-point scale).

Table 1. Sample characteristics

Variable	N(%) or Mean (SD)
Park location	
Bartram's Garden	126 (38.9)
Rail Park	111 (34.3)
West Fairmount Park	87 (26.9)
Income[a]	
Less than $20,000	27 (13.1)
$20,001-$40,000	36 (17.5)
$40,001-$60,000	60 (29.1)
$60,001-$80,000	50 (24.3)
$80,001-$100,000	16 (7.8)
Over $100,000	17 (8.3)
Race/ethnicity	
Asian	25 (7.9)
Black/African American	105 (33.3)
Hispanic/Latino	19 (6.0)

White	156 (49.5)
Other	10 (3.2)
Gender	
Female	187 (58.4)
Male	132 (41.3)
Non-binary/non-conforming	1 (0.3)
Age	M = 37 (SD = 14.2)
Local resident status[b]	
Local resident	120 (60.6)
Non-local resident	78 (39.4)

[a]34% (n=111) of respondents selected refused/don't know. Percentages presented in the table above reflect only those who answered this question.
[b]Local residence was defined by living within pre-defined boundaries, ranging by park from a 0.5 mile radius to a 1 mile around the park. These were determined in consultation with neighborhood organizations.

Measurement model

The initial hypothesized measurement model did not have an acceptable fit: $\chi 2 = 678.979$, $df = 109$, $p < .001$; TLI = .758; CFI = .806; RMSEA = .127; SRMR = .0870. Examination of modification indices suggested three problem indicators which either loaded poorly onto their latent factor or loaded highly onto more than one latent factor. As a result, the following items were removed to generate the final measurement model: "This park is a good place for people of different backgrounds to meet" (Intergroup Contact), "At this park I feel like I matter" (Welcome and Belonging), and "This park is for people like me" (Ownership), leaving these latent factors with three items each. The revised measurement model demonstrated strong fit: $\chi^2 = 160.036$, $df = 64$, $p < .001$; TLI = .937; CFI = .955; RMSEA = .068; SRMR = .0477. Each of the final factors demonstrated sufficient reliability (Vaske, 2008, Table 2). Finally, all correlations between latent factors were less than .9, suggesting sufficient discriminant validity between factors (Kline, 2016). All items in the final measurement model had statistically significant factor loadings of .5 or greater for their respective latent constructs (Zhang et al., 2018). Table 2 presents the results of the final measurement model.

Structural model

Next, we tested the hypothesized structural model (Figure 1), which demonstrated strong model fit: $\chi^2 = 171.056$, $df = 67$, $p < .001$; TLI = .934; CFI = .952; RMSEA = .069; SRMR = .0641. This model produced four direct, significant paths and accounted for 31% of the variance in

Table 2. Reliability and statistics for final measurement model.

Latent construct/indicator	Mean (SD)	Unstandardized factor loading (SE)[e]	Standardized factor loading
Intergroup Contact[a] (α = .841)	3.45 (0.88)		
I see people of different backgrounds interacting in this park	3.46 (0.99)	1.06 (.16)	.80
I interact with people of different backgrounds at this park	3.29 (1.05)	1.00[f]	.71
When I am here I greet or say hello to people from different backgrounds	3.34 (1.11)	1.02 (1.0)	.69
Welcome and Belonging[b] (α.= 770)	5.81 (0.84)		
I feel like I belong in this park	5.38 (1.15)	1.35 (.15)	.78
I feel welcome in this park	5.99 (0.97)	1.00[f]	.68
This park is a comfortable place to hang out	6.06 (0.91)	.67 (.06)	.50
Ownership[c] (α. = 833)	2.94 (0.95)		
I sense that this park is mine	3.20 (1.02)	1.22 (.07)	.91
I feel a very high degree of personal ownership for this park	2.83 (1.08)	1.12 (.07)	.85
This is my park	2.79 (1.06)	1.00[f]	.79
Community Engagement[b] (α = .760)	3.72 (1.14)		
My input is valued by [the community organization stewarding the park]*	3.99 (1.25)	1.00[f]	.73
My voice was represented in the renovations/plan for the park	3.46 (1.29)	.91 (.15)	.73
Park Conditions/Safety[d] (α= .789)	4.26 (0.62)		
Satisfaction with the cleanliness of the park	4.36 (0.73)	1.58 (.17)	.89
Satisfaction with the overall maintenance of the park	4.32 (0.73)	1.51 (.16)	.84

Satisfaction with safety from criminal activity in the park	4.10 (0.77)	1.00[f]	.53

[a]Scale where 1 = Never, 2= Rarely, 3 = Sometimes, 4 = Often, 5 = Always.
[b] Scale where 1 = Strongly Disagree, 2 = Disagree, 3 = Somewhat Disagree, 4 = Neither Agree nor Disagree, 5 = Somewhat Agree, 6 = Agree, 7 = Strongly Agree.
[c]Scale where 1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree nor Disagree, 4 = Agree, 5 = Strongly Agree.
[d]Scale where 1 = Extremely Poor, 2 = Poor, 3 = Fair, 4 = Good, 5 = Excellent.
[e]All factor loadings were significant at $p < .001$ level.
[f] Fixed at 1.0 due to the requirement in AMOS that one path per latent variable must be fixed to 1.0 as a reference item. Items chosen randomly to be reference item.
*For WFP this was Fairmount Park Conservancy, for the Rail Park this was Friends of the Rail Park, and for Bartram's Garden this was Bartram's Garden.
Model fit statistics: $\chi^2 = 160.036$, df = 64, $p < .001$; TLI = .937; CFI = .955; RMSEA = .068; SRMR = .0477.

Intergroup Contact at parks; for simplicity purposes, Figure 2 shows only the direct, significant paths, but statistics for all direct paths are reported in Table 3. Statistics for indirect paths are reported in Table 4. Welcome and Belonging was the only significant, direct predictor of Intergroup Contact ($\beta = .623$, $p < .001$). Park Conditions/Safety and Ownership had direct, positive relationships with Welcome and Belonging ($\beta = .214$, $p < .01$ for Park Conditions/Safety and $\beta = .523$, $p < .001$ for Ownership) such that individuals who perceived better park conditions/safety and felt a greater sense of personal psychological ownership for the park felt a greater sense of welcome and belonging. Park Conditions/Safety and Ownership were indirectly related to Intergroup Contact through Welcome and Belonging ($\beta = .134$, $p < .01$ for Park Conditions/Safety and $\beta = .326$, $p < .01$ for Ownership). That is, those who felt more welcome and that they belonged at the park reported more frequent intergroup contact. Finally, Community Engagement was a significant direct predictor of Ownership ($\beta = .167$, $p < .001$) such that those who felt more engaged in the park renovation process and valued by the local community organization stewarding the park (e.g., Friends of Rail Park) were more likely to feel a sense of ownership over the park. Community Engagement had a significant indirect effect on Welcome and Belonging ($\beta = .087$, $p < .01$), mediated through Ownership. As individuals perceived greater community engagement, they demonstrated higher personal psychological ownership, which in turn, resulted in them feeling a stronger sense of welcome and belonging at the park.

Discussion

Parks have been discussed as spaces of sociodemographic diversity and intergroup contact (Matejskova & Leitner, 2011; Valentine, 2008). As Hillier et al. (2016) noted, efforts to increase intergroup contact could be improved by understanding modifiable factors, or those which could be influenced by park managers and stewards. A limited body of research has investigated some of the situational conditions that foster or hinder intergroup contact in parks (e.g., Hillier et al., 2016; Matejskova & Leitner, 2011; Peters et al., 2010; Priest et al., 2014). However, there remains a lack of empirical evidence on the psychosocial conditions which contribute to park-based intergroup contact. The current study sought to address these gaps

through testing the theoretical relationships between four psychosocial factors and park-based intergroup contact.

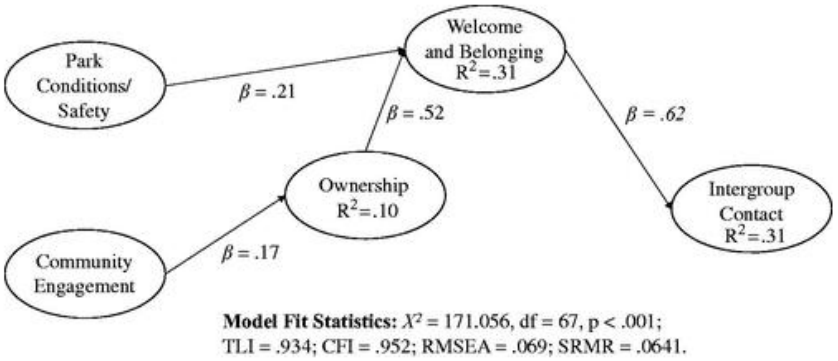

Figure 2. Final structural model.

Table 3. Direct paths in structural model.

Path	B(SE)	β	*p*
Significant Paths			
Community Engagement → Ownership	.266 (.065)	.167	<.001
Ownership → Welcome and Belonging	.414 (.063)	.523	<.001
Park Conditions/safety → Welcome and Belonging	.334 (.105)	.214	<.01
Welcome and Belonging → Intergroup Contact	.736 (.136)	.623	<.001
Non-Significant Paths			
Community Engagement → Welcome and Belonging	-.087 (.046)	-.069	.059
Community Engagement → Intergroup Contact	-.074 (.056)	-.049	.190
Ownership → Intergroup Contact	-.120 (.082)	-.128	.146
Safety → Intergroup Contact	-.190 (.130)	-.104	.142

Model Fit Statistics: χ^2 = 171.056, df = 67,p < .001; TLI = .934; CFI = .952; RMSEA =.069; SRMR = .0641.

Table 4. Indirect paths in structural model.

Path	B(SE)	β	*p*
Significant paths			

Community Engagement → Welcome and Belonging	.110 (.046)	.087	<.01
Park Conditions/Safety → Intergroup Contact	.246 (.104)	.134	<.01
Ownership → Intergroup Contact	.305 (.087)	.326	<.01
Non-Significant Paths			
Community Engagement → Intergroup Contact	-.015 (.082)	-.010	.178

Descriptive results indicated that intergroup contact occurred at a modest level in the parks, and structural analysis demonstrated that intergroup contact was more frequent when people feel a sense of welcome and belonging. The effect of all other latent psychosocial variables was mediated through sense of welcome and belonging. Thus, findings suggest that to increase park-based intergroup contact, it is important to focus on making sure people feel welcome and that they belong in the park setting. Results suggest this sense of welcome and belonging can be achieved through two main pathways: 1) enhancing community engagement which stimulates psychological ownership, and 2) improving perceptions of park conditions and safety. The following sections provide a discussion of these relationships and their implications for urban park management.

Community engagement and psychological ownership

In this study, community engagement was operationalized through park visitors having input and a meaningful voice in park planning and management. Results demonstrated that community engagement was indirectly related to sense of welcome and belonging through its fully mediated relationship with psychological ownership, suggesting a sense of personal ownership is necessary for community engagement to impact a sense of welcome and belonging. The connection between community engagement and ownership corroborates previous research suggesting a greater sense of psychological ownership when individuals are engaged in decision making (Mullenbach et al., 2018; Shu & Peck, 2018). These findings suggest that increasing opportunities for meaningful community engagement at urban parks could support the development of psychological ownership among park visitors, which in turn equates to visitors feeling more welcome in those spaces.

In order to increase visitors' sense that their voices and input are represented in park planning, urban park organizations should take a systematic approach to equitably engage a wide variety of stakeholders. They should first evaluate their current types of community engagement. One strategy for doing this evaluation is to utilize the stakeholder participation planning spectrum, which outlines six main types of community engagement ranging from no engagement to high engagement: ignore, inform, consult, involve, collaborate, and empower (Bryson et al., 2011; International Association for Public Participation, 2018). In parks seeking to increase psychological ownership, advancing engagement activities along this spectrum, particularly toward the collaboration and empowerment levels, may be one useful strategy.

An evaluation of who participates in engagement can be helpful in identifying underrepresented populations of community members or park visitors. Inclusive engagement practices such as the use of multiple languages, intentional outreach, and providing multiple

formats of participation can help to advance equity in park-based community engagement. For example, in communities with diverse cultural populations or large immigrant or refugee populations, park staff can provide opportunities for engagement in multiple languages and can utilize non-verbal engagement methods such as 3 D models, maps, and visualizations to solicit input (Friends of Mifflin Square Park, 2019). Intentional outreach efforts can build off the "bringing the parks to the people" concept (O'Dell, 2016) and bring the park engagement to the people. One example of this outreach is the Pittsburgh Parks Conservancy's (2019) systematic Parks Listening Tour. Staff of the organization held input sessions at community locations in more than 70 Pittsburgh neighborhoods. They established partnerships with community organizations and local businesses to help advertise, recruit participants, and find easily accessible and familiar spaces to hold the engagement sessions. Approaches like this where community members and organizations act as "outreach ambassadors" have been shown to increase engagement in park planning and overall park use among underrepresented groups (Loukaitou-Sideris & Mukhija, 2020). Using these strategies to increase community engagement could help to increase psychological ownership, and in turn have indirect effects which increase sense of welcome and belonging.

While the results of this study suggest that community engagement is a significant, positive predictor of psychological ownership, it only explained 10% of the variance in ownership our model. This funding could be attributed to multiple factors. First, across our three study sites, we had only two common community engagement indicators; however, a two-item measure is less than ideal (Vaske, 2008). While the CFA suggested these two items do represent a latent construct and they simultaneously demonstrated adequate reliability, it is possible that these items represent only one aspect of community engagement. Evaluation of the effects of other aspects of engagement (e.g., outreach) on psychological ownership is an important direction for future studies. It is also likely that other factors that were not measured in this study influence sense of ownership. These might include having a financial stake in the place (perhaps they have donated), and having more knowledge of and emotional connection to the place (Mullenbach et al., 2018; Shu & Peck, 2018).

Safety and sense of welcome and belonging

Findings suggest that park conditions and safety have a direct, positive relationship with park visitors' sense of welcome and belonging. The park conditions/safety measure was operationalized in this study through three park conditions: cleanliness, maintenance, and safety from criminal activity. While not a comprehensive measure of park conditions or safety, it does provide evidence to suggest that visual cues and feelings about safety related to crime do impact the extent to which someone feels welcome at a park. Findings from the current study suggest that parks should continue to prioritize cleanliness and maintenance efforts to encourage a sense of welcome and belonging among park visitors. Additionally, infrastructure investments, such as those associated with crime prevention through environmental design initiatives (e.g., improvements lighting, signage, trash removal) could help to improve perceptions of safety (McCormick & Holland, 2015). Furthermore, prior research has indicated that perceptions of safety are especially important for people of color in parks, as various interpersonal and systemic factors may signal unsafe, and in turn, unwelcoming environments (Camarillo et al., 2020; Stodolska et al., 2011). These factors also reflect broader reasons why individuals may choose not to visit certain parks or facilities; for example, experiences with overt discrimination or

racism from other park users and fear of prejudice from staff or other park users have been identified as constraints to park visitation (Camarillo et al., 2019; Rushing et al., 2019). Therefore, it is important for future studies to more comprehensively assess perceptions of safety, particularly with regard to concerns about discrimination, racism, and conflict.

Parks could also consider increasing staff and volunteer presence as well as activities and events at the park to promote a safe environment. Hillier et al. (2016) found that park based intergroup contact was more likely to occur in the presence of managed activities (for example programs or events run by park staff, sport coaches, program facilitators, etc.), and thus suggested that increasing the presence of activities and events run by park staff and volunteers could help to meet Allport's condition of the support of authority to support intergroup contact. Activities and programs may also provide the "hook" to stimulate interaction among racially and ethnically diverse park visitors (Stodolska et al., 2017). It is possible that activities and events managed by these personnel could be a positive form of authority supporting a safer environment, and in turn, a greater sense of welcome and belonging. However, with regard to both staff and volunteers, it is important that these personnel are trained to be inclusive and welcoming to all visitors. Moreover, having personnel whose ethno-racial characteristics represent those of the community and park visitors is critical to increasing diverse visitation (Byrne 2012), sense of welcome and belonging (Gremillion et al., 2020), and in turn, intergroup contact.

Additional strategies

Expanding culturally relevant programs and events may be two additional ways to increase sense of welcome and belonging among diverse audiences (Byrne, 2012; Gremillion et al., 2020). As Byrne (2012) suggested, "anglo-normative park programming" can be a constraint to diverse visitation. Providing programs that reflect the interests and cultures of community members and park visitors could help individuals to feel that they belong in the park (Stodolska et al., 2020). Moreover, programs and events which engage diverse visitors may provide the necessary precondition of diverse visitation to support intergroup contact (Schmid et al., 2014). Parks should consider incorporating initiatives to celebrate cultures represented in the community and welcome new community members (e.g., immigrants). For example, in Philadelphia, the Breaking Bread, Breaking Barriers program seeks to meet these objectives by providing community meals in the parks which incorporate both culturally diverse foods and guided conversations between people from different cultural, racial, and ethnic groups (Wei & Munyikwa, 2017). Similarly, Portland Oregon's WALK with Refugees and Immigrants seek to connect various groups across the city in safe and welcoming environments (Portland Parks & Recreation, 2019). Finally, in Seattle, Washington, the Recreation for All fund supports nonprofits, community organizations, and local businesses partnering with the parks and recreation department to plan, offer, and promote culturally relevant programs for underserved populations (Seattle Parks & Recreation, 2020). These are just a few examples of how park and recreation agencies can better engage diverse community members in parks and recreation. Future research should seek to assess the impact of these types of efforts on park users' sense of welcome and belonging and engagement in intergroup contact in parks.

Limitations and future research

Recent research in Philadelphia has found that park investments can produce or accelerate gentrification in surrounding neighborhoods (Pearsall & Eller, 2020). Consequently, low income residents are at risk for being "priced out" of their communities or no longer feeling welcome in their communities. Of the three parks examined in this study, concerns about gentrification have been most salient with the Rail Park (Pearsall, 2018). A comparison of the demographics of the neighborhoods surrounding the Rail Park and the demographics of the visitors in our sample reveals Rail Park visitors are, on average, more White than nearby residents, which may indicate that the Rail Park is or has become a "White space" (Arredondo & Bustamante, 2020; Anderson, 2015). Fewer visitors of color may indicate reductions in physical access due to displacement or that people of color in this community opt to no longer use this space. Thus, our sample at the Rail Park may be dominated by a White, in-group perspective, which may have led to more positive perceptions of each of the variables in our model.

While this study investigated the conditions that promote park-based intergroup contact, it did not explore the outcomes or consequences of this contact. Existing research has demonstrated variation in the outcomes of park-based intergroup contact, some of which can be positive and others negative (Amin, 2002; Harris et al., 2020; Matejskova & Leitner, 2011; Mullenbach, 2020; Neal et al., 2015; Peters, 2010; Seeland et al., 2009; Valentine, 2008). Furthermore, literature from related fields (e.g., social psychology, civic engagement) has emphasized the importance of both the frequency and quality of intergroup contact, suggesting that more frequent and more positive contact is more likely to lead to positive outcomes such as prejudice reduction, increases intergroup trust, or civic engagement (McKeown & Taylor, 2017; Prestwich et al., 2008; Turoy-Smith et al., 2013). On the contrary, lower quality contact perceived as negative, such as avoidance or conflict, can be associated with unfavorable outcomes including discrimination, reinforcement of stereotypes, and violence (Amin, 2002; Harris et al., 2020; Low, 2013; Matejskova & Leitner, 2011; Valentine, 2008). In the current study, we measured contact frequency, but not quality. It is becoming more common to measure intergroup contact as a two-dimensional construct including both quantity and quality (i.e., the extent to which contact is either negative or positive; McKeown & Taylor, 2017; Mullenbach, 2020; Prestwich et al., 2008; Turoy-Smith et al., 2013). This two-dimensional approach is an important direction for future research on park-based intergroup contact.

Future studies should seek to connect psychosocial factors, intergroup contact, and outcomes together in combined statistical analyses. Examination of this type of multi-stage model would allow for a better understanding of what conditions lead to more frequent and positive intergroup contact, and in turn, how this contact leads to various outcomes. It is also important to reiterate that this study focused solely on repeat visitors to the three urban parks. Additionally, due to a quality control issue in the data collection, repeat visitors from an adjacent local neighborhood at Bartram's Garden were not asked one of the critical items on the welcome and belonging scale. Therefore, a small subset of repeat visitors from Bartram's Garden were not included in the present analysis. However, when household surveys of local residents in this neighborhood were conducted as part of the larger research effort, residents in this area rated this item similar to park users from other neighborhoods (Mowen et al., 2018).

Finally, in the current study, we chose to utilize open wording (i.e., "people from different backgrounds") to measure intergroup contact from a relational perspective. While this subjective interpretation has value in allowing the respondent to perceive a wider range of characteristics that encompass divergent backgrounds, it does not directly address differences relative to race and ethnicity, which are often visual cues that individuals associate with ingroup and outgroup

perceptions. The subjective wording of our items means we cannot discern how our respondents interpreted these questions. They may have considered individual characteristics related to race, ethnicity, gender, disability, income, etc., or some combination of these characteristics. To address this limitation, future studies should be more explicit in their measurement of intergroup contact; focusing on contact with regard to race and ethnicity in parks offers a fruitful area for future research.

Conclusion

While literature has investigated some of the structural and geographic conditions which promote intergroup contact at parks, there remains a lack of research demonstrating the role of psychosocial factors as influencers of park-based intergroup contact. This study provides evidence of the relationships between several psychosocial factors and intergroup contact in urban parks. Findings suggest that it is important for parks to provide a welcoming environment in which visitors feel like they belong in order to encourage intergroup contact. Efforts to engage community residents in decision making, to stimulate psychological ownership, and to improve safety, can help diverse users to feel more welcome, and in turn, could help them to engage in and experience more intergroup contact.

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Notes

1. An astute reader may wonder if collapsing across parks might under- or over-value the role of park environment on individual responses. To explore this possibility, we ran individual models for each park that showed some variation in model fit statistics; however, the patterns and relationships was generally consistent across models and parks. Because of this consistency, we chose to report a combined sample representing these relationships with a more robust sample.

2. While the main focus of this study is on the Philadelphia Civic Commons sites as a collective, we have provided a contextual comparison of the full visitor demographics at the three parks (Appendix A).

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Appendix A

Demographics of full visitor sample by park

	N (%) of Mean (SD)		
Variable	Bartram's Garden	Rail Park	West Fairmount Park
Income[a]			
Less than $20,000	25 (13.2)	26 (16.8)	9 (9.9)
$20,001-$40,000	33 (17.5)	23 (14.8)	18 (19.8)
$40,001-$60,000	48 (25.4)	33 (21.3)	37 (40.7)
$60,001-$80,000	47 (24.9)	38 (24.5)	18 (19.8)
$80,001-$100,000	20 (10.6)	15 (9.7)	5 (5.5)

Over $100,000	16 (8.4)	20 (12.9)	4 (4.4)
Race/Ethnicity			
Asian	14 (4.0)	28 (14.1)	2 (1.5)
Black/African American	123 (35.4)	21 (10.6)	88 (64.2)
Hispanic/Latino	19 (5.5)	14 (7.0)	6 (4.4)
White	187 (53.9)	124 (62.3)	33 (24.1)
Other	4 (1.2)	12 (6.0)	8 (5.8)
Gender			
Female	208 (58.9)	122 (61.6)	80 (58.8)
Male	140 (39.7)	73 (36.9)	56 (51.2)
Non-binary/non-conforming	3 (0.8)	3 (1.5)	0 (0.0)
Age	M = 36.0 (SD = 12.6)	M = 32.6 (SD = 12.0)	M =42.0 (SD = 15.8)
Local resident status[b]			
Local resident	78 (21.6)	86 (43.0)	56 (40.6)
Non-local resident	283 (78.4)	114 (57.0)	82 (59.4)

[a] 43% (n = 156) of respondents at Bartram's Garden, 22% (n = 44) of respondents at the Rail Park, and 14% (n = 42) of respondents at WFP selected refused/don't know. Percentages presented in the table above reflect those who answered each question.
[b] Local residence was defined by living within pre-defined boundaries, ranging by park from 0.5-mile radius to 1.