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Multiple Collection Methodology for Studying the Connection between Behaviour and Design in the Built Environment

Metodología de recopilación múltiple para estudiar la conexión entre el comportamiento y el diseño en el entorno construido

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Abstract

Keywords:
coexistence; urban design;
public space;
social interaction

This study examines the relationship between urban design and convivial behaviour using a multiple-data collection approach. By comparing two distinct urban parks—Superkilen in Copenhagen and Parc Central del Poblenou in Barcelona—the research demonstrates how different spatial configurations and design solutions influence social interactions. The methodology integrates direct observation, behavioural mapping, survey data, and graphic representation to systematically assess convivial behaviour across two diverse yet comparable environments. Both Superkilen and Parc Central del Poblenou were designed by high-profile architects with the intent of fostering interaction among diverse urban populations. While both parks were conceived as highly designed, convivial spaces, fieldwork reveals stark differences in their actual use and effectiveness in promoting social interactions. This work validates the methodology's analytical power by comparing two analogous areas within these parks: the Red Square's circular seating in Superkilen and a comparable seating arrangement in Poblenou. Findings highlight the impact of adaptable and flexible design elements in fostering conviviality, indicating how adaptable seating arrangements, cultural symbolism, and environmental comfort play crucial roles in shaping public space dynamics. The study contributes to urban design research by providing empirical evidence on how different design strategies foster inclusivity and social engagement. The results also offer practical recommendations for urban planners seeking to enhance conviviality in contemporary public spaces. Future research is encouraged to expand on these insights by applying this methodology to a broader range of urban settings.

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Resumen

Palabras clave:
convivencia; diseño
urbano; espacio público;
interacción social

Este trabajo investiga la relación entre el diseño urbano y el comportamiento social mediante la recopilación de datos múltiples. La investigación compara dos parques urbanos, Superkilen en Copenhague y Parc Central del Poblenou en Barcelona, para mostrar cómo diferentes configuraciones espaciales y soluciones de diseño influyen en las interacciones sociales. La metodología integra observación directa, mapeo del comportamiento, datos de encuestas y representación gráfica para evaluar sistemáticamente el comportamiento social en dos entornos diferentes pero comparables. Tanto Superkilen como Parc Central del Poblenou fueron diseñados por arquitectos de alto perfil con la intención de fomentar la interacción entre poblaciones urbanas diversas. Aunque ambos parques fueron concebidos como espacios de convivencia con alto contenido en diseño, el trabajo de campo revela marcadas diferencias en su uso real y efectividad para promover las interacciones sociales. Este trabajo valida el poder analítico de la metodología propuesta, comparando dos áreas análogas dentro de estos parques: los asientos circulares del Red Square en Superkilen y una disposición de asientos comparable en Poblenou. Los hallazgos destacan el impacto de los elementos de diseño adaptables y flexibles en el fomento de la convivencia. Esto indica cómo la disposición adaptable de los asientos, el simbolismo cultural y la comodidad ambiental juegan un papel crucial en la configuración de la dinámica del espacio público. Este estudio contribuye a la disciplina del diseño urbano, al proporcionar evidencia empírica sobre cómo diferentes estrategias de diseño fomentan la inclusión y el compromiso social. Los resultados también ofrecen recomendaciones prácticas para diseñadores que busquen mejorar la convivencia en los espacios públicos contemporáneos. En investigaciones futuras se plantea ampliar estos conocimientos aplicando esta metodología a un conjunto más diverso de entornos urbanos.



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1. Introduction

Public spaces have long been recognized as vital components of urban life, facilitating social interactions, and fostering a sense of community (Oldenburg, 1999). The ways in which these spaces are designed directly impact user behaviour, influencing patterns of movement, interaction, and engagement. Recent research in urban design has further elaborated on the importance of sensory engagement and spatial adaptability in fostering social interaction (Montgomery, 2021; Mehta, 2019). These studies build upon the foundational work of Whyte (1980) & Gehl (2011), incorporating contemporary concerns, including accessibility, resilience, and inclusive design principles. They have extensively documented how specific urban design elements contribute to public life. Nevertheless, gaps remain in understanding how varying design strategies affect convivial behaviour in socially diverse urban contexts. This study seeks to address this gap by applying a structured multi-method approach to analyse the relationship between design and social behaviour. This method is used to analyse two distinct comparable urban parks: Superkilen in Copenhagen and Parc Central del Poblenou in Barcelona.

Superkilen is a multicultural urban park that integrates global design elements to reflect the diversity of its surrounding community (Bille & Sørensen, 2018). Poblenou offers a organic, landscape-integrated approach within a regenerated post-industrial district (Ateliers Jean Nouvel, n.d.). This study examines how two different approaches in design interventions, can influence social engagement. The research employs a comparative framework to analyse spatial configurations, seating arrangements, materials or colours, to assess their impact on convivial behaviour. Also contributes to the growing discourse on inclusive urban design by providing evidence of how design fosters human interaction. It offers insights relevant to planners, architects, and policymakers working in diverse and multiethnic urban environments.

The intersection of urban design and sociology has increasingly explored the concept of conviviality—defined as the capacity of a built environment to encourage spontaneous and meaningful interactions among diverse users (Beltran-Rodriguez & Simon, 2017). While conviviality is a complex and dynamic phenomenon, it can be studied through a structured methodology that integrates both spatial and social analysis. This research builds upon the relationship between urban design features and social behaviour by applying a multiple-data collection methodology across the two distinct case studies. These parks were selected due to their intentional and innovative design approaches aimed at fostering inclusive social spaces.

Superkilen is located in Nørrebro district, an ethnically diverse area in Copenhagen. The park's design incorporates objects and design elements from various countries, reflecting the diverse cultural background of its residents and users. It incorporates a wide variety of seating spaces, encouraging varied social interaction and versatile groupings. Parc Central del Poblenou, located in Poblenou, is part of a larger urban regeneration project in Barcelona. The Park integrates open spaces with strategically placed seating, mostly individual chairs. It also emphasizes a naturalistic aesthetic that blends greenery with urban infrastructure. This study presents the analysis of two analogous areas (Figure 1), in both parks, with different seating arrangements and design solutions.

Figure 1. Areas of analysis: Superkilen (top) and Poblenou (bottom)



Source: Own elaboration.

Both Nørrebro and Poblenu are neighborhoods characterized by significant socio-economic transformations. While these changes have brought economic growth and development, they also present challenges related to social equity and community cohesion. By selecting these two case studies, this research aims to test the validity of the proposed methodology in different urban and cultural contexts. While Superkilen represents a hyper-designed and curated public space, it is extremely well integrated in the urban tissue. Parce central del Poblenu, on the other hand, offers a more organic and landscape-integrated approach, but with restricted entry during specific hours and defined perimeters with its urban surroundings. This comparative framework allows for a more nuanced understanding of how various spatial configurations and design frameworks, contribute to conviviality among its users.

2. Research Methodology

This study employs a multi-method research design that integrates qualitative and quantitative approaches to assess the relationship between urban design and convivial behaviour. The methodology was structured to provide a comprehensive and systematic understanding of user interactions with the built environment. It addresses the need for both empirical rigor and contextual interpretation. This section outlines the core methodological components, detailing data collection techniques, analytic tools, and measures for ensuring validity and reliability.

2.1. Mixed-Method Approach

A mixed-method approach was chosen to bridge the gap between architectural spatial analysis and sociological behavioural studies. The integration of quantitative mapping techniques and surveys, with qualitative observational data enhances the depth of insights gained from the study sites. This approach aligns with Creswell's (2014) methodological recommendations for combining qualitative and quantitative paradigms in urban studies. The core methods include:

- *Direct observation*: Systematic tracking of user behaviours, spatial occupation, and interaction patterns (Whyte, 1980; Gehl, 2011).
- *Spatial mapping*: Graphic representation of movement, seating preferences, and activity concentrations (Lynch, 1960; Mehta, 2013).
- *Survey data*: Collection of demographic details, user perceptions, and qualitative reflections on space usage (Talen, 2018).
- *Graphic analysis*: Development of symbols, iconographic notations, and layered maps to synthesize findings (Montgomery, 2021).

The combination of these methods ensures a robust analytical framework that captures both objective spatial data and subjective user experiences.

2.2. Data Collection Procedures

Data collection was structured around predefined observation periods and survey administration, ensuring consistency across both case studies. The primary stages of data collection included:

- *Observation Sessions*: Conducted over a period of seven days per site, including weekdays and weekends to account for differences in workday vs. leisure activity, as well as fluctuations in weather, events, and routine activities. Observations were organised at three different times of the day (morning, midday, and evening), ensuring an inclusive dataset of diverse user behaviours (Gehl, 2011).
- *Behavioural Mapping*: Systematic recording of users' seating positions, group formations, and movement patterns. Observational data were logged in 15-minute intervals to track temporal variations (Whyte, 1980; Carmona et al., 2010).
- *Survey Administration*: Structured surveys were distributed to park visitors, targeting key aspects such as frequency of visits, perceived inclusivity, comfort levels, and interaction tendencies (Talen, 2018).

- Photographic Documentation: Visual records were captured to complement spatial mapping and provide contextual analysis of observed behaviours (Mehta, 2019).

These were the procedures that led to the analysis and findings:

- a) Spatial distribution of users
 - Diagrams highlighting clusters of people around and in benches, indicating preferred seating arrangements and locations.
 - A position tracker shows where people tend to sit or stand, revealing preferences for spots.
- b) Design features influencing interaction
 - Organized by types and number of furniture and seating configurations available, emphasizing their impact on user behaviour.
 - Collect information on flexibility and versatility, among other qualities.
- c) Temporal patterns of space usage
 - Bar charts comparing the number of people using areas during different times of the day (morning, mid-day, and evening).
 - Distinguish between weekday and weekend usage, indicating variations in social activity based on time and day.
- d) Convivial Activity Patterns
 - Records the type of activities occurring in the study areas, such as sitting, standing, and engaging in conversations.
 - It categorizes group sizes, showing whether people interact individually, in pairs, or in larger groups.

2.3. Ensuring Validity and Reliability

To ensure methodological rigor, several measures were implemented:

- *Triangulation*: The convergence of multiple data sources (observational data, survey results, and spatial analysis) enhances the validity of findings (Creswell, 2014; Yin, 2018).
- *Inter-observer reliability*: Observations were conducted by multiple researchers to mitigate subjective biases and increase data reliability (Montgomery, 2021).
- *Comparative case study design*: The inclusion of two distinct yet comparable sites—Superkilen and Poblenu—provides an opportunity to test the methodology's applicability across different urban contexts (Flyvbjerg, 2006).

By combining empirical observation with analytical mapping techniques, this methodology offers a structured yet adaptable approach to studying social behaviour in urban public spaces. The following section details the selected case studies and their relevance to the research objectives.

3. Case study selection

Superkilen and Parc Central are two highly designed public parks, created with the explicit aim of encouraging social interaction. Both emphasize a strong architectural vision, and demonstrate the potential and limitations of design-driven urban interventions. While both parks were intended to encourage social encounter, research and fieldwork results reveal major differences in their actual social activity. Superkilen has become a highly convivial space, successfully integrating multicultural elements and promoting daily social interactions (The City at Eye Level, 2020). In contrast, Poblenu, despite its architectural ambition, fails to function as an everyday social hub (Rubert & Gómez, 2019). Instead, accessibility issues,

design constraints, and broader urban transformation processes have limited its use as an inclusive urban space.

3.1. Superkilen (Copenhagen)

Superkilen (Figure 2 left) is a public park in the Nørrebro district of Copenhagen, Denmark, designed by BIG (Bjarke Ingels Group), Topotek1, and Superflex. It was inaugurated in 2012 as part of an urban renewal project aimed at fostering social integration and conviviality in one of Copenhagen's most ethnically diverse neighborhoods (Bille & Sørensen, 2018). The park's design approach integrates multiculturalism and public engagement, reflecting the diverse backgrounds of local residents (The Urbanist, 2023).

Figure 2. Aerial images of Superkilen (top left) and Parc Central del Poblenou (top right) and respective study areas below



Source: Adapted from Google (2025a) for Superkilen, and Google (2025b) for Parc Central.

- *Design Intentions, Process and Evolution*

The design process of Superkilen was highly participatory, incorporating community input to ensure the park's cultural representation and inclusivity. Superkilen's design, which incorporates over 100 artifacts from more than 50 countries, was developed through an "extreme participation" approach, where residents selected objects representing their cultural heritage, symbolizing the multicultural makeup of the local population (Steiner, 2013). The project sought to challenge traditional urban planning paradigms by using bold graphic visuals, irregular spatial configurations, and culturally specific artifacts to foster a sense of belonging among residents.

The park continues to serve as an exemplary model of multicultural integration and community-driven urban design. Since its inauguration the park has transformed a previously divided neighbourhood into a vibrant and cohesive space. Recent studies highlight its role in fostering cultural understanding and reducing social tensions, particularly in a neighbourhood that once faced gang-related conflicts (Stanfield & van Riemsdijk, 2019). The participatory design method has been praised for creating a strong sense of ownership among users, reinforcing the park's reputation as a model for inclusive public spaces (Sandström, 2020).

Despite its success, Superkilen faces challenges typical of urban public spaces, particularly in maintaining its artifacts and infrastructure. Continuous upkeep and engagement with local communities remain crucial to preserve and ensure its long-term impact. Additionally, Superkilen has become a reference for urban planners worldwide, frequently cited in academic research on urban development and participatory design (Balık Lökçe & Balık, 2020).

The park regularly hosts cultural events, markets, and sports activities that encourage cross-cultural interactions, strengthening Nørrebro's social fabric. Its urban planning approach illustrates how thoughtful design and community involvement, can transform public spaces into hubs for cultural and social cohesion. Superkilen's ongoing relevance underscores the importance of inclusive urban environments in fostering social integration in diverse communities (Stanfield & van Riemsdijk, 2019; Sandström, 2020).

The park is divided into *three primary areas* (Figure 3), each serving distinct social and recreational functions (Sandst 2016, Bloom 2013):

1. *The Red Square*: A vibrant, high-energy space designed for active recreation, sports, and cultural events. It features a striking red rubberized surface, an array of seating options including circular benches, and ample space for both formal and informal social activities.
2. *The Black Market*: A central gathering space inspired by traditional market squares, fostering casual encounters and community interactions.
3. *The Green Park*: A nature-integrated relaxation zone, promoting slower-paced activities such as picnics, walking, and passive recreation.

This study's area of analysis, is a sitting space within the Red Square, characterized by a striking red rubberized surface and a variety of seating options, including a circular bench and three double benches in a row. This area is designed to accommodate a mix of formal and informal social activities, ranging from sports and exercise to casual gatherings (Rein-Cano, 2018).

Figure 3. Superkilen main areas (top left), Red Square marked (top right) and study area (bottom)



Source: Plan on left and aerial image on right adapted from Steiner (2013). Photograph is an own elaboration.

- *Socioeconomic context*

Nørrebro is one of the most dynamic and diverse neighbourhoods in Copenhagen. It is known for its multicultural population and vibrant urban culture. Historically, the area has had a high concentration of immigrants. Today it is a hub for ethnic diversity, as reflected in its businesses, restaurants, and cultural institutions (Møller & Larsen, 2015). As of 2024, approximately 34.3% of Nørrebro's residents were born outside Denmark, while 22.6% were born in Denmark to foreign-born parents. Therefore, nearly 57% of the district's population has an immigrant background (City Population, 2024). In the Ydre Nørrebro sub-area, immigrants constitute about 25% of the population, with certain neighborhoods experiencing even higher concentrations, reaching up to 50% (Københavns Kommune, 2022). Over the past few decades, Nørrebro has undergone significant gentrification, leading to an influx of higher-income residents and increasing property values. While this has contributed to economic development, it has also created challenges for lower-income and immigrant communities, with concerns about displacement and cultural shifts (Møller & Larsen, 2015). Despite these changes, Nørrebro remains a center for artistic expression, activism, and community engagement. Spaces like Superkilen serve as inclusive meeting points that celebrate the neighbourhood's rich diversity (Copenhagen Official Tourist Site, n.d.).

3.2. Poblenu (Barcelona)

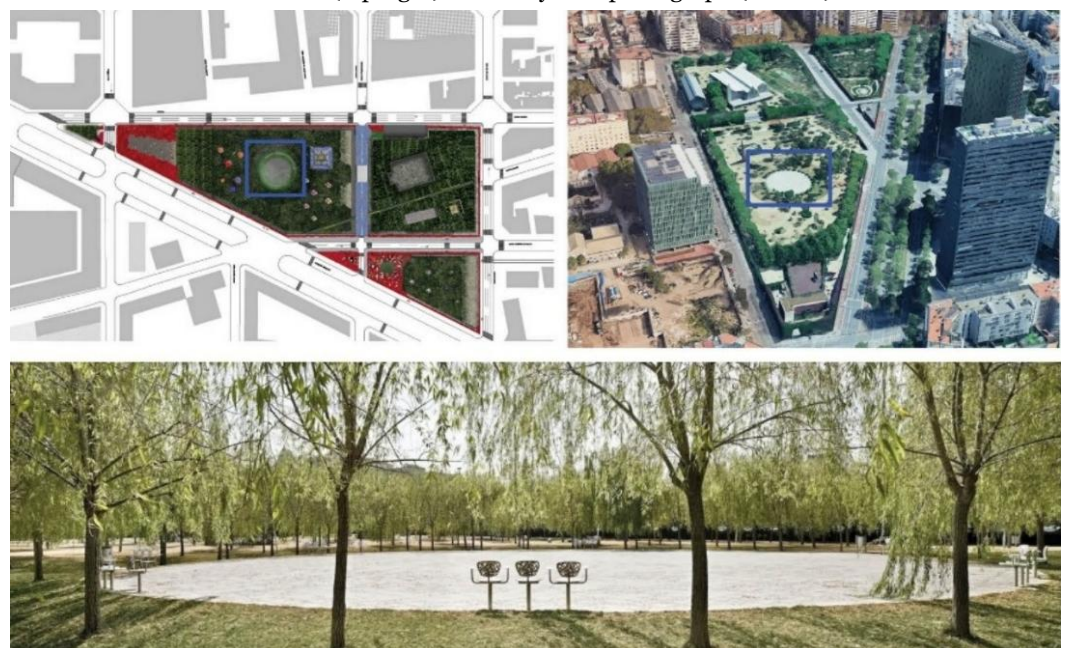
Parc Central del Poblenu (Figure 2 right) was designed by renowned architect Jean Nouvel in collaboration with b720 Fermín Vázquez Arquitectos. It opened in 2008 as part of the 22@Barcelona project, and is a central feature of Barcelona's urban regeneration efforts. The park was conceived as a serene urban oasis, offering a stark contrast to the district's industrial past while aligning with the city's evolving identity. Nouvel envisioned the park as a harmonious blend of nature and architecture. He combined green spaces, shaded enclaves, and structural elements to provide a refuge from urban life and encourage community engagement (Nouvel, n.d.).

- *Design Intentions, Process and Evolution*

The park was conceptualized as an architectural composition in stone and vegetation. It includes configurations reminiscent of archways, domes, terraces, and pathways. These elements create a rich sensory experience, where light and shadow interplay dynamically throughout the day (Nouvel, n.d.). To reinforce its role as a protected natural enclave, the park incorporates dense vegetation, plant-covered walls, and shaded structures. These elements promote a sense of enclosure and tranquillity, insulating visitors from the surrounding urban bustle. The park embodies Poblenu's industrial transformation, preserving Catalan identity while incorporating universal design principles (Ajuntament de Barcelona, n.d.).

It has faced several criticisms since its inauguration. Limited accessibility and use have been major concerns, as its restricted hours and semi-private character hinder daily engagement (Heras Lasanta, 2013). Additionally, the park is associated with gentrification and social displacement, contributing to community reconfiguration and exclusion (Tejero Gil, 1991). In terms of functionality, the park does not adequately support everyday social interactions, particularly among children, as it relies on adult mediation rather than fostering spontaneous play (Pérez del Pulgar et al., 2019). Climatic adaptation is also insufficient, with studies indicating that its cooling effect is weaker than traditional parks due to lower vegetation coverage and impermeable surfaces (García-Haro & Arellano, 2018). The park's urban disconnection, characterized by walls and a fragmented layout, further limits its role as a social space (Rubert & Gómez, 2019). Lastly, Poblenu has become a symbolic site of urban resistance, reflecting tensions over gentrification, commercialization, and the loss of historical community identity (Mansilla López, 2017). Similar to Superkilen, Parc del Centre del Poblenu is divided into thematic areas that were aimed at different social functions (Figure 4).

Figure 4. Parc Central del Poblenu main areas (top left), Plaça de la Sardana marked (top right) and study area photograph (bottom)



Source: Author reformatted all images; top left: Ateliers Jean Nouvel (n.d.); top right: Google (2025b), photograph below: b720 Fermín Vázquez Arquitectos (n.d.).

Nouvel assigned poetic and symbolic names to several sections of the park, reflecting his design philosophy (Ajuntament de Barcelona, n.d.):

1. *Crater-Well of the World*: A spiralling pathway surrounded by vibrant bougainvillea, symbolizing Barcelona's connection to global influences.
2. *Nests and Wells of the Skies*: A series of elevated garden-like spaces, enclosed by climbing plants and flowers, evoking a balance between Earth and sky.
3. *Vaults and Giant Ferns*: A sequence of vegetal arches leading toward an artificial hill, referencing Barcelona's Gothic and industrial heritage.

This study focuses on Plaça de la Sardana, a central plaza acknowledging traditional Catalan culture. It was conceived as a social hub where people would gather for informal conversations, traditional Catalan Sardana dances, and spontaneous group activities, like Superkilen's Red Square benches.

- *Socioeconomic context*

Poblenou, located in the Sant Martí district of Barcelona, has transformed from an industrial hub into a mixed-use area that integrates residential spaces with technological and creative industries. The implementation of the 22@Barcelona project played a crucial role in this transition. It repurposed former industrial zones into centers for innovation and entrepreneurship. This attracted young professionals and businesses (Barcelona Activa, 2020). The development has elevated the neighbourhood's socio-economic profile, contributing to rising property values and a growing foreign-born population. Approximately 17% of residents are mainly from Italy, Pakistan, and China (Idescat, 2023).

3.3. Comparative Significance

The comparative analysis of Superkilen in Copenhagen and Parc Central del Poblenou in Barcelona reveals distinct yet complementary approaches to urban design that influence social interaction and conviviality within their respective urban contexts. Both public spaces serve as paradigmatic examples of contemporary urban renewal. Nevertheless, they differ fundamentally in their design philosophies, spatial configurations, and the nature of social engagement they foster, as the findings on this paper reflect. Superkilen was awarded the Aga Khan Award for Architecture in 2016, recognizing its innovative approach to inclusive urban design (Aga Khan Development Network, 2016). Additionally, Parc Central del Poblenou has been acknowledged for its contribution to sustainable urban development, incorporating biophilic principles that enhance social inclusion and accessibility (Ajuntament de Barcelona, n.d.).

From a broader urban perspective, these differences underscore the influence of socio-spatial contexts on design strategies. Superkilen, situated in an ethnically diverse yet historically marginalized neighbourhood, utilizes an overtly symbolic and participatory design process to reinforce cultural representation and inclusivity (Bille & Sørensen, 2018). In contrast, Parc Central del Poblenou, embedded within a district experiencing post-industrial transformation and gentrification, uses biophilic design and urban resilience principles to accommodate a heterogeneous yet progressively higher-income demographic (Capdeferro & Miralles, 2020).

4. Data Collection and Analysis

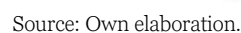
Fieldwork results confirm that Superkilen supports high levels of social engagement, while Parc Central remains underutilized. Superkilen's open spaces encourage informal gatherings and prolonged stays, whereas Parc Central del Poblenou's partially restricted access and design choices discourage spontaneous interaction. This section presents the findings on the observational study, as well as on the survey conducted among users of both study areas.

4.1. Observational Data

The study employed systematic observation to document patterns of social interaction, spatial occupation, and user behaviour in both parks. Data collection was conducted over a seven-day period at each site, with three daily observation sessions (morning, midday, evening) to capture

In Superkilen's area, findings revealed a high frequency of informal social gatherings, with the circular bench acting as focal point for group interactions. The vibrant colour scheme, different material qualities and versatile and multi-level sitting options, encouraged dynamic movement and engagement, particularly among younger demographics in the evening. The adaptability of seating arrangements allowed for both individual and collective uses, reinforcing the park's convivial nature.

Figure 5. Spatial distribution of users, design features, usage temporal patterns and convivial activity patterns on red square benches area in Superkilen

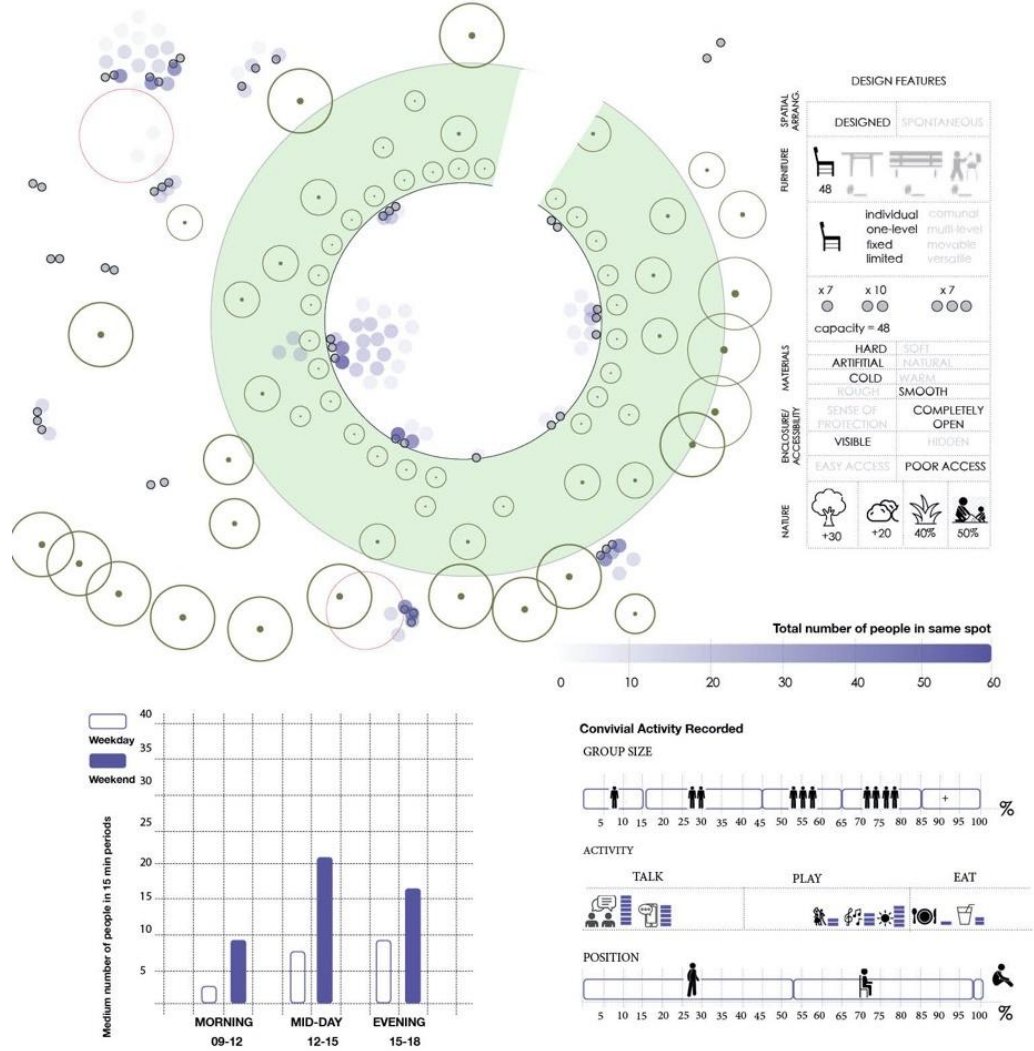


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function as a hub for conviviality and cultural exchange. This analysis underscores how design elements shape the nature of social interactions, reinforcing its role as a space that fosters transient yet frequent convivial encounters. In Parc Central del Poblenou, Plaça de la Sardana and surrounding area exhibit a distinctive pattern of social behaviour. It is shaped by its semi-isolated arrangements and integration with natural elements. The area exclusively provides individual chairs, arranged in configurations of one, two, three, or four seats. This spatial configuration attracts elderly users, and small groups of friends, who often remain for extended periods. Unlike the high turnover dynamics observed in Superkilen, this area encourages a more private and less visible form of socialization, where people engage in conversations, not necessarily interacting visually with others.

The convivial activity recorded indicates that talking is the predominant social behaviour, followed by sunbathing. Eating and drinking (good indicators of convivial behaviour according to Beltran-Rodriguez & Simon, 2017) are rare. This suggests that the park fosters few informal social interactions among the people using the different seating arrangements. Figure 6 demonstrates how users distribute themselves across the seating arrangements. The heatmap visualization further highlights a high density of users in the central seating area, particularly where chairs are grouped in threes or fours, reinforcing the notion that proximity and arrangement facilitate conversation and engagement. Areas with more dispersed seating arrangements exhibit lower levels of social activity, likely catering to visitors seeking solitude or passive engagement with the environment. Nevertheless, the density of chairs is so low, that social interaction among strangers is difficult and mostly inexistent.

Figure 6. Spatial distribution of users, design features, usage temporal patterns and convivial activity patterns on study area in Parc Central del Poblenou



Source: Data collected and analysed by the author

The park's usage patterns vary significantly throughout the day. The highest levels of social activity were registered at mid-day, on both weekdays and weekends. Nevertheless, the users' number was much lower than for Superkilen, for the same time period, and a larger area.

Mornings remain the least active period, possibly indicating a preference for leisurely or non-social visits at that time. Group size analysis shows that small groups of two to four individuals dominate the space, with minimal occurrences of larger gatherings. This may indicate that the park design supports socialization but does not facilitate large communal interactions.

Moreover, while the park is accessible, certain areas are noted for having poor accessibility, which may affect seating choices and movement patterns. The integration of natural elements (40% vegetation coverage) enhances user comfort, though the presence of hard artificial surfaces (the round Praça) could influence thermal comfort, particularly during peak sun exposure. In conclusion, the park's seating arrangements successfully encourage social interactions in small groups. Although its fixed design does not fully support the blends of different group gatherings simultaneously. This reduces feasibility for conviviality and coexistence of varied social groups, in an everyday basis.

The spatial configurations and design differences pointed out in the two selected areas, underscore the impact of design on conviviality. The Red Square benches area, with its bold, open-ended design, supports transient but frequent interactions, whereas the Praça de la Sardana area foster less interactions, prolonged and more isolated.

4.2. Survey Findings

A structured survey was administered to park visitors in these two different areas, to gain insights into user demographics, space perception, and overall satisfaction with the parks' design features. The survey included closed and open-ended questions regarding frequency of visits, perceived inclusivity and accessibility, conviviality, user diversity, and social engagement

Superkilen survey results highlight the park's diversity and inclusive nature. Collected data indicates a varied mix of users in terms of nationality, language, and residency. Although the park's design incorporates objects from 54 different nationalities, only 13 nationalities were represented among surveyed users in the area. This suggests a dynamic and shifting demographic. More than half (over 50%) of respondents were non-Danish speakers, reflecting Nørrebro's multi-ethnic character. In terms of residency, less than half of the respondents were locals from Nørrebro, while nearly an equal proportion came from other districts in Copenhagen. Overall, two-thirds (66%) of respondents were from Copenhagen. The remaining one-third consisted of individuals from other parts of Denmark or abroad, including less than a quarter (below 25%), who were tourists. These findings align with official demographic data of Nørrebro. Nevertheless, the survey results show an even higher percentage of immigrant park users—35% compared to the 27% recorded in Københavns Kommune archives. Additionally, 24% of respondents were immigrants from Muslim-majority countries, a figure notably higher than the official 14% recorded in municipal data.

When asked about their feelings toward the park, 50% of respondents described it as joyful, 25% as sociable, and 12.5% as peaceful and relaxed. Only two out of 40 (5%) associated it with negative sentiments such as violence. These overwhelmingly positive responses suggest that the park successfully fosters a welcoming and inclusive atmosphere. Interestingly, question 2 revealed that most users did not identify with objects from their home countries. Instead, they felt a stronger connection to spaces or social environments, particularly those filled with people, like the area where this survey took place. Only two of the 40 respondents (5%) felt represented by an object from their home country, while three respondents (7.5%) did not find their home country represented at all—two of whom were local Nørrebro residents, indicating that 12% of surveyed Nørrebro locals lack symbolic representation in the park.

Regarding the concept of conviviality, more than half of respondents were familiar with the term, yet none selected it as their primary descriptor for the park. Instead, most chose "joyful" first while still acknowledging conviviality as a secondary characteristic. However, when directly asked whether they found the park convivial, more than 50% answered positively. Similarly, nearly two-thirds (around 66%) of respondents described the park as "hygge," a Danish term closely associated with conviviality. This suggests that while the English term "convivial" may not be commonly recognized, users still perceive Superkilen as an inviting, socially engaging space that embodies convivial qualities. Ultimately, these findings reinforce the park's role as an inclusive and multicultural urban environment, successfully fostering social interaction and a sense of belonging among a diverse user base.

The survey on Parc Central del Poblenou reveals significant contrasts with Superkilen regarding user demographics, social interaction, and public perception. The park serves as a key green space within the 22@ innovation district, yet survey data suggests that its visitor composition and sense of inclusivity differ from the aspirations of its initial design. Unlike Superkilen, where users come from a broad range of ethnic backgrounds, more than 70% of respondents identified as long-term residents of Poblenou or Barcelona, with only 15% coming from other parts of the city and less than 10% being tourists or international visitors. The survey also indicates that foreign-born residents account for 22% of users, closely mirroring Poblenou's official demographic records but in stark contrast to Superkilen, where the percentage of immigrant users surpasses municipal data.

In terms of language diversity, 95% of respondents were native or fluent Spanish and Catalan speakers, with 5% identifying as non-native speakers, predominantly international residents. Among non-local users, a higher proportion were visiting for work-related reasons rather than leisure, reinforcing the park's connection to the evolving professional and business environment of the 22@ district. Unlike Superkilen, where ethnic minorities and immigrant communities were overrepresented in user data, the Parc Central survey findings suggest that the park is used primarily by established residents, with relatively low engagement from recent migrant populations. This difference may be due to the park's enclosed structure, controlled access hours, and its relative disconnection from surrounding social hubs, all of which may limit spontaneous and diverse interactions.

When respondents were asked about their emotional connection to the park, the most frequently selected descriptors were "tranquil" (40%), "calm" (30%), and "restorative" (15%), while only 5% described it as "sociable" and 3% as "joyful." Unlike Superkilen, where respondents strongly associated the space with vibrant multicultural interactions, Poblenou Park users view the space primarily as a retreat for relaxation rather than a dynamic social arena. While negative associations were rare (under 8%), a small number of respondents mentioned that the park felt somewhat exclusive or disconnected from the rest of the urban fabric. Interestingly, when asked whether they identified with specific elements of the park, only 18% of respondents mentioned architectural or design features. The majority (65%) felt a stronger connection to the park's natural elements—trees, shaded areas, and water features. This is consistent with findings from previous studies presented in point 3, on the park's semi-private ambiance, where users engage more with passive natural environments rather than programmed or symbolic design elements.

Regarding the concept of conviviality, less than 10% of respondents were familiar with the term, and only 3% explicitly associated it with the park. Instead, when asked about an equivalent concept, 15% used the word "coexistence" (*convivencia*). 35% of respondents described the park as "serene," and 20% found it "neutral." Unlike in Superkilen, where conviviality was implicitly recognized as a secondary quality, in Parc Central del Poblenou, respondents viewed the space as more structured and individualized rather than actively fostering casual social interaction. Similarly, while more than half of users agreed that the park is "welcoming," they did not consider it an interactive community hub. Ultimately, these findings reinforce that while Parc Central successfully functions as an urban green space, it does not fully achieve its potential as a site of spontaneous interaction and conviviality. The results suggest that vibrant and flexible design features and configurations, as well as low accessibility and connectivity, may contribute to the park's more passive and localized use, contrasting with the open-ended social engagement observed in Superkilen. Future strategies for enhancing social inclusion and conviviality could focus on improving connectivity, increasing and rethinking sitting arrangements, to foster a greater sense of social permeability.

5. Results and Discussion

5.1. Comparative Analysis

The comparative analysis of both study areas, reveals stark differences in their ability to foster conviviality, despite both parks being designed by renowned architects and backed by significant municipal investments. Superkilen thrives as an everyday social hub, its open layout, vibrant aesthetics, and flexible seating arrangements encouraging spontaneous interactions and diverse cultural exchanges. In contrast, Parc Central del Poblenou remains underutilized, with its enclosed design, fixed seating, and nighttime closure limiting

accessibility and spontaneous use. A key factor in Superkilen's success is its community-driven design process, where local residents actively participated in shaping the park's elements, creating a sense of ownership and cultural representation. In contrast, Poblenu's design was dictated by urban planning decisions without direct neighborhood involvement, resulting in a space that, while visually appealing, lacks social vibrancy. Additionally, Superkilen's permeability and integration into the city fabric facilitate constant urban flow, whereas Poblenu's fenced-off structure restricts its engagement with the surrounding area. These findings emphasize how participatory design, permeability, and adaptable spatial configurations are crucial in shaping everyday conviviality in public spaces, influencing whether urban parks become dynamic social arenas or remain underutilized landscapes.

Both parks were designed with the intention of fostering conviviality, yet their use diverges significantly. Superkilen is an everyday gathering space, while Poblenu functions more as an isolated architectural object. The analysis of user behaviour in Superkilen and Poblenu reveals key similarities and differences in how design elements impact social interactions. In Superkilen, the Red Square's circular seating arrangement facilitated frequent informal social gatherings, as seen in Figure 5, where clusters of users engaged in dynamic exchanges throughout the day. The bright red rubberized surface also contributed to the area's visibility and attractiveness, leading to extended stay durations, particularly in the evenings. Similarly, in Poblenu, the various seating areas provided small focal points, although interactions were more dispersed, influenced by the park's integration with natural elements. Figure 6 illustrates how users tended to seek shaded spots, particularly during midday hours, reinforcing the importance of environmental comfort in spatial occupation (Serratosa & Boix, 2022). Unlike Superkilen's highly curated multicultural aesthetic, Poblenu's landscape-driven design fostered a more organic, slow-paced social engagement, with users engaging in prolonged solitary and small-group activities rather than large, dynamic gatherings.

5.2. Design Implications

Findings suggest that urban design plays a critical role in shaping the nature of social engagement, with curated multiculturalism fostering dynamic, transient interactions, while ecological and landscape-driven approaches may facilitate other types of interactions, in this case, less convivial. By juxtaposing these two case studies, this analysis contributes to a nuanced understanding of how spatial configurations mediate social behaviour in contemporary urban environments, offering valuable insights for the future design of inclusive public spaces. This research demonstrates that adaptable, versatile and varied seating arrangements significantly contributed to conviviality. Superkilen's flexible design promoted a high turnover of users, while Poblenu's layout based in small groups of individual chairs, encouraged longer but smaller stays. As represented in Figures 5 and 6, peak activity times in both parks showed overlapping trends, with increased occupancy during late afternoons and weekends. Nevertheless, both number of users and occupancy on Superkilen area was almost double than in Parc Central, even though the area of analysis was much larger in the latter (to be able to include an analogous number of sitting spots).

Key design recommendations derived from this multi-method collection study include:

- *Community Engagement Matters:* Superkilen's participatory design contributes to its success, whereas Poblenu's top-down planning approach limits its social function.
- *Accessibility Is Crucial:* Restricted access and disconnected design reduce Parc Central del Poblenu's ability to integrate into daily life.
- *Balancing Design and Functionality:* Overemphasis on architectural spectacle and poetics, and understatement of local identities, can compromise usability, as seen in Poblenu.
- *Modular seating arrangements:* Providing flexible seating elements can accommodate both solitary users and groups, catering to a diverse range of social behaviours, positions and activities.
- *Integration of cultural elements directly related to demographics:* Superkilen's success in creating a socially diverse environment suggests that integrating symbolic design elements can reinforce a sense of belonging.

By applying these insights, urban planners and designers can develop public spaces that not only meet functional needs but also enhance conviviality, fostering stronger social cohesion in diverse urban environments.

6. Conclusion

This study shows how two highly designed parks, both intended to foster conviviality, achieve vastly different social outcomes. Superkilen's participatory approach successfully creates a thriving public space, while Poblenou's design choices, limited accessibility, and gentrification-linked constraints reduce its role as a social hub. These findings underscore the importance of balancing architectural ambition with user needs in urban park design.

By applying a multi-method approach that integrates direct observation, spatial mapping, and survey data, it provides a comprehensive analysis of how specific design elements influence social interactions. The comparative analysis of Superkilen in Nørrebro and Parc Central del Poblenou reveals key insights into how design strategies impact user behaviour. The findings demonstrate that adaptable seating arrangements, flexibility, colour and materiality, as well as cultural symbolism and accessibility, can significantly contribute to the success of public spaces in fostering social engagement among diverse populations.

Furthermore, this research underscores the methodological value of combining qualitative and quantitative data collection techniques. The integration of behavioural mapping, user surveys, and graphic analysis allows for a more nuanced understanding of public space dynamics, contributing to a growing body of knowledge on urban conviviality. By reinforcing the connection between design and social behaviour, this study provides valuable insights for urban planners, designers, and policymakers aiming to create more inclusive and engaging public spaces. As cities continue to evolve into highly diverse contexts, a deeper understanding of how design fosters human interaction will remain essential in shaping sustainable, vibrant but also inclusive urban environments.

Future research will explore the scalability of these findings by applying the methodology to a broader range of urban environments, including smaller community parks and large-scale metropolitan spaces. Additionally, advancements in digital tools for spatial analysis and real-time data collection will enhance the precision and applicability of this methodological framework.

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8. Authorship

The author was responsible for all aspects of this research. This includes the conceptualization and design of the study, the development of the methodology, data collection (with the assistance of two research assistants), data analysis, as well as the writing, editing, and final revision of the manuscript.

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