

Explore vacant public spaces regeneration to facilitate minor's activities and education under inclusive design principles

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Abstract

Since 2004, when Europe proposed a greater focus on inclusive design in urban public spaces, aiming to create safer, more inclusive cities for all, the promotion of citizen participation and social co-creation of healthier public spaces has been accelerated (Great Britain, 2004). The inclusiveness of urban public spaces is reflected in the attempt to meet all people's needs from the physical, sensory, spiritual and intellectual aspects, breaking the limits of age, gender and ability, to provide easier accessibility and services (Gehl Institute, 2016; Peraboni & Campioli, 2019). An attractive public space that meets different people's needs can attract citizens to participate in the co-creation and maintenance of public spaces, thus forming a good and sustainable urban life ecosystem (Great Britain, 2004; Carmona et al., 2008).

The Slow Cities, 15-minute Living Circle, Resilient Cities, Compact Cities, Child-Friendly Cities and other initiatives targeting urban development can all be seen as reasons to care about urban health and inclusion issues (Brown et al., 2019). Nowadays, the urban population has increased and more children are growing up in cities than ever before. Currently, more than 1 billion children worldwide live in urban areas (UNICEF, 2012). Children, as the hope of the next generation, need healthy and inclusive urban public environments to play, exercise and even participate in urban events to contribute to urban development. However, the needs of children are often overlooked in public policy (Bishop & Corkery, 2017).

During the rapid urban development process, vacant spaces and potential vacant spaces are found in cities, due to either the decline of economic efficiency and obsolescence of past technologies, or the lack of macro-functional considerations to the pre-existing spaces division, resulting in residual, negative spaces (Solà-Morales Rubiò et al., 1996). The inclusion issue is often more apparent in this kind of gray space, but there can often become an informal playground that children accidentally enter when they explore freely in cities (Elshater, 2018; Krishnamurthy, 2019). Meanwhile, as potential spaces for urban public activities, urban vacant spaces can be reused progressively as preliminary sites for new public spaces, thus making the configuration of urban public functions flexible and resilient, especially providing services for the children group.

This article will focus on empirical work in Milan, Italy. Firstly, to provide an overview of child-inclusive urban design in terms of children, urban planning, public spaces and inclusivity.

Secondly, through observations, interviews and preliminary research, the bottom-up exploration of some vacant spaces and spatial needs of children's activities in Milan are developed into qualitative diagrams. Furthermore, from the designer's perspective, case studies are presented on the renovation of the MAST community center in Rho town, Italy, as well as the renovation design of the activity spaces around "Ezio Franceschini" primary and secondary school and neighborhood environment (Coppetti, 2018). In this way, it discusses the design and renewal strategies of urban vacant spaces under the concept of inclusiveness, with special attention to children, and tries to explore the broader meaning of public spaces on this basis.

Author Keywords:

Vacant Spaces, Inclusive Design, Child-friendly City, Urban Renovation, Activity Spaces

Introduction

Inclusive city

Since the 19th century, inclusive design has gradually transformed from barrier-free design to universal design, but the design language of inclusiveness still needs to be clarified (Bichard & Gheerawo, 2013; Heylighen, 2008). Today, controversial topics such as the participants, forms of participation and the implementation efficiency of inclusive design have become key research topics around the world (Imrie, 2003; Hill, 2003; Imrie, 2012; Boys, 2014; Luck, 2018). Inclusive design aims not only to eliminate inequalities caused by long-standing discrimination in terms of moral consensus, but also to enhance people's psychological security and well-being in urban life on a psychological level (Gardner, 2019).

In recent years, the pandemic crisis has accelerated a re-thinking of the changing psychological needs and more humanistic themes of users in the design of urban public spaces, such as care, interaction, adaptability, integration, proximity and planning time, which are increasingly concerned with their potential impact on the creation of inclusive public spaces (Peraboni & Campioli, 2022).

Children, as one of the target populations for testing the health and inclusiveness of a city, can be studied and observed as an independent object, while also forming a valuable entry point into urban design themes due to their interrelationships with other social groups (Brown et al., 2019). The literatures



show that in recent years children have not been isolated and protected as greenhouse flowers, but have been involved in social activities in public environments through well-guided interactions with adults and public society (Elshater, 2018). For example, usually commercial and semi-private areas are not attractive enough for families with children because of the current prevalence of commercial spaces that are not conducive to the interests of minors (e.g. pubs, cafés). However, the Stadstuin de Bergen (A city park) in Eindhoven, Netherlands, is emerging as a child-friendly environment for public space projects that break down the boundaries between adults and children, promoting interaction between residents, children and civic organizations and providing inclusive services to a wider range of users (Krishnamurthy, 2019). In this way, the role of child-friendly cities for healthier and more inclusive social development is noteworthy.

Child-friendly cities

Research on child-friendly cities can be traced back to the 1970s, with themes extending from health and activity to the urban environment (Sipe et al., 2006). The United Nations (2022) estimates that by 2025, 60% of children in the world will be living in cities. Urban children face many health risks, such as crime, restricted spaces, air pollution, traffic dangers and disconnection from nature (UNICEF, 2012). While children's health needs are often narrowly categorized into children's exclusive services and education, in fact, the urban environment is a decisive factor in children's healthy development. Because urban design that focuses on children's health also meets the needs of the population to a certain extent, so the requirements and the goal of child-friendly cities facilitate the development of cities in a more sustainable, inclusive and equitable direction (Brown et al., 2019). In the early 21st century, the topic of child-friendliness was widely discussed in urban planning, which in turn made the transition to family-friendly cities a new focus of attention in the fields of sociology and urban design (Boterman, 2012). In the 1950s, the increase in private car ownership led to a gradual movement of families to live in the suburbs. Nowadays due to the change in the dominant city sectors and the tendency of higher education professionals to stay in cities have led to an increasing number of young people being drawn to cities to settle their families. Therefore, cities become re-attractive as new centers of employment and consumption (Karsten, 2014).

The theme of urban planning for child-friendly cities is not new, with most research focusing on community reliance on family-friendliness and co-education of children, such as the Playful Cities USA platform created by the non-profit organization KaBOOM. It is based on community engagement and the creation of community spaces and is dedicated to bringing play equally into children's lives (Kaboom, 2017). In addition to the community, public education should also be scaled up within the city to create child-friendly service and caring networks. Karsten (2007) shows in her study how children are conducive to linking areas near their homes, forming a network of mutual support and benefit between communities. These linear or reticulated greenways are the glue that connects the blocks between the school and the living environment. Examples include the "Kindlint" as the safe routes for children in Rotterdam, and the "Streets for Kids" (NACTO, 2019), which encourages children to move independently in their neighborhoods and enhances their mobility between different areas.

Vacant spaces

Elshater (2018) states that the third space as a place for informal activities is an important interactive bridge between school and community, as well as a core place for creating child-friendly cities. The third space, which refers to the relaxing space for leisure activities as distinct from home and places of study and work, is often informal in the urban environment and fulfils its function through the autonomous occupation of the space by its users, this is partly reflects the blurred boundaries and flexible use of the third space. Thus, the value of reusing vacant urban spaces as the potential third spaces is an entry point for the development of new public activity spaces.

A good city is incremental and sustainable (Lynch, 1984), and the ongoing increase of vacant urban spaces is considered to be one of the main symptoms of urban degradation (Trancik, 1991). The study of urban vacant spaces began around the 1960s. Trancik (1991), in his book *Finding Lost Space* published in 1986, proposed a study of "leftover, residual, remnant, unused, abandoned, deteriorated" places, which he called "lost spaces". This type of spaces has three characteristics: it is unplanned, has no positive effect on the surrounding environment and has no clear boundaries.

As the study of vacant spaces develops, it emerged a more positive understanding of vacant space definition. SoláMorales et al. (1996) use the description of "Terrain vague" instead of the English term "vacant/ void", with the intention of avoiding negative interpretations of urban vacant spaces, and with a view to their future development in terms of diversity, flexibility and freedom. Neffs (2006) affirms the potential and inevitability of vacant spaces in terms of their economic value, while Maric and Djukic (2018) argue from a historical and cultural perspective, that the regeneration of abandoned spaces should be included in urban development plans. In addition, from a sociological perspective, the re-attraction of people to the city also means that the more crowded city needs to meet the higher demands from people for the public environment.

Children in vacant public spaces

The existence of a large amount of urban vacant spaces not only reduces citizens' sense of identity with their living environment, but also exposes some people to greater inconvenience and safety problems. The number of people living in cities today is growing, and the number of children is quite considerable (UNICEF, 2012; United Nations, 2022). Play is key to children's understanding of the world and their physical and mental exercise (Kemple et al., 2016). Neighborhood spaces around where children live and learn are the main places where they are active. To meet children's need for freely moving around, Arup (2017) proposes the concept of "children's infrastructure", which decentralizes children's activities from playgrounds to a network of multifunctional public spaces such as neighborhoods and streets, providing shared and interactive public spaces for families and communities. Krishnamurthy (2019), through a case study interview, finds that in addition to designated play areas, such as amusement parks and playgrounds, there are a lot of undefined areas where children play. Even though children are not sufficiently aware of the safety hazards of the grey spaces that are spread around the city, because undefined areas give them the possibility to play in a variety of ways, these space still become "playgrounds" for children to explore freely (Elshater, 2018; Krishnamurthy, 2019).

The design of vacant spaces regeneration is a broad topic that covers a wide range of research areas. However, the participation of minors in the event of the renewal and construction of public spaces is still missing, and it is difficult to let them express their needs accurately. In addition to this, the differences in age and gender of minors require more research to determine their needs for activity spaces (Krishnamurthy, 2019; Silva, 2021). For example, Silva (2021), in the PhD study on co-creating communities, demonstrates that teenagers and older people are the participants who have a strong but not fully exploited potential to contribute in projects that promote resident participation in building inclusive and sustainable communities. The participation of teenagers is very important for community development. Perceived as rebellious, with unstable positions and worldviews, they are often less fluid in embracing different cultures and ideas than younger children, and easily suppressed by adults in social discourse, which reflecting that teenagers are a common gap in the practice of building inclusive, sustainable communities. Another difficulty in children participation is that there is no systematic framework of consultation and feedback record for younger children other than adolescents. Therefore, the cooperation of schools and educators is indispensable for designers to ask children questions and guide them to express their most authentic activity needs and preferences that are understood and adopted by designers (Brown et al., 2019).

Regenerate child-friendly places

This chapter shows empirical research case studies located in the metropolitan city of Milan, Italy to demonstrate how the renewal of abandoned and negative spaces can be proposed for the benefit of schools and communities, optimizing learning and activity spaces for minors while enhancing the adaptation and integration of teenagers into the diverse life of the city.

Empirical case: A shared park and urban greenways in the Rho town, Milan

In response to "A Park for everybody" event, many public schools in Milan and the metropolitan area have focused on improving public spaces on campus and coordinating public spaces for all urban residents. In a study on the re-forming open spaces and neighborhood areas in all public schools in Milan, Coppetti (2018) uses the case of the Luigi Cadorna Pre-school and Primary School as an example of a renewal project that proposes to consider teenagers' needs in their rest and recreation time, advocating that the "shared school" model should be popularized. The openness of the school to the public to a certain extent helps revitalize the school's inactive spaces, enriching its after-school activities and integrating them with the services for citizens.

In this case, the "Ezio Franceschini" primary and secondary school in Rho town, Milan, was selected to do an empirical research, which was carried out in the form of a design studio by Polytechnic University of Milan in 2019. Ezio Franceschini Comprehensive Institute is one of the pilot institutes in the "A Shared School: for A Culture of Well-being" project launched by the Ministry of Education and Merit, carried out from 2019 to 2022. The scientific committee includes Catholic University of the Sacred Heart - Center for Studies and Research on Disability and Marginality, Milan Bicocca University - Department of Human Sciences for Education, and Polytechnic University

of Milan - Department of Architecture and Urban Studies (*Una scuola condivisa*, 2019).

The primary school covers an area of approximately 9100 m² and is located 900 m from the city center, about a 10-minute walk away (see Figure 1). The campus is located between the main roads of Via Mazzo on the south side and Via Terrazano on the north side, while there are car parks at both the south and north entrances to the school. Due to the school's location in a residential area between the narrow roads, it is always crowded during peak commuting and after-school hours. The eastern side of the school is separated from the residential area by an open public park, which is heavily vegetated and almost obscures the view, creating a barrier of isolation.

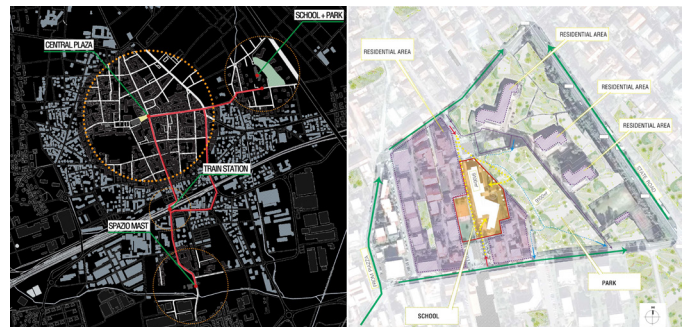


Figure 1. The location map of "Ezio Franceschini" primary and secondary school and neighborhood environment in Rho town, Milan

According to the semi-open interviews conducted by the research team with the students, teachers and parents, the students describe that the formal eastern entrance to the school from the park is poorly identified, and the parents express concerns about the safety of their children walking in the park due to the weak visual connectivity. Walsh (2006) highlights in her study that young children often need close visual observation and support from adults when playing, thus revealing that the heavy shading of vegetation in parks hinders children's safe play and the need for parental supervision (see Figure 2). As urban greenery is interrelated to the theme of child-friendly urban design, and as green parks are important for children's health, the soft surface is retained in the design concept, only enhancing the visibility of the park. In addition, age differences in activity spaces need to be considered, with different scales and openness of activity spaces developed for teenagers' sports activities and younger children's play, and vegetation of appropriate density and height is re-selected to meet the use and safety needs of children's activities at different ages (Walsh, 2006; Krishnamurthy, 2019).

Moreover, since the school buildings are shared for primary and secondary schools, and with the gradual increase in enrolment in recent years, there are very limited learning space within the school. This makes it difficult for children



Figure 2. Current eastern entrance (left) and design proposal (right). Perspective wall, high visibility.

to have a suitable place for self-study and group activities after school, which encourages them to roam around the city, where their safety is further threatened. The school also has difficulty in finding a stable venue for the open days when the school plans to share scientific lectures to the citizens. This set of needs presents an opportunity to upgrade the grey spaces and underused park that exist around the school and the neighborhood. In the design concept, the open park is not only used for student activities, but also serves the multiple functions of a recreation area for the residents and social events (see Figure 3).

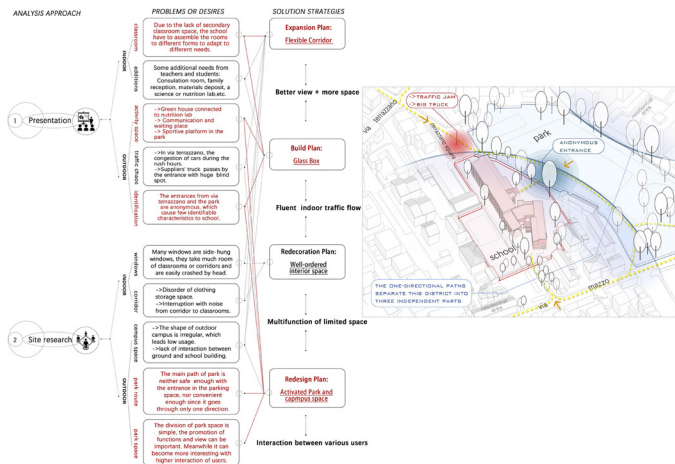


Figure 3. A neighborhood shared park concept based on a survey of students' needs for activity spaces

To address the shortage of space for educational classes in school, the "Ezio Franceschini" primary and secondary school attempts to link up with the MAST community center, a half hour walk away, by setting up some of the experimental classes and open courses in this studio out of school. Moreover, Walsh (2006) suggests that focused areas for children's activities in the city, such as schools and small parks, should be connected by child-friendly streets. Therefore, this research proposes to take children's visual perception into account, to create eye-catching urban furniture and architectures along the necessary routes from the school to the community center, thus to enhance the streets' recognition while providing several safe spaces to stop, and this greenway proposal is adapted to the urban scale with narrow roads (see Figure 4, 5).



Figure 4. The concept of urban greenways



Figure 5. Iconic urban furniture

Case study: MAST- A community center in the Rho town, Milan

The MAST Space in the south of Rho town is a public-oriented activity center that has been in existence since the 16th century as a village hospital, through changes of ownership, and finally in the 1990s, it transformed from an abandoned urban slaughterhouse to a space dedicated to the community, which provides a multifunctional activity space for young people, students and artists. MAST is a venue for independent musical bands. In addition, the space offers a variety of classes and workshops for all ages, from children to the elderly, such as the experiments in pot plants. In response to the trend in Rho town to serve children's companionship and education, this activity center not only provides part of the open lessons, but also set the place in after-school period for self-study and children activities, thus helping minors strengthen social relationships with their peers (MAST, 2020).

MAST Space is a successful project of reactivating abandoned urban space, providing opportunities for young people to stimulate their potential and invest in their dreams, providing minors with a shelter and an atmosphere of socializing and learning. It is committed to providing community benefits and provides multiple support in the form of space and services for the development of a child-friendly city through its involvement in building shared spaces. It also drives the development of safe urban greenways and promotes the formation of a network of child-friendly streets through its links with interactive activities in schools. Through the flexible and versatile division and use of space as well as the clever arrangement of time slots in a limited space, it meets the basis of caring for children's interests and needs, but also tries to lead the gentle transition of children to grow as adults, promoting their socialization and growth through a harmonious and shared environment.

Discussion

This article shows the design of a child-inclusive renewal of undefined and unsafe activity spaces around a studied school in the Rho town of Milan. It aims to enhance children's safeguarding and activity needs by improving recognition and playability. Since this proposal has not yet been adopted and implemented, the actual benefits of this design are still to be examined. However, this school has now established educational partnerships with social institutions such as MAST and La Fucina, leading to the reuse of inactive urban spaces, while providing minors with more places for education and recreational activities. It demonstrates that this project has the potential to be a pioneering role model in the development of research in the related field and theme.

Conclusion

There is a plenty of research in urban and architectural design that discusses respectively the issues of child inclusion and the renewal of urban vacant spaces. Instead, this article focuses on how to adequately and rationally interpret and present the learning and activity needs of minors in urban public space optimization programs, and translate the demands into a design language for spatial design. Furthermore, this article aims to develop the potential of existing public social resources for the education of minors group, breaking the previous independence of urban design in the planning educational infrastructures, and then involving children's edu-

cation into life scenarios, which makes their life educational and entertaining.

Acknowledgments

I want to express my gratitude to Polytechnic University of Milan, the professors and other members of my empirical research team for facilitating the data collection.

References

- Arup. (2017). *Cities Alive: Designing for Urban Childhoods*. <https://www.arup.com/perspectives/publications/research/section/cities-alive-designing-for-urban-childhoods>
- Bichard, J.-A., & Gheerawo, R. (2013). Inclusive Design. *The Design Journal*, 16(2), 133–137. <https://doi.org/10.2752/175630613X13584367984785>
- Bishop, K., & Corkery, L. (Eds.). (2017). *Designing cities with children and young people: Beyond playgrounds and skate parks*. Routledge, Taylor & Francis Group.
- Boterman, W. (2012). *Residential practices of middle classes in the field of parenthood*.
- Boys, J. (2014). *Doing disability differently: An alternative handbook on architecture, disability and designing for everyday life*. Routledge.
- Brown, C., de Lannoy, A., McCracken, D., Gill, T., Grant, M., Wright, H., & Williams, S. (2019). Special issue: Child-friendly cities. *Cities & Health*, 3(1–2), 1–7. <https://doi.org/10.1080/23748834.2019.1682836>
- Carmona, M., Magalhães, C. de, & Hammond, L. (2008). *Public space: The management dimension*. Routledge.
- Coppetti, B. (2018). *Renewal of learning places. The improvement of the common spaces of the Public Schools*. Universidad de Alicante. Escuela Politécnica Superior. <http://rua.ua.es/dspace/handle/10045/80051>
- Elshter, A. (2018). What can the urban designer do for children? Normative principles of child-friendly communities for responsive third places. *Journal of Urban Design*, 23(3), 432–455. <https://doi.org/10.1080/13574809.2017.1343086>
- Gardner, J. (2019). The inclusive healthy places framework: A new tool for social resilience and public infrastructure. *Biophilic Cities Journal*, 2(2), 10–15.
- Gehl Institute (eds.). (2016). *Inclusive healthy places. A Guide to Inclusion & Health in Public Space: Learning Globally to Transform Locally*. Research report.
- Great Britain. (2004) - Commission for Architecture and the Built Environment. *Manifesto for Better Public Spaces*, CABE Space, London
- Heylighen, A. (2008). Sustainable and inclusive design: A matter of knowledge? *Local Environment*, 13(6), 531–540. <https://doi.org/10.1080/13549830802259938>
- Hill, J. (2003). *Actions of Architecture* (0 ed.). Routledge. <https://doi.org/10.4324/9780203327210>
- Imrie, R. (2003). Architects' Conceptions of the Human Body. *Environment and Planning D: Society and Space*, 21(1), 47–65. <https://doi.org/10.1068/d271t>
- Imrie, R. (2012). Universalism, universal design and equitable access to the built environment. *Disability and Rehabilitation*, 34(10), 873–882. <https://doi.org/10.3109/09638288.2011.624250>
- Kaboom. (2017). *KABOOM! - End Playspace Inequity. For good*. KABOOM! <https://kaboom.org>
- Karsten, L. (2007). Housing as a way of life: Towards an understanding of middle-class families' preference for an urban residential location. *Housing Studies*, 22(1), 83–98.
- Karsten, L. (2014). Stad 3.2 of hoe gezinnen de stad opnieuw uitvinden. *Stedebouw & Ruimtelijke Ordening*, 95(3), 10–16.
- Kemple, K. M., Oh, J., Kenney, E., & Smith-Bonahue, T. (2016). The Power of Outdoor Play and Play in Natural Environments. *Childhood Education*, 92(6), 446–454. <https://doi.org/10.1080/00094056.2016.1251793>
- Krishnamurthy, S. (2019). Reclaiming spaces: Child inclusive urban design. *Cities & Health*, 3(1–2), 86–98. <https://doi.org/10.1080/23748834.2019.1586327>
- Luck, R. (2018). Inclusive design and making in practice: Bringing bodily experience into closer contact with making. *Design Studies*, 54, 96–119. <https://doi.org/10.1016/j.destud.2017.11.003>
- Lynch, K. (1984). *Good city form*. MIT Press.
- Maric, J., & Djukic, A. (2018). Connecting the Centre of Belgrade with the Danube and Sava Riverfronts to Increase Attractiveness. *Periodica Polytechnica Architecture*, 49(1), 23–28.
- MAST. (2020). Chi Siamo. Spazio MAST. <https://www.progettomast.org/chi-siamo/>
- NACTO. (2019). *Streets for Kids*. Global Designing Cities Initiative. <https://globaldesigningcities.org/streets-for-kids/>
- Nefs, M. (2006). *Unused urban space: Conservation or transformation?; polemics about the future of urban wastelands and abandoned buildings*. <http://www.ceci-br.org/novo/revista/docs2005/CT-2005-42.pdf>
- Peraboni, C., & Campioli, S. (2019). *How can we plan better cities for all? 8*.
- Peraboni, C., & Campioli, S. (2022). *Diversity, community and participation: How Covid-19 has boosted the main issues of public space design*. 10.
- Silva, C. R. (2021). *LEADING WITH RESIDENT VOICES: FACILITATING RESIDENT PARTICIPATION TOWARD INCLUSIVE, SOCIALLY SUSTAINABLE COMMUNITY*. 182.
- Sipe, N., Buchanan, N., & Dodson, J. (2006). Children in the urban environment: A review of research. *Creating Child Friendly Cities*, 98–114.
- Solà-Morales Rubió, I., Costa, X., Colegio de Arquitectos de Cataluña, Centre de Cultura Contemporània de Barcelona, & International Union of Architects (Eds.). (1996). *Present and futures: Architecture in cities*. Col·legi d'Arquitectes de Catalunya : Centre de Cultura Contemporània de Barcelona.
- Trancik, R. (1991). *Finding lost space: Theories of urban design*. John Wiley & Sons.
- Una scuola condivisa: Per una cultura della Felicità* - DASTU. (2019). Retrieved 20 March 2023, from <https://www.dastu.polimi.it/una-scuola-condivisa-per-una-cultura-della-felicit/>
- UNICEF (Ed.). (2012). *Children in an urban world*. The United Nations Children's Fund (UNICEF).
- United Nations. (2022). *World Population Prospects 2022: Summary of Results*. United Nations. <https://doi.org/10.18356/9789210014380>
- Walsh, P. (2006). Creating child friendly playspaces: A practitioner's perspective. In *Creating child friendly cities* (pp. 148–162). Routledge.