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Reclaiming Public Spaces amidst COVID-19 Pandemic: Tactical Urbanism as a 'Resilience' Response

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Abstract

Several cities were struck by the global COVID-19 pandemic in the year 2020. The rapid and hazardous spread of the crisis resulted in a profound urban transformation, changing the fundamentals of urban living. This research provides a perspective regarding the vulnerability and resilience of cities, particularly their public spaces. Public spaces, a significant component of the urban realm, remained fundamental in transforming cities during the pandemic. Implementing radical measures to minimize the spread of the virus and adopting emergency plans to resist the subsequent socioeconomic collapse demonstrated the varying yet synchronized stance on resilience. Two key approaches are used to pursue the concept of resilience as a strategic framework for public spaces. These include a balancing or bounce-back approach, which supports the idea of 'return to normal'. The other is an evolutionary or bounce-forward tactic, characterized by adaptive capacity and transformation. This research reflects on the adaptive capacity of 'resilience' in public spaces, in which 'tactical urbanism' as an effective tool is used to create flexible, low-cost, and temporary design strategies to achieve public health goals and urban sustainability. It also discusses the examples of tactical interventions in public spaces during the pandemic and manifests the strength of temporary tactics to bring long-term change. The research concludes by proposing a new paradigm for public space planning, associating tactical urbanism and incorporating the evolutionary or adaptive capacity of resilience. The discussed strategies instil a vision for designing resilient public spaces for highly anticipated future pandemics and other hazards.

Keywords: adaptability, COVID-19, pandemic, public space, resilience, tactical urbanism, temporary interventions

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Introduction

Cities are the centre of socioeconomic development and accommodate a large percentage of the world's population. The dense urban environments of the cities are characterized by their authenticity, diversity, vibrancy, inclusion, and fascination. However, a network of varied forces constantly threatens the same characteristics, creating unpredictability, uncertainty, and serendipity. They even become the prime reasons for risks to people's safety and well-being during pandemics (Schaper, 2020). The high density of the population and concentrated activities in cities make them vulnerable to various hazards, including natural, anthropogenic, and multi-hazards. Natural hazards include earthquakes, floods, hurricanes, and fires, whereas anthropogenic and multi-hazards include terrorism, power outages, financial crises, cyber-attacks, political conflicts, and most importantly, pandemics. While natural hazards and associated risks are well recognized, such as global warming and climate change, anthropogenic factors remain unpredictable and thus, create uncertainty and pose unknown risks.

This research accounts for the recent SARS-CoV-2 outbreak, commonly known as the COVID-19 pandemic, which surfaced as a global pandemic at the beginning of the year 2020. Characterized by the loss of human life, deteriorating mental health, unemployment, social isolation, and the subsequent socioeconomic crisis, the calamities brought on by this pandemic were dreadful and numerous. The world appeared fragile as the COVID-19 pandemic instigated immense disruptions across the globe. Its vast magnitude, rapid spread, and acceleration stimulated a profound transformation, significantly changing certain aspects of urban life indefinitely. While COVID-19 was not the only pandemic in history, nor was it the first time that a pandemic impacted the cities, it still underscored the issue of urban vulnerability and invigorated the focus on the future planning of cities like no other recent event. Previous pandemics had only partially transformed certain aspects of modern city planning, that too, in specific regions. For instance, under the direction of Haussmann, French authorities demolished numerous buildings, constructed tree-lined boulevards and parks, erected fountains, and installed an extravagant sewage system to control the cholera outbreak in the nineteenth century, transforming Paris into the 'city of lights' (Klein, 2021).

As discussed above, the characteristics on which the cities thrive are frequently intrinsic to public spaces, encompassing inclusion, accessibility,

social encounters, political movement, personal engagement, and other collective activities. Public spaces are an integral component of an urban area as they play a significant role in its transformation (Madanipour et al., 2013). The recent pandemic utterly transformed certain aspects of urban life; however, it is indistinct whether the impacts on public spaces have been similarly profound (Corbera et al., 2020).

This research scrutinizes the pandemic-related concepts, speculations, and on-ground practices of public space transformations regarding their form, functions, and changing relationships with cities and communities. It responds to the questions related to future concerns, such as how lasting would these transformations be? to what extent these temporary transformations lead to permanent change? and which lessons could we learn for planning resilient cities in case of future pandemics? Henceforth, this investigation reflects on the transformation and adaptability of public spaces, while following the adoption of mitigation strategies and restrictive usage.

Due to their intrinsic characteristics, public spaces are a city's most valued but vulnerable spaces. In this context, 'vulnerability' (as an imperative phenomenon) relates to any characteristics or attributes that enhance a system's weakness to damages or disruptions (Sharifi & Yamagata, 2014). Throughout the global outbreak of the COVID-19 pandemic, the most critical regulatory measures used to mitigate the spread of the virus included social distancing (or physical distancing) and the stay-at-home (quarantine) rule. These public health recommendations and their strict compliance became evident through the odd scenarios created across the globe. These included empty streets and squares, deserted parks and beaches, and abandoned markets and plazas for over three years. Researchers and designers keenly pondered on how this crisis transformed people's connection with public spaces, with great uncertainty about the future of their design, use, and perception. Forced quarantine or stay-at-home policy aggravated loneliness, anxiety, and depression among a large segment of the population. Subsequently, a worldwide debate was launched about the significance of public space and its role in enhancing people's physical health and psychological well-being.

Undeniably, this pandemic strengthened the already emerging urban practices in favour of a healthier, compassionate, and vibrant city, creating a new sense of urban life that might live longer than the pandemic itself. It

offered an extraordinary opportunity to realize the effects of pandemics on the cities, the mitigations required to limit their impacts, the prediction of risks and uncertainties, and the ways to enhance urban resilience. The research accounts for the public space's adaptive capacity (resilience) in times of profound transformation during the COVID-19 pandemic through various examples of 'tactical urbanism'. These tactical interventions remained effective in creating flexible, low-cost, and temporary public spaces to achieve long-term public health goals.

Literature Review

Public Spaces Amidst the COVID-19 Pandemic

Public spaces are deemed as the heart and soul of cities. The meanings and classifications associated with them have evolved constantly. Open spaces, streets, and squares have historically been considered prime public spaces. Over time, public space has acquired a broader scope and covers markets, libraries, transport hubs, shopping malls, cafes, and other privately-owned public spaces. The modern notion was born with people roaming on the boulevards of Paris, London, and Barcelona in the nineteenth century. Over time, public spaces acquired the status of 'collective spaces' where people began to socialize (Sola-Morales, 2008). As stated by Sennet, "They came outside to see and be seen" (Sennett, 2018). These two primary functions of public spaces, that is, to see and be seen, were challenged by the COVID-19 pandemic and its associated SOPs (standard operating procedures). Subsequently, a profound change has occurred in fundamental aspects of the use of public spaces, mainly because of the risks of virus transmission. For instance, shopping on a commercial street or open-air market is considered safer because of the slower transmission rate in open areas than in enclosed shopping malls or climate-controlled environments. The interior public spaces were also reimagined to offer more natural ventilation and to incorporate more in-between or semi-covered spaces, such as rooftop terraces, courtyards, and balconies for performing activities at comfort level. However, in various interior spaces, such as underground metro stations, wearing masks and maintaining a safe distance has been the only solution because of their inflexibility and inability to transform.

According to UN-Habitat, most COVID-19 cases (estimated as 95%) were concentrated in large cities, so it is frequently deemed as an 'urban

pandemic' (Metropolis, 2020; United Nations [UN], 2020). Its instances were much more visible in urban areas regarding vulnerability, pandemic management, and countermeasures (UN, 2020). The pandemic highlighted the issue of urban vulnerability and revived interest in the future planning of cities with new health attributes of utmost importance. During the three years of the pandemic, in-person visits to town centres, offices, markets, libraries, sports clubs, and other public venues were replaced with Zoom or Google meetings, online shopping, e-learning, home-based games, and in-house workouts. However, after months of virtual encounters, it became quite clear that 'virtual' cannot be an enduring replacement for real human interaction. It became evident that human beings, being social animals, do not cope well with social isolation. Cities worldwide understood the importance of increasing access to public spaces during the pandemic (Broudehoux, 2021), implying the challenges of designing public spaces to be safer and more vital. While specialists were still perplexed by the extent of urban transformations, it became imperative to rethink and redesign public space principles and give them new meanings and functions to maintain the quality of urban life. Extensive behavioural changes were also anticipated concerning how people perceive and interact with places and the possibility of public health risks reforming the composition of urban life.

Pandemics are also labelled as 'transgressive stressors' (Matthews, 2020). Rare occurrences have substantial and lasting repercussions for the society, the environment, and natural settings. They have the ability to collapse economic, social, and political systems. The recent crisis has reemphasized the crucial role public spaces play in connecting people and promoting well-being (Cellucci & Sivo, 2021). Henceforth, new models and governing principles must be articulated to ensure the future planning and development of accessible, inclusive, and resilient cities.

According to Polko (2010), public spaces are a crucial element of a resilient city, partially because of their ability to convert for emergency health objectives. Undeniably, public spaces showed incredible resilience in coping with the challenging situation and were excellent in supporting infrastructures in many affected cities during the recent pandemic. Large convention centres and exhibition halls were temporarily transformed into emergency field hospitals, empty hotels and motels were adapted to quarantine facilities, and abandoned shopping malls and commercial centres were converted into shelters for homeless people and migrant

workers. Another noticeable measure to contain the virus transmission were the restrictions imposed on large public gatherings. Concerts, sports activities, social events, communal gatherings, ceremonies, and political protests were either entirely or partially banned for many months. Such prohibitions on socially vibrant activities triggered anguish and despair among the populace. Moreover, city authorities employed digital technologies, such as electronic surveillance and tracking and tracing techniques, to control and regulate the behaviours and movements of citizens. Many of these systems were installed previously in various cities over the past decades as countermeasures against terrorism. The pandemic seemingly legitimized their acceptance, challenging the very spirit of the city as a free public space.

Furthermore, this pandemic amplified pre-existing inequalities (Kluth, 2020) and difficulties in accessing public spaces. As often the only recreational opportunity for the low-income class, public spaces offer respite from congested living environments and poor financial resilience. Unfortunately, many disturbing events of social inequality were witnessed against minorities in public spaces during the pandemic, such as mockery, insults, and verbal and physical abuse. Demographically, children and older people were affected the most, since they were prohibited from staying outdoors when it was supposedly the most vital for them. The forced lockdowns were not received well by the people and caused uncertainty, depression, anxiety, and other mental health issues. Hence, post-pandemic public spaces would be genuinely resilient if they remain more accessible, inclusive, and convivial for all citizens, particularly for the vulnerable groups.

Resilience as a Key Principle for Pandemic Recovery

The COVID-19 pandemic brought various temporary yet significant changes in public space development, leading to a critical debate on urban adaptive strategies regarding resilience and sustainability. Radical measures were adopted to contain the virus transmission. Moreover, contingency plans and rescue funds were also put in place. Several approaches adopted by city authorities for resisting the impending economic and social collapse encompassed contrasting, yet synchronized, renditions of 'resilience'. Both government institutions and international organizations strongly support the notion of resilience. Recent research on resilience in response to the pandemic, involving publications, conferences, and initiatives of major

foundations including UN-Habitat and the World Health Organization (WHO), makes it particularly evident.

Several concepts about the future of cities are intended to mitigate the impact of calamities, hazard exposure, risk mitigation, uncertainty, social vulnerability, and disaster preparedness. However, the novel concept of resilience presents innovative and inclusive directives for urban disaster management. Though resilience is an imprecise and emerging concept in urban planning; still, resilience theory has provided a framework for cognizance since the Katrina disaster in 2005 (Johnson, 2006). The word resilience originates from the Latin word *resilio*, meaning 'to bounce back' (Alexander, 2013) or the ability to revert to a previous state. The concept of resilience has been implemented and developed manifolds with interlinked meanings in science, arts, literature, law, and engineering. Scientists first used the term to describe the qualities of a spring, with an object's resilience characterizing the stability of its material and its resistance to external stress (Davoudi, 2012). Canadian ecologist Crowford Holling was the first to introduce the expression of resilience in the context of ecosystems in 1973. He defined it as "the ability of an ecosystem to adapt to the process, sustain resistance and restore balance after a short impact" (Holling, 1973). Since then, this concept has been widely used in urban planning and research to boost risk management and disaster preparedness of infrastructure and community (López-Cuevas et al., 2017). This concept commonly refers to the ability to resist, absorb, restore, or successfully adjust to adversity or conditional changes in the built environment. From literature review, three main characteristics of resilience can be established, namely absorbability (the ability to resist disruption by lowering the preliminary negative impacts), adaptability (adjusting itself to disruption), and restorability (recovering from disruption).

Researchers, planners, and designers from multiple disciplines have participated in the discussion about the future of cities and endorsed the concept of resilience. Recently, the perspective changed from 'resilience resistance' (Shamsuddin, 2020) to 'evolutionary resilience', endorsing novelty and embracing urban sustainability (Elmqvist, et al., 2019). The ongoing debate about sustainability and climate change was temporarily put off by the COVID-19 crisis, shifting the focus to strengthening public health through better planning and management of cities. SOPs including forced lockdowns and social distancing were solely intended to reduce the

exposure and, therefore, the vulnerability of people to the virus. Various expressions of virus containment strategies in the built environment showed evolutionary resilience. The situation simultaneously resulted in a complex mix of positive and negative resilience trade-offs (Chelleri et al., 2015).

This research focuses on the transformation of public spaces into a resilient component of the city. Potential dangers and hazards, such as climate change and pandemics, are consistently associated with the complex nature and function of public spaces. There is a crucial obligation to assess existing risks and uncertainties as well as the responsibilities of these spaces towards the health and well-being of people. Resilience is a response that seeks to strengthen the ability of systems or spaces to minimize losses. In pursuing this concept as a strategic framework for public spaces amidst the pandemic, two key approaches can be identified. The first is an 'equilibrium' or bounce-back strategy, based on the viewpoint of 'return to normal'. While, the second is an 'evolutionary' or bounce-forward strategy, characterized by an emphasis on adaptive capacity and transformation (Davoudi, 2012). Both approaches are seen as organizational responses to the COVID-19 pandemic recovery. Although the aspect of 'return to normal' is tempting in many ways, the pandemic has challenged us to rethink and reimagine our relationship with cities. Besides just recovering from shocks, resilience should also cultivate disaster preparedness and transformational opportunities (Davoudi et al., 2013).

This research construes disaster preparedness by demonstrating key examples of evolutionary resilience in public spaces. Disaster preparedness refers to preparing actions and resources designed to enhance system capacities and abilities in advance. Resilience is the ratio of preparedness to vulnerability (Xu et al., 2020). The lessons learnt from the pandemic can help to develop strategies for the future designing and management of public spaces.

Tactical Urbanism as a 'Resilience' Response

Being deprived of public (or social) life in its true spirit throughout containment, people have realized the importance of public spaces. Various community-driven, bottom-up, creative, and low-cost initiatives have sought to make public spaces safe and convivial. New SOPs have driven people to adapt and look for better strategies to revive the 'publicness' of the cities. The COVID-19 pandemic has presented a new lens to view social

density, accessibility, inclusivity, and public health and well-being to conceive public spaces with a people-centric orientation. This unprecedented situation incited a collective awareness of how automobiles are granted excessive urban space and to seek the possibilities of devoting this space to benefit people (Broudehoux, 2021). Urban planners and policymakers are prime strategists in creating resilience against the pandemic by adapting the use of public spaces to meet the changing needs and by creating flexible and temporary interventions that lead to longstanding public health and safety goals. In this context, tactical urbanism was proven effective for finding rapid and low-cost solutions to pandemic-related urban challenges. United Nations Development Programme (UNDP) has also endorsed the concept, "At the same time as we face the problems of COVID-19, we see tactical urbanism as an opportunity to offer cities a more human component" (Metropolis, 2020; United Nations [UN], 2020).

The literal meaning of 'tactical' is "of or relating to small-scale actions serving a larger purpose" (Merriam-Webster, n.d.). The term tactical urbanism was coined by Lydon and Garcia (2015) and disseminated in a book he edited called "Tactical Urbanism: Short-term Action for Long-term Change". According to Lydon and Gracia (2015), for bottom-up initiatives to bring profound changes, they must adhere to local solutions for local planning problems, form alliances between residents, community groups, and government, adopt an innovative and systematic approach to encourage change, and offer a temporary, low-risk commitment to accomplish a notable result. Tactical urbanism includes action, often known as DIY (Do It Yourself) urbanism, guerrilla urbanism, planning-by-doing, urban acupuncture, and urban prototyping. It speaks of a community-led strategy that uses scalable, affordable, and short-term interventions to spark long-term transformations. Governments, nonprofit organizations, community organizations, and motivated individuals may oversee such initiatives. Globally, tactical urbanism is gaining popularity because it allows for more rapid change and entails less formal planning than traditional urbanism.

Methodology

During the recent pandemic, cities worldwide witnessed various temporary yet innovative adjustments with the aim to provide resilience in terms of 'adaptability' to meet the public requirements of social distancing. These included both top-down policies and bottom-up tactics, representing not just

'bouncing back' but 'moving forward' (Davoudi, 2012) response of cities to the COVID-19 pandemic. As a model of resilience, tactical urbanism encourages community participation in the transformational process and creates prospects for adapting and re-purposing existing infrastructure to perform a new function. The involvement of low-cost and temporary interventions reduces the risk of project failure (Shah & Rizzo, 2022). Low-cost impermanent changes improve neighbourhoods and enrich public spaces (Broudehoux, 2021). The preliminary idea of tactical interventions might be temporary; however, if it achieves quantifiable and desirable consequences, it can act as a pilot and develop into a more perpetual solution for sustainable cities.

This research adopts the methodology of case study analysis to investigate the adaptive capacity of public spaces, which, in turn, enhances the resilience of cities. Below, we discuss some critical precedents of integrating resilience against the pandemic through tactical urbanism. These tactical interventions include expanding walkways, providing walking and cycling lanes, temporarily closing streets for public activities, converting car parking spaces into community parklets, extending restaurants and cafés into adjacent open spaces, etc.

Analysis and Discussion
Reclaiming the Streets

Numerous cities have rapidly adopted tactical urbanism to reclaim the streets for pedestrians and cyclists, returning the excessive space dedicated to automobiles. Open, safe, slow, and shared streets are various names of the same model of limiting vehicular traffic on urban streets to free up public space for pedestrians and cyclists. Although this idea existed even before the pandemic, this crisis has materialised it positively. Pop-up bike lanes and the expansion of pathways allowed people to observe social distancing while moving for essential routines during the lockdown. One of the first places to adopt pop-up bike lanes to accommodate the changing mobility patterns brought on by the pandemic was the city of Berlin, Germany, and its highly populated neighbourhood of Kreuzberg (Bicycle Network, 2020) (Fig. 1).

Berlin's immediate tactical planning of safe, temporary infrastructure has inspired many other cities in Europe and beyond. The city of Brussels in Belgium made the city centre a pedestrian and bike priority zone. It

limited the speed to 20km/h for cars, trams, and buses. It also added 40km of bike lanes to discourage people from using public transit to prevent the viral spread. Similarly, 76km of temporary bike lanes has been built in Bogota, Columbia using traffic cones to reduce crowding on public transportation and to improve air quality (Wray, 2020). Moreover, in Milan, Italy the *Strade Aperte* program initiated by the municipality Commune di Milano facilitated a 122% increase in cycling with over 40km of new protected cycle lanes throughout the city (Comune Di Milano, 2020; see Figure 2). At the beginning of the pandemic, the City of Oakland, California launched a slow streets program to ensure physical distancing, physical activity, and traffic safety. The local authority repainted the crosswalks, installed the pedestrian crossing signboards, and created temporary medians with traffic cones. During the lockdown, the program focused on allowing pedestrians to walk conveniently to essential services, such as grocery stores, food distribution sites, and COVID-19 testing sites (City of Oakland, 2020) (Fig. 3).

Figure 1
Berlin, Germany (District of Kreuzberg): Pop-Up Bike Lane (Botyman, 2020)

Figure 2
Milan, Italy: Protected Pedestrian and Cycle Lanes (Comune Di Milano, 2020)

Figure 3

Oakland, California: Slow Streets Program (City of Oakland, 2020)

Creative Placemaking

The key policy measures to reduce virus transmission have been social distancing and restricted accessibility to public spaces, while forcing people to stay at home. Consequently, creative placemaking has emerged as a strategy to use empty city spaces for public activities, creating new opportunities for socially distanced community gatherings and engagement. Placemaking is about making places great to live, visit, work, and enjoy. It is a multi-layered process within which communities promote activity and engagement with public spaces, shaping them to create a sense of communal ownership and inhabited relations.

Piazze Aperte Program, fostered by the municipality of Milan, employed tactical urbanism as the vital principle that resulted in the transformation of various urban squares in the city. One of these projects, a graphic installation called '*Quadra*' was created by the designer Serena Confalonieri and a team of students and volunteers. This urban intervention was created in a 600 sqm former parking lot in the Quarto Oggiaro district and with the aim to provide a social gathering place for the local community. The tactical intervention included shapes and colour blocks, green areas, vegetable gardens, and floor games, such as twister and chess, making it an interactive and recreational public space (Fig. 4) (BigSee, 2022).

Moreover, New York City's 'Open Streets' program transforms public spaces accessible to everyone for play, dining, gathering, and exercise. It

has added more than 130km of streets transformed into open spaces, thus playing a decisive role in the recovery of the city from COVID-19. Another significant example of tactical urbanism in New York is 'PLAY NYC', an initiative by Street Lab, a nonprofit organization that places public spaces across the city on closed-off streets during the pandemic. The intervention includes safe and hands-free games for children and customized benches that are flexible and easy to disinfect (Fig. 5) (Street Lab, 2020). Likewise, the City of Seattle, USA and its transportation department initiated the Play Street permits for residents to encourage physical activities in safely blocked-off streets during the COVID-19 pandemic, as a way for neighbourhoods to enjoy the outdoors safely. Twenty miles of permanent Stay Healthy Streets are in progress in neighbourhoods to enjoy the outdoors safely (Chaney, 2020).

Figure 4

Milan, Italy: 'Quadra' an Interactive Tactical Intervention (BigSee, 2022)

Figure 5

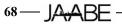*New York, USA: Activities in Open Streets (Street Lab, n.d.)*

Pop-up Parks (Parklets)

The earliest call to reimagine street parking as a pop-up park was launched during a social experiment in San Francisco, California in 2005. The local arts community, Rebar Group, appropriated an 8ft wide by 20ft long (8 × 20 ft) parking space in downtown. Instead of parking a car, they placed a bench, a potted tree, and grass. This two-hour 'guerilla art' installation evolved into the 'Park(ing) Day' project and is celebrated every year globally in September as a public art and design activism event (Bela, 2021). It served as a model for resilience response during the pandemic. The widespread popping-up of parklets (Fig. 6) as temporary interventions for social distancing has created the basis for a more permanent change. While most of the large public spaces were closed in the lockdown, these parklets became the epicentre of social life, accommodating small groups of people. Likewise, the city authority of Los Angeles allows the creation of parklets through the conversion of curb-side parking to decked seating and gathering spots (Snyder, 2020) (Fig. 7). The city of Vancouver also initiated a community-focused parklet program. In underprivileged neighbourhoods such as the Downtown East Side, these parklets are developed in collaboration with social assistance agencies (Fig. 8). These parklets are created and constructed by the city government and are planned and run by a committed community (Bela, 2021).

Figure 6
San Francisco, USA: Rebar's "walket" a Prototype Parklet System (Bela, 2021)

Figure 7

Los Angeles, USA: Public Parklets (Snyder, 2020)

Figure 8

Vancouver, Canada: Well-maintained Social Service Parklet (Bela, 2021)

Adapting for Social Distancing

Cities worldwide adapted innovatively to the key policy measure of social distancing to contain virus transmission with low-cost and quick strategies. In Domino Park, Brooklyn, New York, several painted social distancing circles and chalk-painted circles were added to the field. The intervention included 30 circles; each circle was 8ft in diameter with a 6ft distance between them. The idea was instantly accepted and replicated in numerous other parks and open spaces (Harrouk, 2020). Furthermore, open-
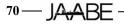
air farmer markets were a prime example of how public spaces may accommodate daily demands while moving more quickly, easily, and inexpensively to adapt to physical distancing. A street market in Kalaw, Myanmar adapted appropriately to social distancing (Nyein, 2020) (Fig. 9). Subsequently, Singapore used fluorescent tape to demarcate many outdoor spaces to help visualize social distancing guidelines. When waiting to check out, large dots indicated where to stand and benches and steps had rectangles designating open seats (Ebert, 2020) (Fig. 10). Since outdoor spaces have proven to be safer than indoor spaces, many cities allowed restaurants and cafes to expand into adjacent open public spaces to enable safe dining, leading to a new era of socializing outdoors. While in Amsterdam, Netherlands, Arts Centre Mediamatic created socially distanced dining pods in the form of pentagonal glasshouses. The project named 'Serres Séparées' was a play on the French phrase "Chambre Séparée" for private dining areas (Block, 2020) (Fig. 11). Moreover, various mosques in Pakistan adapted for social distancing. Prayer halls were closed temporarily and courtyards were marked for individual prayer spots to keep the distance according to the regulations (Fig. 12).

Figure 9

Kalaw, Myanmar: Open-air Farmer Market with Social Distancing (Nyein, 2020)

Figure 10
Singapore: Flouracsent Tape for Social Distancing (Natgeeoh, 2020)

Figure 11
Amsterdam, Netherlands: Pentagonal Glasshouses for Socially-Distanced Dining Pods (Lakeman, 2020)

Figure 12
Rawalpindi, Pakistan: Individual Prayer Spots Marked for Social Distancing (Sen, 2020)

Conclusion

The COVID-19 pandemic brought a paradigm shift in the shape of public spaces and the functions they perform, following the 'new normal' imperative. In the post-pandemic scenario, everything considered normal has vividly changed, not only because of the new SOPs but also because of people's fear and anxiety about going in public. The crisis has evidently exposed the vulnerability of cities. Public spaces serve as a symbol of resilience, a sign of shared ideals, and a reminder that to feel included and to function as a community, people require closeness and social interaction. Consequently, questions about 'who owns public spaces?' emerged during the pandemic. In the context of the pandemic, ownership was not just viewed in terms of official property ownership but also as mental ownership, a sense of belonging that allows individuals to participate and change a 'collective space', informally and tactically.

Bottom-up deployment of self-managed organizations is an essential asset for local communities. The impacts of the pandemic on public spaces provide a crucial learning opportunity in tactical urbanism, besides creating prospects for urban planners to develop green cities and low-carbon economies (Roberts, 2020). The practices of tactical urbanism discussed in this article include widening pedestrian pathways, adding bike lanes, extending cafes into streets, creating parklets out of parking spaces, and designing colourful, vibrant crosswalks. These offer valuable precedents from which we can learn incredible lessons. These small-scale examples of tactical urbanism are compelling, not merely for the pandemic but also the future implementation of the discovered solutions, from pop-up to constant, temporary to permanent. These interventions act as living labs. Assessing such solutions on-ground and employing low-cost actions help to achieve long-term changes without spending a large amount of public funds and to build awareness about the outcomes. These provide a glimpse at how our cities could change for the better, and for the worse, in the long-term. However, the critical question remains whether these temporary tactics help to devise a framework for permanent change. The increasing demand for alternatives and adaptive strategies should be read as an indication of the will to contrast the most common trends in urban regeneration. Even if their engraftment and success are constantly challenged and undermined by the capitalist model, it would not be fair to ignore the attempt. Long-lasting transformations require top-down changes in urban policy, planning, and

decision-making at the highest levels of city authorities. Tactical urbanism presents a unique opportunity to generate a dialogue between government authorities and local communities to build micro-ecosystems in cities. It is a holistic approach for cities since it allows the immediate reclamation and redesigning of public spaces, aims to get public and political support, and puts best practices into action (Lydon & Garcia, 2015). Its potential to develop hybrid models of public spaces during the pandemic as a 'resilience' response is vital for the sustainable future of cities.

In general, contemporary cities are fragmented and disconnected with discriminated access to public services. The pandemic highlighted that cities could not be considered a single, homogenous entity at the metropolitan level. As a result, throughout the pandemic, a recurring feature was a revived interest in green spaces and the significance of common spaces as the heart of communities. This newfound interest in public spaces was one of the public's principal reactions, mainly owing to the prohibition of social gatherings. Once again, bottom-up initiatives, as well as pop-up parks and parklet initiatives, raised a critical question to the modernist urban planning paradigm, that is, are cities planned for cars or people? This long debate surfaced again to urge for 'cities for people', seeking people-oriented cities.

The new model of public spaces connects people while keeping them at a distance to reduce the risk of virus transmission. By illustrating the need for physical segregation required in public spaces, it acts as an awareness tool for employing SOPs. Low-cost, quick-fix, and spontaneous solutions helped resolve pandemic issues promptly and did not require much planning. The genre of tactical urbanism is inherently adaptive and transformational, responding instantaneously to the contextual needs of emergency conditions and can be functional for the required temporary facilities. A critical lesson learnt from the crisis is developing a network of cycling and walkable streets rather than relying on mass-transit mobility systems. The success of tactical interventions is evident through the increased use of pedestrian and bike lanes and the complete transformation of many urban squares and streets for permanent public activities. Many cities have made these temporary transformations permanent to warrant a sustainable future. These transformations establish the power of tactical urbanism in routing decision-making through a bottom-up approach, where the local community takes charge of the future of its own area.

Furthermore, the new model sparked a sense of shared accountability and urgency concerning climate change and health-related concerns in urban areas. It is essential to consider the tactical urbanism model developed as a response to the pandemic as well as the actions employed to reduce the disruptions caused by it in order to build more resilient cities against possible future pandemics and crises. The framework should incorporate this century's urban resilience implementation challenges, the adaptive capacity of planning, design, and management, and the recently proposed framework for 'climate urbanism' (Long & Rice, 2019).

Another prime lesson from the pandemic is that it allowed greater freedom in bylaws and regulations, particularly in creating public spaces. Experimentation with pop-up lanes, play streets, and pedestrian zones are prime examples of how these regulations were altered. Mostly, authorities and organizations involved in policymaking follow the top-down approach; however, the pandemic presented an alternative opportunity for bottom-up projects. These local initiatives can be viewed as a way of bridging this gap between people and authorities and to inform them about the needs and aspirations of local communities (Shah & Rizzo, 2022).

Through an overview of the practices of tactical urbanism utilized for transforming public spaces, the research concludes that public spaces have an excellent potential for resilience in terms of both adaptability and restorability. Public spaces fought the challenges of the COVID-19 pandemic through reclaiming, creative placemaking, and by adapting to social distancing. Enhancing the resilience of cities, together with envisioning profound planning and actions, is required for long-term change. In cities' annual budgets, authorities should treat public spaces as fundamental building blocks of urban life, public well-being, and socioeconomic resilience. As anticipated, more pandemics and the ongoing climate change crisis shall continue to affect the world; hence, we must critically learn lessons from this pandemic as designers and urbanists. The future of cities requires social, environmental, and urban resilience. Accordingly, adaptable design strategies and flexible management systems around public spaces should be adopted. Tactical urbanism suggests that citizens and communities should constantly be prioritized and involved in decision-making processes to create more democratic and resilient public spaces.

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