

WALKABILITY IMPLEMENTATION IN NEIGHBORHOOD IN DEVELOPING COUNTRIES HAVING WEAK DEVELOPMENT CONTROL AND IMPLEMENTATION SYSTEM

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Abstract

Walkability is the design and organization of the environment that encourages walking as a convenient, safe, and enjoyable mode of transportation. In many developing countries, walking remains a dominant mode of transport. Yet, pedestrian needs are often inadequately addressed due to informal urban planning, weak development controls, limited institutional capacity, and implementation challenges. While policies and plans related to non-motorized transport exist across contexts, their effectiveness often depends on how they are implemented and supported at the local level. This research explores how bottom-up approaches and participatory initiatives, when aligned with formal urban planning systems, can improve walkability in developing-country contexts characterized by weak governance structures. Using three case studies from Karachi (Pakistan), Ahmedabad (India), and Chennai (India), the study applies behavior-informed frameworks, namely the COM-B model (Capability, Opportunity, and Motivation – Behavior) and the Behavior Change Wheel (BCW), to analyze how walkability interventions influence pedestrian behavior. This research highlights how grassroots actions, tactical urbanism, and participatory approaches can address behavioral, spatial, and social barriers to walking, even where formal planning systems face limitations. It also explores how these initiatives are funded and supported through institutional collaborations in resource-constrained environments.

Keywords: Walkability, Active mode, Pedestrian behavior, City for people, Developing countries

1. Introduction

Walking is the primary mode of transport in developing nations, providing a fast and accessible alternative to automobiles. It is the only mobility for even the poorest citizen - “the captive walkers” since they can’t afford an alternative (Lukenangula, 2017). However, pedestrian needs are often neglected in developing nations due to a lack of prioritization in urban design, leading to congestion, pollution, and an unsafe pedestrian environment. Pedestrians also face significant risks, with over 90 % of global road fatalities occurring in low-income countries (Sawin et al., 2010) and nearly half of these involve “vulnerable road users” like pedestrians and cyclists (Beck et al., 2009). Developing cities make

improvements to vehicular rights-of-way at the expense of pedestrians, resulting in a substantial decrease in the quality of public realms and the walking environment (Lukenangula, 2017). Non-motorized transport receives minimal focus in municipal planning and budget allocation (Krambeck, 2006). There is also limited research and understanding of how to effectively integrate pedestrian needs and safety into transport policies.

Despite every citizen being a pedestrian, their needs are seldom addressed in urban policies in developing countries. These cities lack national walkability strategies and have minimal institutional support (Forum, 2012). As stated in the global status report of the WHO (2016), less than 35 % of low- and middle-income countries have policies for non-motorized transport. Also, public participation in urban planning is minimal, as major infrastructure projects are often implemented without hearings or environmental assessments, and municipal laws do not require resident consultation (Sen et al., 2009). While several laws, plans,

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(Received: April 20, 2025, Accepted: February 18, 2026)
<https://doi.org/10.3126/jsce.v13i2.96573>

and programs are developed, they often remain shelved and unimplemented due to political instability, limited resources, and poor governance (Parajuli, 2015). Policy formulation is heavily based on research activities, and evidence-based research is lacking in developing countries (H. B. Shahi, 2023). Ineffective top-down planning systems worsen the slow pace of urban development. There is also a growing recognition that behavioral factors are as crucial as infrastructure: people walk not only when facilities exist, but when they feel capable, motivated, and socially supported to do so. Research also shows that grassroots movements and community-driven initiatives have emerged as cost-effective, context-appropriate strategies to reshape walking environments where government enforcement is weak (Batliwala, 2002). As Jacobs (1961) also stated, “Cities have the capability of providing something for everybody, only because and only when they are created by everybody. Therefore, this study explores the potential of bottom-up initiatives to enhance walkability in developing nations with weak top-down planning system.

1.1. Objective of the Study

This research investigates the key barriers that prevent walking and the public realm from happening in developing countries with weak planning systems and limited enforcement. It also examines the role of bottom-up, community-driven initiatives in enhancing walkability in places with weak institutional capacities. Finally, it evaluates the effectiveness of these initiatives by applying behavioral frameworks – COM-B (Capability, Opportunity, and Motivation – Behavior) and BCW (Behavior Change Wheel)- to understand how they address barriers and influence behavioral outcomes.

2. Research Methodology Overview

This research adopts a qualitative approach, examining three case studies to understand how walkability projects work in developing cities with weak governance. Each case is then analyzed using COM-B and BCW to see how behavioral barriers were addressed and which strategies were used. By comparing cases, the study identifies patterns and lessons about what works in different contexts, showing how community-led and behavior-focused approaches can improve walkability even when formal planning systems are weak. A qualitative scoring method was also used to compare behavioral focus across the three cases using the COM-B framework, with details presented in section 8.2.

2.1. Why COM-B and BCW ?

Walkability interventions are not solely engineering problems; they are also behavioral. They also depend on changing behavior by convincing citizens, planners, and authorities to prioritize walking over motorized transport (Gehl, 2010). This means walkability depends on both infrastructure and behavior change. But if behavior is not considered in designing walkability interventions, even well-planned infrastructure may remain underutilized. For instance, although sidewalks or crossings will be built, people might not use them due to safety concerns, habits, or a preference for vehicles. Addressing behavioral factors is hence essential to ensure that walking initiatives are actually used, safe, and sustainable. Therefore, the COM-B model helps identify the behavioral constraints and enablers that affect the adoption and support of walkability. The BCW then complements COM-B by providing a structured set of intervention functions and supportive policy categories that can be applied to those constraints (Michie et al., 2011). Together, COM-B and BCW highlight that walking behavior is multidimensional and context-dependent. It offers a tested and widely applied framework from understanding people’s behavior to designing interventions that work even in areas where formal systems may be limited.

2.1.1 COM-B model

It is a framework for understanding and influencing behavior change and provides a systematic way of diagnosing why behaviors do or do not occur by focusing on three core factors:

- **Capability:** the psychological and physical ability to perform the behavior (skills, knowledge, technical capacity).
- **Opportunity:** the physical opportunity (infrastructure, resources, space, time, access) and social opportunity (social norms, cultural practices, governance, rules, and social influence) present in the external environment that enable or hinder the behavior.
- **Motivation:** reflective (values, long-term intentions) and automatic (habits, emotions) drivers of behavior (Michie et al., 2011).

To help visualize this framework, Figure 1 illustrates the COM-B model, showing how capability, opportunity, and motivation interact to shape behavior.

2.1.2 BCW

It is a broader framework that extends the COM-B model into a full process for designing behavior change

interventions by linking barriers to potential intervention functions and policy categories. The BCW has three layers: the core (COM-B), the middle layer (nine intervention functions), and the outer layer (seven policy categories) (Michie et al., 2011). The nine intervention functions include: education (increasing knowledge and awareness), training (developing skills), modeling (demonstrating behaviors through role models), persuasion (influencing attitudes and emotions), incentivization (offering rewards or benefits), coercion (applying penalties or disincentives), restriction (limiting access to certain options), enablement (removing barriers or providing resources), and environmental restructuring (changing physical or social contexts to support behavior). Each function targets specific components of COM-B by strengthening capability, opportunity, or motivation. The outer layer of the BCW consists of seven policy categories: communication and marketing, guidelines, regulation, legislation, environmental and social planning, service provision, and fiscal measures. These categories act as supportive mechanisms to scale and sustain interventions. Figure 2 below presents the BCW, showing the three layers and how intervention functions map onto the COM-B components. In this study, the focus is limited to the middle layer of intervention functions, as it provides the most direct link to practical strategies for influencing walking behavior.

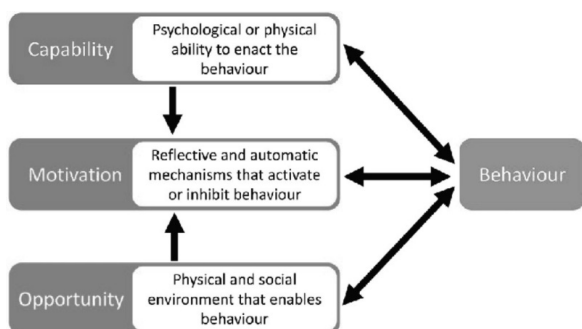


Figure 1. Source of behavior model based on COM-B system, source: Michie, Van Stralen and West, 2011

2.2. Behavior Analysis Framework: Barriers, Intervention Functions, and Techniques

While COM-B and BCW explain why behaviors do or do not occur, the Behavior Analysis Framework explains how these insights can be operationalized in practice. This involves a three-step process:

Barriers (why behavior doesn't happen) → Intervention Functions (how to address it) → Techniques (what to actually do).

- **Barriers** → identify why walking is not happening (is it due to lack of knowledge or skills (capability),

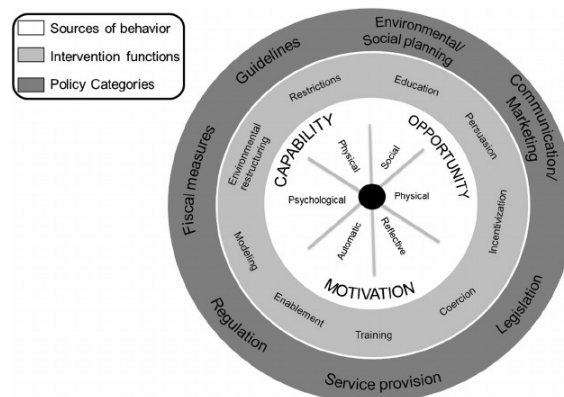


Figure 2. Behavior change wheel, source: Michie, Van Stralen and West, 2011

inadequate infrastructure and resources (opportunity), or cultural attitudes and habits (motivation). Understanding these root causes is essential; otherwise, interventions become generic and ineffective.

- **Intervention Functions** → map those barriers to functions within the BCW (e.g., education, training, environmental restructuring, persuasion, etc.). These functions provide strategic approaches to address the specific barriers but remain abstract until operationalized.
- **Techniques** → translate intervention functions into specific **Behavior Change Techniques (BCTs)**. BCTs are evidence-based, actionable strategies derived from behavior change theory and psychology. They provide a systematic way to implement BCW functions, including methods such as awareness campaigns, incentives, skill-building exercises, role-modeling positive behavior, etc. Informed by theoretical frameworks such as Social Cognitive Theory, Operant Conditioning, and the Theory of Planned Behavior, BCTs ensure interventions are practical, measurable, and effective in changing behavior by targeting cognitive, emotional, and environmental determinants that influence individuals' choices and actions (Michie et al., 2011).

By linking barriers to intervention functions and then to concrete techniques, this approach ensures that community members are active participants in shaping solutions. It empowers local stakeholders by identifying their needs, providing targeted skills and knowledge, and enabling them to take ownership of interventions that directly impact their environment and daily lives. This makes the framework particularly essential for community-driven initiatives, where success depends on local engagement, capacity building, and empowerment.

3. Literature Review

3.1. Walkability and its Importance

Walkability is simply the physical environment in which we walk. It determines both the qualitative and quantitative dimensions of walkable space. The built environment that prioritizes walking to workplaces, stores, and other necessary amenities is a high-quality place for people to both work between origin and destination and to spend time. Such spaces usually have high real estate values, emphasize a healthier lifestyle, and promote social interaction (Forsyth et al., 2009). Research in developed countries has also shown that walkable neighborhoods lead to healthier homes, lower transportation costs, and improved environmental outcomes due to reduced reliance on motor vehicles.

3.2. Components of Walkability

As stated by Services (2010), the parameters for a walkable community comprise four principal components, as details shown in the Figure 3.

1. Quality of journey
2. Urban form
3. Pedestrian infrastructures
4. Policies and programs

3.3. Challenges to Walkability in Developing Countries

In developing countries, many citizens walk with significant modal shares - 62 % in Dhaka, 25–50 % in Indian cities, 50% in major African cities, and 60–70% in Nepal (Lukenangula, 2017). Despite a higher walking population, walkability is severely compromised by poor infrastructure, including damaged or absent sidewalks and inadequate crossings (UN-Habitat, 2013). In many cities, streets are either insufficient, poorly designed, or poorly maintained, and street norms and regulations are often not properly enforced (UN-Habitat, 2013). Encroachments by street vendors, parked vehicles, and informal settlements often occupy pedestrian space, forcing people onto roads and increasing accident risks (T. C. Shahi and Gautam, 2020). Weak urban planning leads to unplanned urban sprawl, resulting in long commutes and car-dependent cities (World-Bank, 2021). Poor traffic management and a lack of pedestrian-friendly policies contribute to unsafe walking conditions. Environmental issues such as air pollution and improper waste disposal further degrade walkability by negatively affecting walking behaviour and exposure conditions. Most people also associate walking with poverty and see car ownership as a status symbol in developing countries. As cities modernize, walking becomes less of a habit and more of an inconvenience.

Furthermore, the absence of inclusive design prevents access for people with disabilities, the elderly, and children. Thus, this implies stronger policy enforcement, investment in pedestrian infrastructure, and community participation in urban planning in developing countries.

3.4. Walkability in Developed Countries

Well-planned pedestrian infrastructure, mixed-use development, and accessible public spaces encourage walking, reduce car dependency, and lower pollution levels (Ewing and Cervero, 2010). Therefore, walkability in developed cities aims to shift transportation from motorized to non-motorized modes for short trips and to promote walking as a healthy activity. Walking is often considered a choice rather than a necessity, and urban planners and public health professionals advocate for pedestrian and bicycle plans to improve public health and quality of life (Gehl, 2010). Cities like London, Vienna, and Copenhagen are redesigning streets to support multiple transport modes, emphasizing pedestrian and cyclist-friendly spaces. Movements like “livable streets” and “complete streets” further aim to enhance accessibility and environmental sustainability (Ewing and Cervero, 2010) with safety measures like separate lanes for pedestrians and cyclists, plus adjusted traffic signals being implemented.

3.5. Tactical urbanism: A New Approach to Urban Design Intervention

Cities are changing, and so are the processes for changing them. Research has shown that large-scale transformations in cities require significant time and budget, with uncertain long-term benefits (Lydon and Garcia, 2015). These alterations are even longer and slower in developing countries with a weak institutional framework. There's an alternative to make a city (Lydon and Garcia, 2015). A more adaptable alternative is tactical urbanism, which involves small-scale, community-driven interventions that address local issues. This low-cost, low-risk approach allows for scalable solutions and gains public and governmental support before making large financial investments (Lydon and Garcia, 2015). Over the years, various tactics have emerged, both sanctioned and unsanctioned. Unsanctioned interventions often become permanent, illustrating how short-term actions can lead to long-term change. For example, the depave program started by neighborhood activists eventually became a nonprofit funded by the City of Portland and the US Environmental Protection Agency (EPA) (Lydon and Garcia, 2015).

4. Critical Gaps in the Context of Developing Countries

Most existing research on walkability focuses on developed countries, with limited attention to the unique

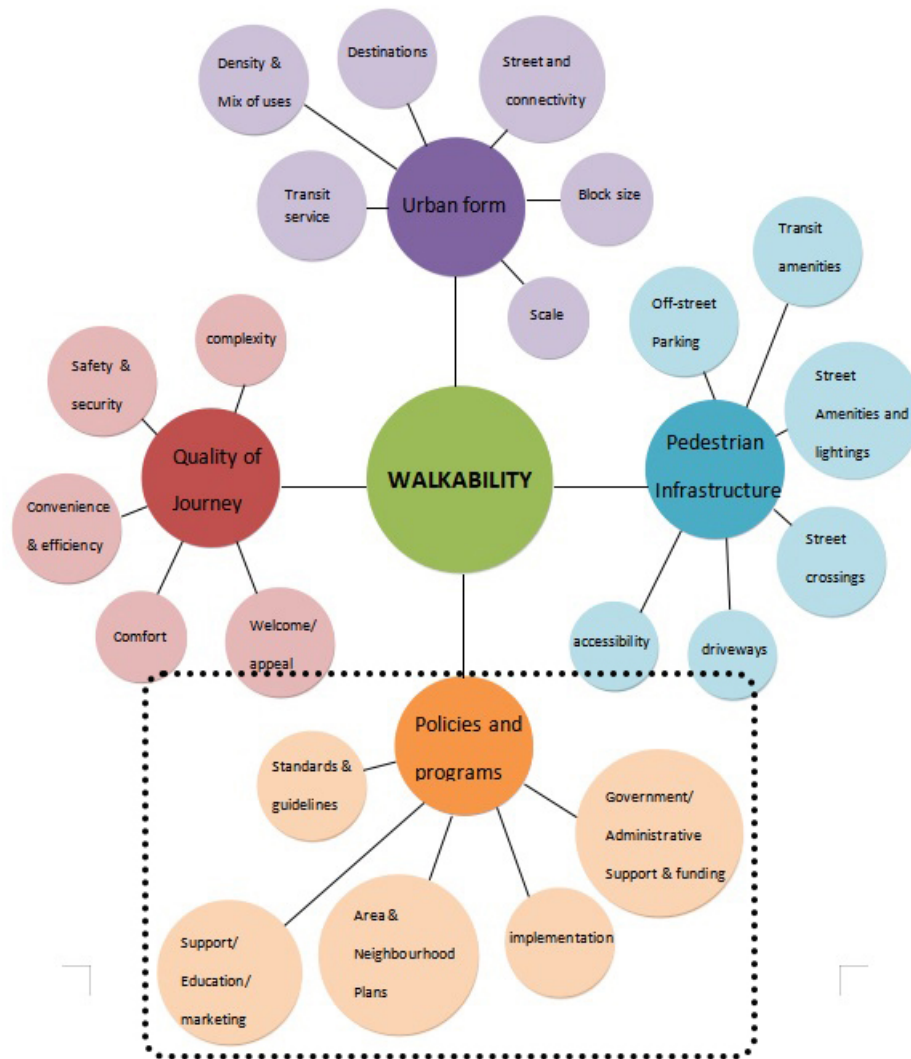


Figure 3. Components of walkability highlighting policies and programs as relatively the study focus, source: author

challenges faced by developing countries, where walking is often a necessity rather than a choice. Although weak urban planning and poor enforcement of pedestrian-friendly policies are noted, they are not thoroughly analyzed. Likewise, the cultural attitudes toward walking and car ownership and their impact on pedestrian behavior remain underexplored in developing countries. There is also a lack of emphasis on inclusive design that accommodates vulnerable groups like the elderly, disabled, and children. The potential of tactical urbanism as a flexible, low-cost urban intervention is also not well understood in the context of complex governance structures in developing countries. Furthermore, a noticeable gap exists in integrating urban design policies with behavioral change theories, which could yield more effective strategies to promote and sustain walkability.

5. Case Study

A comparative analysis of all three case studies from different contexts are presented in Table 1.

5.1. Summary of Case Study

The focus area in Karachi was bottom-up implementation combined with official planning, using local resources. In Ahmedabad, it was a public realm improvement in a busy heritage area led by experts. In Chennai, tactical urbanism, blended with community participation, reclaimed unsafe streets. Each project included distinct stakeholders: Karachi engaged the local community, researchers, and technical experts. Ahmedabad collaborated with NGOs, architects, and municipal authorities, and Chennai worked with residents, local government, and the traffic police. Funding sources also varied from community contributions

Table 1. Comparative analysis of urban interventions in Karachi, Ahmedabad, and Chennai

Location / Context	Karachi, Pakistan	Ahmedabad, India	Chennai, India
Project Title	Orangi Pilot Project (OPP) addressing community sanitation	Reimagining Manek Chowk through a participatory public urban design approach	Reclaiming Singheri Mutt Road using tactical urbanism
Focus Area	Bottom-up implementation combined with formal planning using local resources	Expert-led participatory public realm improvement in a developing urban context	Tactical urbanism integrated with community participation
Stakeholders	Community members, OPP institution, research team, experts	EMBARQ India, Gehl Architects, Ahmedabad Urban Development Authority (AUDA), Center for Environmental Planning and Technology (CEPT), Ahmedabad Municipal Corporation (AMC), WRI India	Traffic Police, Chennai Corporation, Thiruveedhi Amman Koil Street Residents Association (TAKSRA), ITDP India, local schools, and residents
Funding Source	Community contributions (lane-level) and government funding (trunk sewers)	NGO support (EMBARQ India)	Resident association (TAKSRA)
Key Issues	Poor sanitation affecting health, economy, and environment	Pedestrian square disrupted by private vehicles	Unsafe streets, anti-social incidents, accidents, uneven sidewalks
Interventions	Constructed low-cost lane sewer networks, household sanitation connections and drainage linked to municipal trunk sewers	Designed pedestrian priority public realm, reorganized traffic, vending and parking, improved access to heritage areas and restructuring of street hierarchy	Introduced tactical interventions like street painting, temporary removal of vehicles, demarcated pedestrian paths, and community art projects to activate streets
Implementation Approach	Engaged communities directly in construction, conducted surveys and mapping, used local labor and resources, provided technical guidance for low-cost solutions, and coordinated with government for trunk sewer and held awareness programs	Expert led facilitation, organized stakeholder workshops and community consultations, conducted mobility and activity mapping, perception surveys, time-based analysis (day - night use), implemented phased public space improvements to avoid disruption	Partnered with traffic authorities to manage street space, organized community events for painting and art, and used simple physical interventions (dividers, ropes) to define walkways, encouraged participation from schools and local residents to build ownership
Overall Impact	Model replicated by 13 NGOs; demonstrated effectiveness of low-cost sanitation	Improved pedestrian mobility; strengthened urban design practices	Increased safety and vibrancy; 90% users reported feeling safer

and government support in Karachi to NGO backing in Ahmedabad and a residents' association in Chennai. Actions undertaken ranged from sewer construction in Karachi to design of public space in Ahmedabad to quick interventions such as removing vehicles and painting murals in Chennai. In terms of implementation, Karachi relied on research and community meetings, Ahmedabad

on phased improvements and collaboration, and Chennai on rapid, creative measures. Overall, the outcomes were significant - Karachi's model has been widely replicated, Ahmedabad shows ongoing improvements, and Chennai's streets were transformed, with over 90% of users reporting a greater sense of safety.



Figure 4. Internal sewer lane before, source: Hasan, 2011



Figure 5. Manek chowk before, source: WRI India & EMBARQ, 2016



Figure 6. Sringeri mutt road before tactical urbanism, source: Rethinking The Future, 2021



Figure 7. Internal sewer lane after, source: Hasan, 2011



Figure 8. Manek chowk after, source: WRI India & EMBARQ, 2016



Figure 9. Sringeri mutt road after tactical urbanism, source: Rethinking The Future, 2021

Figure 4 – Figure 9 illustrates the before and after conditions of the selected case study sites.

6. Cross – Case Transition: Linking Walkability Interventions

While the three cases differ in their contexts, objectives, and stakeholders, they all attempt to address the common challenge of improving pedestrian environments in cities with limited planning enforcement. The summaries show what each initiative achieved on the ground, but to understand how these changes influenced walking behavior, a deeper analysis is needed. Therefore, the following section applies the COM-B and BCW frameworks to compare the behavioral barriers targeted in each case and the strategies used to overcome them. This transition from “what was done” to “how it shaped behavior” enables a clearer interpretation of which approaches are most suitable for developing country contexts with weak development control.

7. COM - B and BCW Analysis of Three Case Studies

An overview of COM-B and BCW analysis of the case studies is presented in Table 2.

7.1. Summary of COM-B and BCW Analysis of Case Studies

All the case studies of Karachi, Ahmedabad, and Chennai illustrate how behavior change is shaped by capability, opportunity, and motivation. In Karachi, limited awareness of sanitation issues and a lack of technical skills among masons and youth hindered effective action. Ahmedabad faced poor pedestrian infrastructure and low understanding of walking benefits, while Chennai struggled with weak enforcement and normalized illegal parking. Physical and social factors, such as unsafe streets, congestion, and prevailing social norms, further influenced behaviors. Motivation was affected by short-term convenience and habitual practices, including open defecation in Karachi, habitual vehicle use in Ahmedabad, and routine illegal parking in Chennai.

In all cases, interventions combined education, enablement, persuasion, and environmental restructuring, using specific behavior change techniques. Karachi focused on skill building, awareness campaigns, and local leadership (capability), while Ahmedabad improved walkways, organized vendors, and used incentives and public art (opportunity). Chennai, on the other hand, combined community engagement, tactical urbanism, and strict enforcement (motivation). Overall, these cases show

Table 2. COM-B and BCW analysis of case studies

COM-B Component	Orangi Pilot Project, Karachi	Manek Chowk Public Space, Ahmedabad	Sringeri Mutt Road, Chennai
Capability – Psychological	Low awareness of sanitation impacts; lack of technical and management skills	Limited understanding of walking benefits; low pedestrian awareness	Unaware of harms of illegal parking on congestion, safety, and business
Capability – Physical	Masons and youth lacked construction and maintenance skills for sewer work	Pedestrians lacked the ability and confidence to navigate safely within mixed-traffic conditions	Drivers and pedestrians lacked disciplined street use and parking behavior practices
Opportunity – Physical	Limited guidance, tools, and costly infrastructure	Congested streets, unsafe walkways, disorganized vendors	Weak parking management and enforcement; unsafe streets
Opportunity – Social	Weak community organization; limited social cohesion	Vehicle use seen as convenient and status symbol	Peer norms reinforcing illegal parking and unsafe behaviors
Motivation – Reflective	Focus on short-term survival; costs perceived as barrier	Walking avoided due to inconvenience	Preference for convenience over long-term safety
Motivation – Automatic	Habits of open defecation and poor waste disposal	Habitual vehicle use linked to convenience and status	Illegal parking normalized as daily routine
Intervention Function	Education, training, enablement, persuasion, incentivization, social support, environmental restructuring	Education, enablement, persuasion, incentivization, environmental restructuring	Education, enablement, persuasion, coercion, environmental restructuring
Behavior Change Techniques (BCTs)	Awareness campaigns, free technical guidance, selection of local lane managers, mason/youth training, affordable materials, emotional appeals	Widened walkways, restricted traffic, vendor zones, incentives and rewards, street art, campaigns	Community discussions, tactical urbanism (demarcated walkways with dividers, ropes, paintings), strict towing/fines, NGO–community collaboration

that effective behavior change requires context-specific strategies that address skills, environment, social norms, and daily habits.

7.2. Scoring Method for the COM-B Radar Diagram

This study adopts a qualitative, criteria based scoring approach to highlight the focus on different behavioral components across the three case studies using the COM-B radar diagram. Each case study was assessed using six COM-B components: psychological capability, physical capability, physical opportunity, social opportunity, reflective motivation, and automatic motivation. Scores were assigned on a scale of 1 (low emphasis) to 8 (high emphasis) based on multiple sources of evidence, including case study descriptions, observed interventions, outcomes, and COM-B and BCW analysis. These scores show the relative focus of each project on different behavioral components rather than measuring overall success.

Capability was higher when interventions emphasized awareness, education, skill-building, or technical training. Opportunities received higher scores where projects improved physical spaces, managed congestion, or strengthened social support. Motivation was scored based on strategies that influence habits, social norms, emotions, or enforcement mechanisms. The scoring criteria were applied consistently across all case studies to allow fair comparison.

7.3. Interpretation of the COM-B Radar Diagram

The radar diagram (Figure 10) below highlights distinct behavioral priorities for each case, where:

- **Karachi** focused on **capability**, using training programs and awareness campaigns to build knowledge and skills.
- **Ahmedabad** focused on **opportunity**, improving

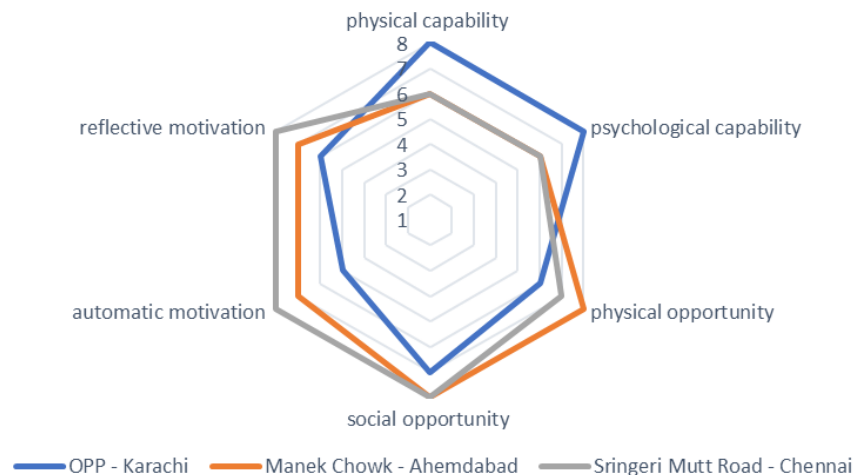


Figure 10. COM-B analysis of three cases: focused by the behavior change factor, source: Author

infrastructure and public spaces to make walking safer and more convenient.

- **Chennai** focused on **motivation**, using tactical street interventions and community art to engage emotions, habits, and social norms.

Overall, the radar diagram provides a visual comparison of behavioral focus across cities, showing which COM-B components were most emphasized in each intervention.

8. Discussion

The three case studies with different contexts revealed that promoting walkability in developing cities with weak governance works best when community empowerment, context-sensitive design, and behavior-informed interventions are combined. Rather than relying on a single behavioral factor, the cases show that the emphasis on capability, opportunity, or motivation depends on the strength of local institutions and community engagement. However, beyond the behavioral focus, the key difference lies in who drives the interventions. This explains that Karachi was deeply community-driven from the start, and Ahmedabad's approach was expert-led with public input. In contrast, Chennai took a hybrid approach combining top-down enforcement with grassroots activation. This distinction suggests that the success of behavioral interventions is strongly shaped by governance structure and stakeholder engagement. Based on these findings, cities in developing countries where governance is weak but communities are strong can support bottom-up, community-led initiatives like Karachi's. In cities with stronger municipal bodies, a mix of environmental improvements and incentives (as in Ahmedabad and Chennai) can generate more lasting

results. These actions are comparatively easy to implement, cost-effective, and can rapidly improve walking conditions while building community ownership. With a focus on these behavior-informed, locally driven measures, cities can create safer, accessible, and pedestrian-friendly environments even with limited institutional support. However, these interventions also need to be backed by policies that enable grassroots innovation while ensuring coordination with formal planning systems.

9. Evaluating the Model in Another Context

The COM-B model and the Behavior Change Wheel are highly adaptable, making them useful for implementing walkability in diverse urban contexts. Their strength is in clearly identifying barriers, whether they come from capability, opportunity, or motivation, and linking them to the right interventions. In resource-constrained cities with weak development control and implementation systems, this model works well by guiding grassroots, low-cost solutions that meet local needs, as seen in Karachi and Chennai. In cities with stronger institutions and planning systems, like Ahmedabad, the model can be scaled up by adding policy support, incentives, and infrastructure investment. However, this model is not a complete solution on its own. Its success depends upon local leadership, community involvement, and political will. If these are weak, then the progress may be limited or unsuccessful. Overall, its flexibility across different governance systems and cultural settings shows that COM-B and BCW together can provide a pathway to improve walkability in both developing and developed contexts, ensuring interventions are context-based rather than a one-size-fits-all approach.

10. Conclusion

The case studies demonstrated the potential of grassroots initiatives and bottom-up approaches to improve walkability in developing countries. By highlighting community engagement, temporary interventions, and the reimagining of public spaces, these projects have successfully addressed pedestrian needs in environments that were once dominated by motor vehicles. By applying the COM-B model and BCW, it is noticeable that these grassroots efforts can be highly effective in creating walkable environments, even in the absence of strong top-down policies. The success of these initiatives lies in their ability to empower communities, create opportunities for walking, and motivate residents to embrace pedestrian-friendly urban design. However, these initiatives also face challenges such as inadequate resources, weak regulatory frameworks, and the need for long-term development, which demand collaboration between local communities, urban planners, and government authorities to create a sustainable, walkable environment. Thus, in developing countries with weak development control and implementation systems, integrating these grassroots efforts with formal urban planning systems remains a crucial factor in creating pedestrian-friendly neighborhoods that enhance the quality of life for all residents.

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