Social Dynamics in Vernacular Spaces in Cities: Spatial Forms and People's Behavior in the Public Spaces of Baghdad

Saad Mohsin Hmoud[1]*, Dheah Hameed Basee[2] & Shaimaa Hameed Hussien[3]
[1,2,3] Al- Nahrain University, College of Engineering, Department of Architecture, Iraq
Email: Saadm.Hmoud@gmail.com

Abstract

It is well known that there is a complex interaction between urban spatial design and people's behavior. Environment has a significant impact on social dynamics and the activities of people. It is more pronounced in the vernacular spaces of cities. In the Al-Bataween area of Baghdad, the interaction of people with their surroundings provides an opportunity to examine the physical space layouts of vernacular spaces that influences routines and social interactions. In this context, this paper examines the effects of spatial design of neighborhoods on people's behavior, emphasizing the integration of historical heritage and present urban necessities.

This research uses quantitative methods to explore 57 small-scale urban settings in Al-Bataween in Baghdad. Data was gathered by direct observations and then analyzed using SPSS software to identify behavioral patterns related to the physical structure of the metropolitan regions. It investigates the relationship between spatial integration and resident activities. The technique provides a comprehensive overview of how urban architecture affects human behavior. The fact that "passing by," "sitting" and "shopping" account for more than 58.30% of all recorded actions lends credence to the notion that the physical architecture of metropolitan areas has a substantial influence on resident behavior.

These findings underscore the need to include spatial design into urban planning to promote vibrant and active communities. By highlighting the need for planning to assimilate modern urban life as well as historical relevance, this study advances our understanding of the socio-spatial processes that define historically rich cities like Baghdad.

Keywords: Behavior changes, Micro-scale public spaces, Behavior changes, Urban cores, Spatial form

Introduction

The rapid urban expansion poses a severe threat to the historical and cultural fabric of Baghdad's particularly in the small public spaces crucial to its identity and the daily lives of its residents. These areas, which vary in size from public squares to bustling marketplaces, serve as venues for social interactions, business dealings, and cross-cultural exchanges in addition to being significant physical locations. The effects of urban growth on these important spaces are

becoming more visible as Baghdad grows, calling for targeted research into how changes in spatial form could be brought about to influence social dynamics and behavior.

In this context, this study examines how changes in spatial forms affect social behavior in limited public spaces of Baghdad. It further examines how urban development plans in Baghdad may align with preserving cultural assets and improving community well-being. The aim of the research is to contribute to the development of socially meaningful public spaces in Baghdad. Its objectives are:

1. To recognize distinct geographical alterations in the core areas of Baghdad
2. To ascertain how these changes impact on the social relationships and behavioral patterns.
3. To assess the sustainability and livability of small-scale public places in Baghdad and the efficacy of the city's existing urban planning plans.
4. To produce workable recommendations to policymakers and city planners that prioritize social, cultural, and environmental demands of the citizens of Baghdad.

The paper seeks to close the knowledge gap between social sustainability and urban development by offering suggestions on how Baghdad might modernize while retaining the character of its ancient urban centers. By conducting a thorough analysis, this research adds to the growing body of knowledge on urban planning in ancient cities and provide a foundation for creating laws that support thriving, diverse, and sustainable urban environments.

Theoretical Framework
Social Dynamics: Spatial Forms and People's Behavior

It is essential to explore the intricate interplay between social dynamics and spatial forms. This relationship significantly influences the behaviors of both locals and visitors within public spaces, diverging notably in more intimate settings like alleys or neighborhoods (Liu, Tan & Chai, 2020). People's unique requirements and interactions within these spaces reflect broader societal norms and personal identities, implying that residents often view public spaces as extensions of their domain, serving various social services and functional needs (Carmona, 2019). The dual role of the public spaces as sites for community interactions and individual activities underscores the fundamental nature of community behavior within urban areas (Bergstén & Keskitalo, 2019).

Furthermore, the ecological approach to studying human behavior in urban environments highlights the critical role of both individual characteristics (gender, age, experience, etc.) in both individual characteristics and environmental contexts (built environment, social norms, etc.) in shaping spatial behaviors (Modarres, 2002). These findings underscore the dynamic interaction between people and their urban surroundings, where environmental changes, especially within public spaces, can significantly influence collective and individual behaviors (Mehta, 2007).

Ma, Chau & Lai (2021) find technological advancements, such as GPS data analysis have enabled a more nuanced understanding of spatial and chronological patterns of urban behavior, providing insights into how people navigate and utilize urban spaces on a large scale. Similarly, behavioral questionnaires have facilitated a deeper understanding of public behavior patterns, contributing to the progress of urban sociology (Mushkani & Ono, 2021;Gotham & Brumley, 2002). These methodologies highlight the importance of creating safe, equitable, and sustainable urban environments to enhance community participation and maintain social identities (Jameel & Hussien, 2023).

According to Babalis (2020), micro-scale public spaces marked as small urban areas at the crossings of alleys and streets reflect in urban life. These spaces serve as squares for participation, relaxation, and socializing, reflecting the diverse activities that define urban public spaces. The analysis of urban transformations within these micro-environments emphasize the importance of spatial design, community development, urban administration, and shared spaces in shaping the social dynamics and spatial forms of the urban fabric (Ardill & Oliveira, 2018).

Theoretical viewpoints on social dynamics, spatial layouts and how people act should consider how both individual and group behaviors in small public areas influence the wider urban environment. There is a recurrence of behaviors, the influence of spatial modifications on urban behavior, and the function of micro-scale public spaces in enabling diverse behaviors and relationships among people living in cities (Kent, 2022).

This theoretical framework offers an insight into the daily behaviors of people in small public areas, and also offers ideas into the broader implications of spatial design and social dynamics in urban settings. It is noted that there is a significant relationship between social dynamics and spatial forms, as it reflects the needs of people and their interactions with public places and exceptional societal standards.

Environmental development sheds light on the role of individual characteristics and environmental contexts in shaping spatial behaviors. Technological developments such as the GPS and behavioral questionnaires have also provided insight into the spatial and temporal patterns of cultural behavior and have identified access methods, their ease, and high permeability to small-sized public spaces, which are characterized as small urban areas in intersections that serve as arenas for sharing, relaxing, shopping, and socializing.

Iraq has many small public community places where interactions and individual activities take place, which reflects the fundamental nature of the collective behavior of the society. Therefore, it seems very important to know the activities that use these spaces, and thus to know individual and group behaviors within small public spaces

Review of Literature

Many previous studies show the decline of historic urban areas and how modern approaches to planning and design of old urban centers affect management practices in emerging cities on the quality of urban space. In this regard, Mantey (2019) points out that the use of urban centers in old cities with developed economies and behavior affects public areas in urban spaces, in a way that may lead to their underuse and abandonment (Mantey & Sudra, 2019). Muhanna (2019) mentions that commercial streets are among the most significant urban heritage components of cities. Many of them have lost their importance, become subject to many informal uses, and have lost their historical identity. This demands preserving traditional commercial streets (Mehanna & Mehanna, 2019). Ermini et al. (2021) address long-term urbanization patterns that suffer from significant transformations at the level the city because it depends more on the development processes of the place. These transformations represent an economic and social development that affects the urban structure (Ermini et al., 2021). According to Alkhafagee & Basee (2023) urban flexibility, which can balance continuity and change in space by replacing certain functions with other functions is considered a critical point in preserving small urban spaces (Alkhafagee & Basee, 2023).

Urban cores are people's gathering points and the main meeting spaces for practicing various activities within the urban spaces. Farhan, Akef & Nassar (2020) show that it is the public spaces which facilitate people's participation in daily life. They are places for relaxation, socializing, fun, entertainment, and places to spend a good time. These areas preserve people social identities and encourage them to express themselves and engage in community activities, Al-Hankawi & Zidan (2021) say that urban cores help engage people in their communities as well as inspire people to act in ways that improve the economy, and cultural participation within the urban core. According to Ali & Hussein (2023), Design for All (DFA) promotes safe, equitable and inclusive urban environments, guiding local standards to create accessible spaces and promote social inclusion, economic empowerment, and quality of life for people with disabilities.

However, Chaix et al. (2012) say that traditional spatial patterns in historic urban neighborhoods mean these densely populated areas often need more public spaces. Furthermore, due to their behavioral constraints, daily outdoor activities of most residents are limited to a small geographic area. Therefore, compared to large-scale public spaces, which are few in quantity and dispersed in distribution, residents of old city neighborhoods often use more expansive and small-scale public spaces (Hanson, 2000). In this scenario, Tallinn (2022)

focuses on typical street corner locations. Although most street corners, such as classic café spaces, are intended to be part of lanes or corner buildings in the historic urban neighborhoods, many are used as small-scale public areas (Shi et al., 2022).

However, converting these goals into concrete actions takes time and effort. What can or should urban planners and policymakers do to ensure that small public spaces meet and enhance the daily life needs of residents? What daily activities occur frequently in these regions, and what spatial futures might affect these activities? These inquiries require quick responses. Previous studies have significantly highlighted the importance of urban centers for social interaction and cultural and economic exchange, focusing on community participation and improving the quality of life.

It is also noted that accessibility and inclusivity, focusing on design for all, point to the need for safe, just, and inclusive urban environments. Through a study in small urban areas, it is possible to explore the barriers to implementing the principle of participation for all. Previous studies also indicate the transformation of street corners into small-sized public areas, but these studies need support by organizing the transformation of street corners into functional public areas by exploring the events held there.

Urban planning is essential in influencing social interactions in urban areas. Kowalczyk (2015) stresses the need for meticulous management of urban structures to deter urban sprawl and encourage diversified land use, leading to the development of appealing and user-friendly settings. Scott (2008) further underscores the importance of urban public policy in addressing the fragility of local competitive advantage, the widening social divide, and the mismatch between the internal geography of the city and the institutions of urban governance. Boone (2013) emphasizes the importance of urban design in addressing social vulnerability and environmental justice, as well as influencing the design and operation of contemporary cities (Boone, 2013). Roberts (2009) examines how the planning system influences crime, violence, and anti-social conduct and the opportunity for planners to include social and environmental goals in their development plans. Needless to say, urban planning is crucial for structuring city social interactions, impacting community unity, social fairness, and environmental sustainability (Roberts, 2009).

Gherasim (2020) emphasizes the complexity of urban dynamics, considering urban policies, urbanization patterns, and spatial planning as key contributors to the sustainable development of cities. He underscores the necessity of responsible planning that aligns with societal needs rather than profit maximization, highlighting the dark side of urban comfort and the importance of transferring "positive quality" to future societies. On the contrary, Talen (2002) critically examines New Urbanism, focusing on its social goals, including community development, social equity, and the common good. The analysis reveals that while New Urbanism primarily appraises physical design, its principles also deeply engage with promoting social equity and the common good, albeit less explicitly with community aspects.

Yang Dai & Yin Xu (2014) introduce system dynamics as a method to enhance urban master planning, addressing the lack of dynamic planning in current methodologies. They propose a quantitative and dynamic approach to study urban planning's impact on economic and social harmonious development. On the other hand, Scott (2008) explores the interrelation between urbanization, planning, and the capitalist mode of production. They propose a general theory of urbanization, emphasizing the role of commodity production and urban development in shaping urban life under capitalism.

Walker (1980) delves into the impact of urban planning activity on social welfare, examining the distributional effects and the legitimacy of planning intervention. He raises critical questions about the welfare-maximizing potential of planning activities, suggesting that answers may lie beyond traditional welfare economic theory. Eräranta and Mladenović (2020) investigate the dynamics of knowledge integration in sustainable urban planning, using social network analysis (SNA) to understand the complex social context of planning processes. They contribute to a deeper understanding of the planning practice and its situated process dynamics (Eräranta & Mladenović, 2021) .

Fainstein (1971) analyzes the political implications of urban planning, arguing that planning constitutes a form of political decision-making. They explore the relationship between planning and political values, emphasizing the need to understand different planning types' of political consequences (Fainstein & Fainstein, 1971).

Jayaram (2017) focuses on the social dynamics of urbanization, highlighting the need for a trans-disciplinary perspective to analyze contemporary urban phenomena. He reviews literature on urbanization's demographic and social dynamics, stressing the importance of understanding the urban as a social space. Similarly, McPhearson et al. (2016) explore the complexity of urban systems, advocating for inter- and trans-disciplinary approaches to study social–ecological–technical infrastructure systems in cities. They emphasize the need to understand feedbacks, interdependencies, and nonlinearities in urban systems to advance sustainability and resilience agendas.

This review illustrates the diverse ways in which urban planning influences social dynamics, from enhancing social equity and community cohesion to navigating the complexities of urban systems and the interplay between urbanization and capitalist development. These studies collectively underscore the importance of integrating social considerations into urban planning processes to foster more equitable, sustainable, and dynamic urban environments.

Table1: The multifaceted ways urban planning influences social dynamics within
Source: Author

Indicator	Author(s)	Description of Indicators
Management of Urban Structures	Kowalczyk (2015)	Preventing urban sprawl, promoting mixed land use
Urban Public Policy	Scott (2008)	Addressing local competitive advantage, social divide
Urban Design	Boone (2013)	Addressing social contexts of vulnerability
Planning System's Impact	Roberts (2009)	Impact on crime, violence, and anti-social behavior
Urban Dynamics and Sustainable Development	Gherasim (2019)	Complexity in urban policies and patterns
New Urbanism	Talen (2002)	Social goals: community development, social equity
System Dynamics in Urban Planning	Yang Dai and Yin Xu (2014)	Enhancing urban master planning with dynamics
Urbanization and Capitalist Production	Scott (2008)	Interrelation between urbanization, planning, capitalism
Impact on Social Welfare	Walker (1980)	Distributional effects, planning legitimacy
Knowledge Integration in Sustainable Urban Planning	Eräranta and Mladenović (2020)	Dynamics of knowledge integration, social network analysis
Political Implications of Urban Planning	Fainstein and Fainstein (1971)	Planning as political decision-making
Social Dynamics of Urbanization	Jayaram (2017)	Trans-disciplinary perspective on urbanization
Complexity of Urban Systems	McPhearson et al. (2016)	Studying social–ecological–technical systems

Research Methods

This research addresses the role of behavioral changes in the spatial form of the urban centers in the city of Baghdad, especially in the small public places. The research is based on the hypothesis that urban centers affect behaviors in small public places.

The research uses a case study of the Al-Bataween area, which is one of the well-known historical centers of Baghdad. The Al-Bataween district was chosen as an area characterized by

traditional urban fabric and heritage architecture. It is considered one of the urban cores of Baghdad that have suffered from many transformations at the urban and architectural levels. They are characterized by the presence of transformations at the level of land use, as well as the population diversity and the diversity and changes of events through different stages, especially at the level of its public urban spaces. The Bataween district is accessible from the surrounding areas. It has micro-scale public spaces, especially at the ends and the intersections of streets. It is easy to get to those micro-scale public spaces, where residents and strangers meet and get to know each other.

The Case Study

As shown in the Figure 1, the Al-Bataween area is located in the urban core of Baghdad on the side of Rusafa. Its external borders on the four sides include Al-Nidal Street from the East, Al-Sadoun Street from the Western side, and Ummah Park from the North to Al-Firdaws Square in the South.

The reasons for the selection of this case study are:
- The study area is characterized by accessibility and high permeability; it is one of Baghdad's commercial and residential centers, with an evident heritage in its architectural and urban buildings.
- The transformations witnessed by the Al-Bataween area are evident in features at the urban and architectural levels. We notice that both new and old buildings with traditional Baghdadi architecture have been preserved.
- The diversity of land uses in the study area includes residential, commercial, and small industries (workshops).

The Bataween area is considered one of the areas that have suffered dramatically from population migration due to the transformation of land use from residential to commercial and industrial. It usually has some exhibitions of interior design materials and industrial workshops for these materials, like CNC and laser workshops. There are also several publishing houses that have rented old houses and turned them into presses, thus shifting the land use from housing to commercial and industrial. It is noted that there are many medical supply stores in addition to the number of pharmacies, retail stores for medical supplies, and some carpentry and blacksmithing workshops. The area contains a large number of stores and exhibitions of medical equipment and supplies, as well as exhibitions and stores of imaging materials.

In addition to the housing spread between these commercial areas and some of the buildings and houses of multiple uses (the ground floor is commercial-industrial and the first floor and above is for housing), housing is of two types: either it is private housing or multiple housing (hotels or rooms for rent inside homes). Often, the rented rooms are for shop workers and not for families. The problem of indigenous people leaving is significant, as official statistics show that 65% and 70% have left since the land was turned over for commercial and industrial use. However, the area has kept its architectural and urban values, which is good because it was known for its 1930s-style architecture.

The research approach followed the process of collecting behavior data in public places on a small scale. It determined the activities people carry out in the urban areas, whether residents or strangers as shown in the Figure 2.
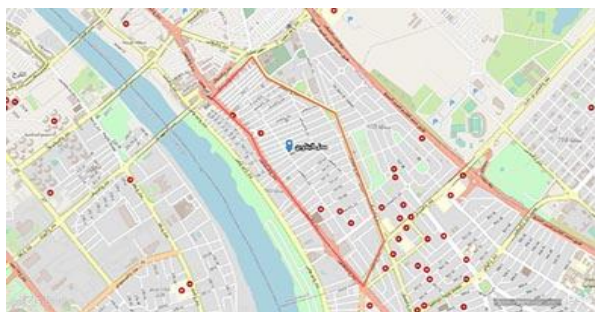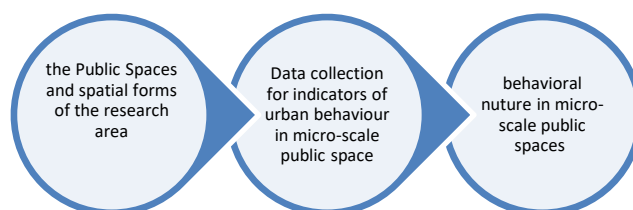

Fig. 1: Case study Area

Fig. 2: Research framework

Case Study: Data Collection

Data collection includes recording people's daily behaviors in small public spaces identified in the Figure 3. These behaviors are related to spatial features:

After identifying these aspects, the behaviors were observed and recorded for 5 hours for each public space during daily working hours and on Friday (the official holiday) for the weekend. Observers chose spaces to observe users' behavior in the sample spaces. However, the observers had to be at flexible distances, meaning they were not close to the spaces to avoid people noticing their presence. In this way, it has been observed that users' behaviors are as close as possible to daily life.

For better clarification, this study utilized a small number of observations. During March and April, observations were made on each of the three days of the week. Taping required six weeks to collect data during mild weather and clear skies. On observation days, morning temperatures ranged from 26 to 28 degrees Celsius and afternoon temperatures ranged from 30 to 35 degrees Celsius. Each day, the recording occurred in the early morning (8:30–10:30 a.m.), early afternoon (1:00–3:00 p.m.), and late afternoon (5:00–6:00 p.m.). Although the duration of the observation sessions varied, the total amount of recordings remained constant across all three periods. Each micro public space was the subject of twenty-one unique observations.

Finding and Discussion

Through the above and after detailed observations of the spatial forms within the public places, it is noted that there are some behaviors threatening a general and clear understanding of the context in which they occur 57 small urban spaces were marked, which are the intersection points of the streets and the corners of the secondary and public streets. They are as shown in the Figure 4,

The research observed a group of different behaviors, such as shopping, drink-and-eat, and selling, in addition to passing. All of these activities were carried out by mainly silent strangers, especially in the morning hours between (8:30 a.m. - 1:30 p.m.) and there were Some of the different behaviors that residents perform, leaving the side streets to stop at the street corner or what we called the small urban space. With these, they stop to take some selfie trips or sit in the urban space, while children were playing, gathering, and walking with the young. All of these activities were also carried out by the researchers.
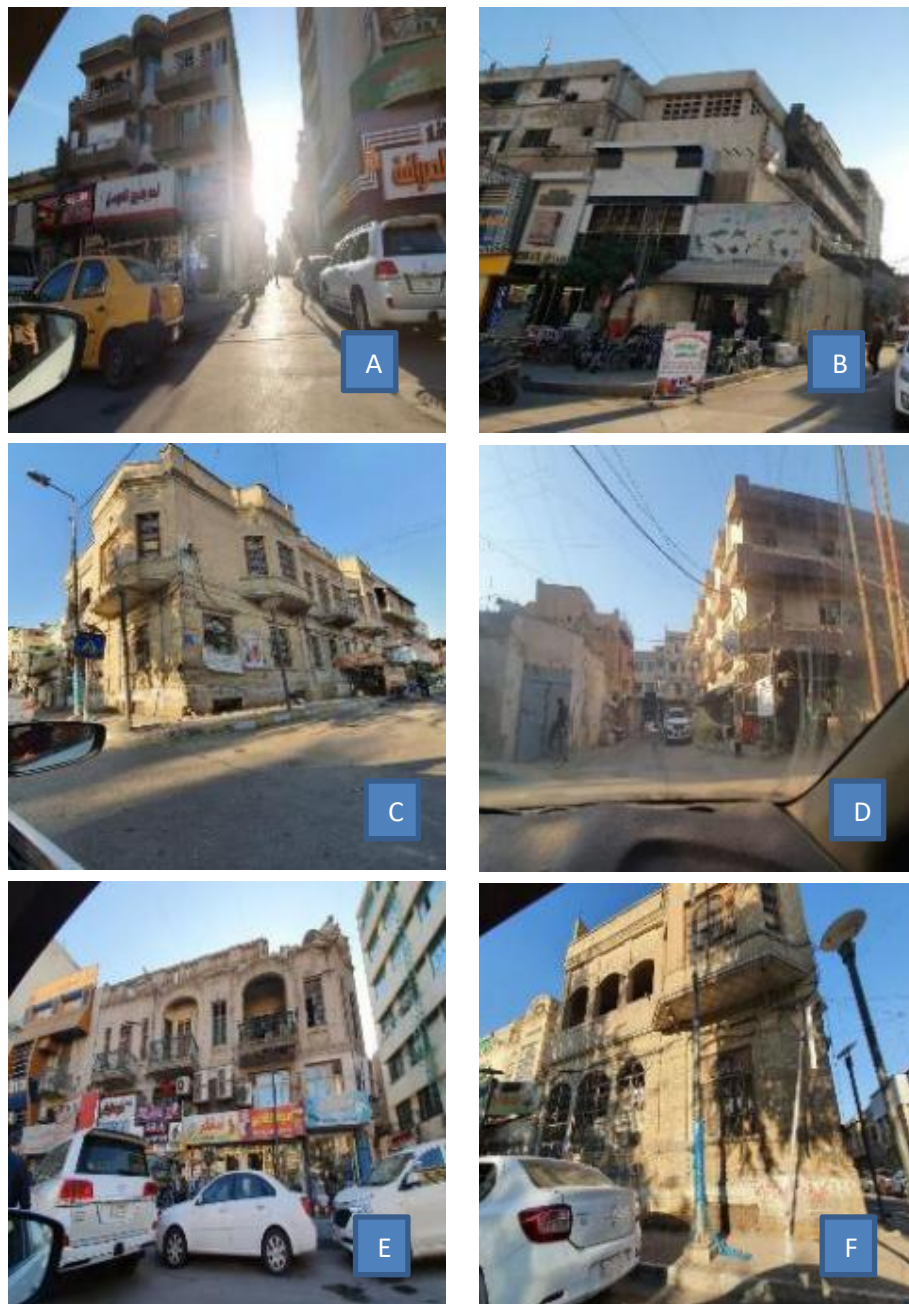
Fig. 3: The small public space samples
Source: Author

The researchers observed and collected the behavioural infromation in the form of photographs and recorded the frequency as shown in the table1. They include all the urban spaces within the Al-Bataween area. There were 57 small urban spaces. The Baathist public noticed that the spatial shape of the small urban space varies according to the nature of the use or behavior in the commercial event, which has a cultural and spatial form that differs from the residential event, as shown in the Figure 3: E is for commercial, and F is for residential.

Fig. 4: Spatial form location and numbering
Source: Author

Behavioral data of the users were recorded the according to the observational data. Behaviors were encoded in various types, as shown in the Table 2. For example, a young man chooses goods from a grocery store, and chats with the seller, and another buys food from a street cart and sits on the side of the road with a group of young people, exchanging conversations and acquaintances. Behavior coding falls under the "Buy process," so the rest of the urban behaviors are coded. In this way, the recurrence of behavior was known, and the achievement of social solidarity from the values of behavioral repetition in the small urban space. If different behaviors are repeated by the same person, it is recorded as a new behavior and coded regardless of the owner's behavior. These behaviors are also classified according to age and gender, whether individual or collective, especially in general behaviors such as walking, sitting, standing, talking, playing with children, and the movement of the elderly and women.

Statistical Analysis
Statistical analysis was conducted using the SPSS program on user behaviors and their average frequency. Then, the space syntax analysis extracted the relationship between synergy and social integration features. The frequency of user behaviors and their nature were evaluated to determine spatial form effect of the micro-urban public space on the behavior frequency.

Micro-space	Shopping	Selling	Pass-by	Drink, eat	Taking Selfie	Communicate	Sitting	Children playing	Gathering
					Table 2: Repetitions of behaviors during the observation period/day Source: Author				
1	10.00	5.00	25.00	15.00	5.00	10.00	20.00	10.00	15.00
2	20.00	10.00	30.00	10.00	2.00	15.00	25.00	15.00	10.00
3	15.00	7.00	35.00	5.00	3.00	12.00	30.00	12.00	5.00
4	12.00	8.00	32.00	10.00	3.00	12.00	25.00	12.00	5.00
5	17.00	6.00	25.00	11.00	4.00	13.00	22.00	14.00	7.00
6	14.00	5.00	36.00	9.00	2.00	11.00	27.00	11.00	4.00
7	11.00	9.00	31.00	12.00	5.00	14.00	24.00	13.00	6.00
8	18.00	7.00	27.00	8.00	3.00	10.00	21.00	9.00	4.00
9	20.00	12.00	29.00	10.00	4.00	13.00	23.00	12.00	5.00
10	15.00	10.00	34.00	11.00	3.00	12.00	26.00	11.00	6.00
11	16.00	10.00	38.00	8.00	2.00	14.00	28.00	13.00	6.00
12	13.00	8.00	35.00	9.00	3.00	11.00	25.00	10.00	4.00
13	15.00	12.00	37.00	7.00	1.00	13.00	29.00	12.00	5.00
14	14.00	11.00	36.00	10.00	4.00	12.00	27.00	11.00	4.00
15	19.00	14.00	31.00	6.00	2.00	17.00	22.00	8.00	3.00
16	17.00	13.00	33.00	8.00	3.00	15.00	24.00	10.00	5.00
17	18.00	15.00	34.00	9.00	4.00	16.00	25.00	11.00	4.00
18	16.00	14.00	32.00	7.00	2.00	14.00	23.00	9.00	2.00
19	15.00	12.00	30.00	5.00	1.00	13.00	21.00	7.00	2.00
20	13.00	10.00	28.00	3.00	0.00	11.00	19.00	5.00	0.00
21	17.00	13.00	33.00	9.00	3.00	15.00	26.00	11.00	4.00
22	18.00	14.00	34.00	8.00	4.00	16.00	23.00	12.00	3.00
23	16.00	12.00	32.00	10.00	2.00	14.00	25.00	10.00	5.00
24	15.00	11.00	31.00	9.00	3.00	13.00	24.00	4.00	0.00
25	20.00	16.00	26.00	4.00	1.00	18.00	19.00	6.00	2.00
26	18.00	14.00	28.00	6.00	3.00	16.00	21.00	8.00	4.00
27	19.00	15.00	29.00	7.00	4.00	17.00	22.00	9.00	3.00
28	17.00	13.00	27.00	5.00	2.00	15.00	20.00	7.00	2.00
29	16.00	12.00	25.00	3.00	1.00	14.00	18.00	5.00	1.00
30	14.00	10.00	23.00	1.00	0.00	12.00	16.00	3.00	0.00
31	31.00	10.00	24.00	5.00	1.00	12.00	18.00	8.00	3.00
32	15.00	9.00	26.00	4.00	2.00	11.00	20.00	9.00	2.00
33	13.00	11.00	25.00	6.00	0.00	13.00	19.00	7.00	4.00
34	12.00	10.00	23.00	5.00	1.00	12.00	17.00	8.00	3.00
35	17.00	13.00	28.00	3.00	2.00	15.00	22.00	5.00	1.00
36	15.00	11.00	26.00	5.00	0.00	13.00	20.00	7.00	3.00
37	16.00	12.00	27.00	4.00	1.00	14.00	21.00	6.00	2.00
38	14.00	10.00	25.00	2.00	2.00	12.00	19.00	4.00	0.00
39	13.00	9.00	24.00	1.00	1.00	11.00	18.00	3.00	0.00
40	11.00	7.00	22.00	0.00	0.00	9.00	16.00	1.00	1.00
41	13.00	9.00	22.00	2.00	0.00	11.00	16.00	7.00	2.00
42	14.00	8.00	24.00	1.00	1.00	12.00	18.00	6.00	3.00
43	12.00	10.00	23.00	3.00	0.00	10.00	17.00	8.00	1.00

44	11.00	9.00	21.00	2.00	1.00	9.00	15.00	7.00	2.00
45	16.00	12.00	26.00	0.00	0.00	14.00	20.00	4.00	0.00
46	14.00	10.00	24.00	2.00	1.00	12.00	18.00	6.00	2.00
47	15.00	11.00	25.00	1.00	0.00	13.00	19.00	5.00	1.00
48	13.00	9.00	23.00	0.00	1.00	11.00	17.00	3.00	0.00
49	12.00	8.00	22.00	1.00	0.00	10.00	16.00	2.00	1.00
50	10.00	6.00	20.00	0.00	0.00	8.00	14.00	0.00	0.00
51	12.00	8.00	20.00	0.00	1.00	10.00	14.00	6.00	1.00
52	13.00	9.00	22.00	1.00	0.00	11.00	16.00	5.00	2.00
53	11.00	7.00	21.00	0.00	1.00	9.00	15.00	7.00	0.00
54	10.00	6.00	19.00	1.00	0.00	8.00	13.00	6.00	1.00
55	13.00	9.00	22.00	1.00	0.00	11.00	16.00	6.00	2.00
56	14.00	10.00	23.00	0.00	1.00	12.00	17.00	5.00	1.00
57	12.00	8.00	21.00	1.00	0.00	10.00	15.00	3.00	1.00

Patterns of Occurrence of Behaviors

The study analyzed behavioral data using SPSS software. The research found that the behaviors varied, with a slight difference in the occurrence of some behaviors and a significant difference in others in terms of the occurrence rate in the 57 small urban spaces studied. It was observed that the pass-by behavior had the highest occurrence rate (25.48%), followed by sitting behavior with a rate of 19.12%, while shopping behavior accounted for 13.70%. As shown in the Figure 4, for the remaining percentages of the occurrence of other behaviors, It was observed that the three above behaviors represent approximately 58.30% of the total occurrence of the seven other behaviors studied. These behaviors were the norm in the small urban spaces where they occurred frequently. When making improvements to small urban spaces, especially the street corners, it is best to focus on meeting the needs of behaviors that often happen since it is likely that the rates of occurrence are related. For instance, as the pass by rate increases, the sitting and shopping rates are likely to increase, in addition to improving the chances of the occurrence of the other behaviors.

Table 3: Coding of users' behaviours
Source: Author

Encoding	Description
Shopping	The act of selecting items, conversing with the vendor, making payment, handling change, and other activities that are part of the purchasing process are all included.
Selling	When selling something, do things like to keep a kiosk running, talk to customers, run a mobile vending cart, and do other similar things?
Pass by	Field observation distinguishes this from "pace within space." Some examples are: walking through the area with children, talking while walking through, and waiting for traffic to pass.
Drink and eat	That includes all eating and drinking activities from street vendors or in front of supermarkets.
Taking Selfie	It includes taking pictures alone and with others at different business and social events.
Communicate	Conversation (back-and-forth dialogue) with one another When someone walks by while talking, it will not be considered communication; instead, it will be counted as passing by.
Sitting	Just sitting excludes sitting somewhere to talk, read newspapers, play cell phone games, or engage in other activities that have different behavioral characteristics than just sitting.
Walk with children	The act of walking with the children and standing on the corner of the street and watching.
Children playing	The act of playing with children on the street, such as football, hide and seek, or marble balls.
Gathering	The act of gathering, the gathering of older people, children, or a group of ladies, as well as the gathering for various activities that people perform in groups,

Frequency of Different Behaviors

Based on the analysis of the frequency of occurrence, a statistical analysis was done on how often certain behaviors happened in the sample spaces. It was found that the repetition of behaviors with a high occurrence percentage does not confirm a Gaussian distribution. In other words, the frequency with which certain behaviors occur is low in most sample spaces. More statistical analysis found that some behaviors that do not happen very often follow the same pattern. In this situation, it would be better to use means to describe the central tendency (average level) of how often behaviors happen.

The mean frequency of "walking with children or playing with children" was significantly higher than the means of different behaviors. In contrast to the low occurrence percentage (4%), this indicates that although walking with children, playing with them, or watching others play is not very common, once it occurs, it is likely to continue or cause small urban space users to gather.

"Salafist preaching/gathering" is another behavior similar to "walking with children/playing with children" in this regard. Also, "contact" and "sitting" happened nine times, which was the fourth most common behavior. What is particularly noteworthy is that the means of some behaviors (with a high occurrence percentage) were low: "shopping," "sitting," and "drinking/eating," with means of 4, 5, 1, and 1 time, respectively. That means that even though these behaviors are very likely to happen, they don't happen very often most of the time. This result indicates that it is important to prioritize the requirements of high probability behaviors, as well as the high frequency, when improving the physical structure of public places on street corners because, for high-frequency behaviors, small improvements can have a large impact. However, allocating many resources to low-frequency behaviors may be optional.
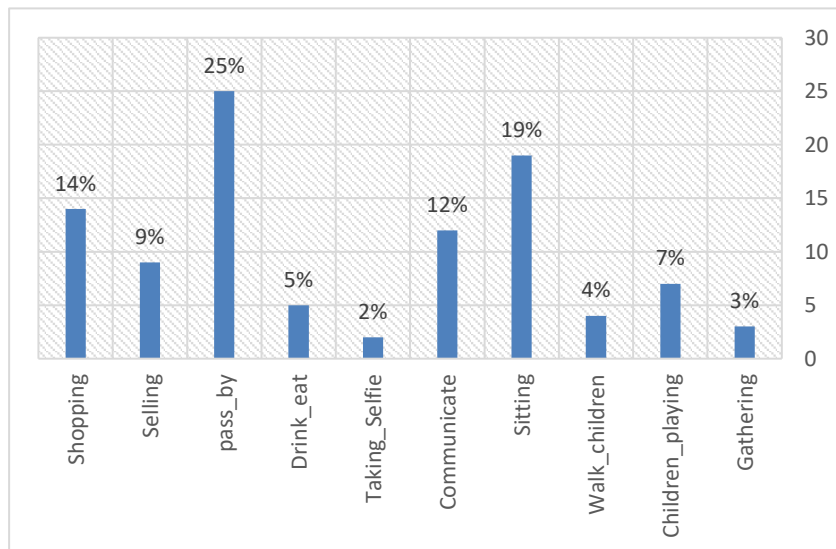

Fig. 4: Percentages of occurrence of the behaviors
Source: Author

The Impact of the Spatial Form of a Micro-small Public Space on the Behavior and the Nature of the User:

The study found that the pass-by behavior had the highest frequency (25.48%), followed by sitting behavior at a rate of 19.12%. Shopping behavior accounted for 13.70%. According to Figure 15, the three behaviors mentioned above account for roughly 58.30% of the overall occurrence of the seven other behaviors analyzed. These behaviors were commonplace in compact metropolitan areas where they occurred regularly.

Impact of Spatial Form on Residents' Behaviors

The research conducted in the Al Bataween area of Baghdad examined how the spatial structure affects peoples' behaviors. This analysis was carried out in 57 spaces. The findings reveal a nuanced and intricate pattern of behavior that is influenced by both the environment and the integration of areas. Noteworthy findings include; the observed behavior was "pass by " accounting for approximately 25.48% of all activities observed. This suggests that a significant portion of the region's activity is transient, with individuals passing through these areas than engaging in prolonged activities. The second prevalent behavior at a rate of 19.12% was "sitting." This indicates that certain sections within these locations encourage residents to stay and actively participate in interactions. The behavior of "shopping" was observed at a rate of 13.70% underscoring the importance of these areas, in everyday activities. In total these three behaviors constituted 58.30% of all activity observed within the study areas. The research underscores how spatial design significantly influences behaviors emphasizing the vital role urban planning plays in shaping economic dynamics of a community. The findings indicate that when spaces are easily accessible and have a layout it encourages people to interact like sitting together and gathering. On the hand areas, with space tend to promote transit-oriented behaviors where people simply pass through without much social interaction. This emphasizes the importance of design in shaping the day, to day dynamics and interactions within a community.

Discussion

The study uncovers a connection, between the way central urban centers are arranged in Baghdad and the behavior patterns observed in those areas. The key findings are as follows; The study reveals that the layout and organization of spaces in the Al Bataween area have a significant influence on human behavior. Spaces with easily accessible architecture encourage interactions, such as sitting and gathering while more restricted areas tend to lead to transit focused behaviors like passing through.

When comparing modern neighborhoods in the region it becomes evident that older built areas foster a wide range of social behaviors. This highlights the importance of considering past structures when planning cities.
Research suggests that how these scale public spaces are designed plays a role in shaping social dynamics. Environments that prioritize visibility and easy accessibility tend to foster vibrant social exchanges.

The results underscore the significance of design in planning and its direct impact on the social fabric of urban centers. They advocate for an integrated approach that acknowledges and values buildings while accommodating contemporary urban needs.

The findings from this study have implications for design particularly in historic cities, like Baghdad; Finding the balance, between preserving authenticity and meeting contemporary needs is a key task for urban planners. It is crucial to maintain assets and foster a shared sense of belonging in existing centers.

When it comes to design creating spaces that promote and facilitate interactions should be a priority. Urban areas need spaces that're easily accessible, visible and adaptable to accommodate diverse social activities.

To ensure urban renewal initiatives it is important to have an understanding of how spatial configurations impact human behavior. This knowledge can guide the development of places that enhance cohesion and vitality.

In terms of policy development and planning the findings from this study should serve as guidelines for decision making processes. It is essential that urban areas prioritize peoples needs while also considering contexts. These findings highlight the significance of taking an approach to planning that emphasizes historical authenticity and creates vibrant and appealing environments.

Comparing these results with research conducted in other cities reveals certain important aspects; there are global patterns as well as regional differences in how physical spaces are organized within the urban centers of Baghdad. It becomes evident that space has an influence, on behavior.

However, Baghdad showcases its historical intricacies that emphasize the importance of urban development that considers the specific surroundings. The research reveals a pattern where older urban areas tend to foster vibrant social interactions compared to contemporary designs. This phenomenon underscores the significance of preserving the functions of regions within initiatives aimed at rejuvenating urban environments.

Lessons, for Urbanization Across the Globe; The Baghdad Case offers insights for historic cities going through modernization. The common challenge in planning is striking a balance between preserving authenticity while also catering to modern requirements. These comparative insights highlight the need for an approach, to planning that acknowledges local conditions while incorporating global models.

Conclusion

This study found that users' behaviors in small public places on street corners differ, and their differences are striking in terms of the possibility of repeating the occurrence of different behaviors. The behaviors constantly repeated by strangers are passing, buying, and selling various materials, according to the commercial effectiveness present in the urban space. In contrast, the frequency of behaviors for the residents varies and increases continuously. In the morning, we notice the presence of purchases in addition to sales, as most of the shop owners on street corners are residents. In the evening, the behaviors are different. The most significant behavior for strangers is passing, and there is rarely communication behavior. We may notice some people taking selfies and pictures of heritage and archaeological buildings, in addition to the behavior of the residents starting to appear after

This study found that behavioral changes in urban centers in the city of Baghdad have the most significant impact on the spatial form of small-sized public places by changing the effectiveness of small-sized places and directly affecting behavior. This varies from resident to stranger, and the frequency of occurrence of specific behaviors is related. Directly and with the nature and functions of small urban spaces

The research emphasizes the importance of integrating spatial architecture into urban planning for development in the dynamic and participatory communities that characterize prosperous cities or urban centers such as the Al-Bataween area in Baghdad.

There is a frequency of some behaviors that are significantly higher than other behaviors in the spaces that were measured and observed, as we note that approximately 58% of these behaviors were between passing, sitting, and shopping, which are common behaviors between a resident and a stranger in the area or in the urban space.

Commercial activity in the urban area is considered the primary driver of the nature of behavior and thus directly affects the spatial structure of the urban space. We also note that the buying and selling behavior was the highest among visitors in the area.

Small urban spaces were considered the surface of a meeting between the resident and the stranger and between the residents among themselves, especially in various small age groups such as youth and children.

The spatial form is linked to the nature of behavior through a group of these behaviors. For example, when the street corner overlooking the small urban space contains shops, we notice an increase in buying and selling behavior in addition to gathering. This is an essential point, as it is considered a significant point of communication between visitors and residents. However, if the street corner is, It is a solid building of historical value. We notice that stopping there and taking photographs and selfies is standard behavior. This indicates the importance of heritage buildings and preserving them on street corners because of the value they add to small urban spaces. Suppose the street corner is an ordinary residential building. In that case, we notice that traffic This is the prevailing behavior except during some evening times when children gather on the street corner and play various popular games.

The research found that the frequency of occurrence of a specific behavior is related to the spatial form of urban space and the nature of the effectiveness and use of this space.

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