Urban Environment and Children's Spaces: A Study on the Impact of Physical Elements on Social and Psychological Interaction in the Public Spaces of Batna

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Abstract

This research investigates the impact of urban furnishing elements in public spaces on children's behavior within the urban environment. The study is grounded in the premise that the urban environment is not solely composed of built structures but also of the voids and open spaces that give the city vitality and social meaning. Public spaces, as integral components of the urban fabric, represent essential venues for social interaction and community engagement. Since the 1980s, urban theorists such as Jane Jacobs, Jan Gehl, and Geoffrey West have emphasized the need to reconsider the design of public spaces to ensure harmony between spatial organization, social behavior, and the quality of urban life. Children are among the social groups most in need of such spaces and the most affected by their design. The quality, diversity, and arrangement of urban furnishing elements—both natural (vegetation, water features) and man-made (benches, shading devices, lighting, signage, and artistic installations)—play a decisive role in shaping children's psychological, social, and perceptual development. Conversely, poorly designed or inadequately maintained public spaces can have negative behavioral, cultural, and health impacts on children, diminishing their sense of belonging and connection to their urban surroundings. In the Algerian context, despite the legislative efforts—particularly Article 124 of Municipal Law No. 10-11, which assigns municipalities the responsibility for creating and maintaining public and green spaces—many public areas remain poorly equipped and fail to address the needs of children. The study adopts a statistical methodology based on questionnaires distributed to parents accompanying their children in public spaces during weekends and school holidays. The questionnaire aims to assess parents' perceptions of public spaces, evaluate the adequacy of urban furnishing elements, and identify their influence on children's behavior and interaction patterns. The research ultimately seeks to highlight the importance of public spaces as essential extensions of private living environments and to propose design strategies that enhance children's engagement, comfort, and social development in urban contexts.

Keywords: *Public space, urban furnishing, children's behavior, urban environment, Algeria.*

Introduction

The urban environment represents the comprehensive whole that connects and unifies the various parts and systems. The formation of the urban environment is, from a physical standpoint, composed of two poles: one represented by the built masses, and the other by the unbuilt parts — that is, the public spaces, which include all the voids and open areas interspersed among the built structures in that environment.

The void, therefore, is an essential component of the urban environment, defined by specific physical elements, and it possesses its own activity and function. The true essence of the urban environment lies in the social relationships and mutual interactions between individuals and the material components of that environment, which together form the framework within which these relationships and interactions occur among members of the community.

Urban spaces constitute one of the most important components of the city's urban structure, as they serve as vital breathing spaces for the community and as focal points for its interaction with the environment. Michel de Sable described them by saying that "the public space creates the city—it is the soul of the city."

In addition to their environmental role, these spaces are essential for fostering social interaction and for hosting social activities that cannot be practiced within private residential areas. Thus, they act as complementary and indispensable extensions of private living spaces. The attention given to organizing,

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designing, and enriching the aesthetic aspects of these spaces directly influences their visual quality and functional values, enhancing their vitality and attractiveness.

Since the early 1980s, the concept of **urban public space** has become a central focus of urban studies, as discussed by researchers such as Jane Jacobs, Jan Gehl, and Geoffrey West. They argued that public spaces require renewed reflection and redesign in terms of spatial, social, and economic dimensions. These researchers considered urban public space as a key challenge that calls for a careful examination of spatial organization, lifestyle quality, and urban furnishings, ensuring harmony with the social dimension—namely, behaviors and the social structure of space utilization. (Zepf, 2009, p.13)

Psychologists and sociologists emphasize that **children** are the group most in need of such spaces and the most affected by them. Providing well-designed urban spaces contributes positively to children's psychological and physical development.

Michel de Sable also explained that children need to form their own "external family" within their surroundings—among their peers—in an atmosphere of harmony and spontaneity, free from the rigidity they are accustomed to at home with their parents. They need opportunities to perform, to express their ideas, to chat and engage in long conversations without interruption. They need to feel recognized and to become "famous" in their own way. To fulfill these needs, they seek places that allow for such activities: **open spaces designed for youth and adolescents** to engage in various activities and express their interests—spaces equipped with elements that make these experiences possible. These are the **urban furnishing elements** of public spaces.

Children's behavior is influenced by the components of their surrounding environments—family, school, and urban contexts. The urban environment, in particular, constitutes the broader framework that accommodates children's daily movements. Public spaces—including streets, public squares, pathways, and green areas—are places that children frequent daily, whether as transitional routes (like pathways) or as gathering areas (like public squares). These spaces have a significant impact on children's behavior, which can only be fully understood through the **elements of urban furnishing** they contain.

In addition to providing aesthetic and harmonious qualities to the urban landscape, these elements contribute to developing children's **perceptual abilities**, especially **visual perception**. As defined by Abdel Moneim Al-Hefni (1998), visual perception is "the process of perceiving through the sense of sight, whereby objects are recognized by their colors, sizes, shapes, brightness, positions, orientations, and distances—all of which are their constant attributes."

These elements also serve to define spatial identity and provide a sense of place, making it easier for residents and visitors to recognize and navigate the area. They primarily include **natural elements** that enhance the functional efficiency of outdoor spaces, in addition to their environmental role in moderating the climate, reducing pollution, and enhancing the aesthetic appearance of the setting. Such elements consist mainly of **vegetation** and **water features**.

On the other hand, **man-made elements**—such as benches and seating areas—provide comfort and opportunities for rest, varying in size and shape. Other key components include **shading structures** for protection against climatic factors, **lighting units**, **advertising signs**, and **sculptural or artistic works** that carry symbolic expressions and aesthetic value in diverse forms. In addition, **waste bins** play a crucial role in maintaining cleanliness and preserving the beauty of open spaces.

Algeria is among the developing countries striving to improve and organize public spaces by equipping them with various **urban furnishing elements**, both natural and artificial. The country has demonstrated this commitment through several legislative measures—most notably, **Article 124 of Municipal Law No. 10-11**, which assigns municipalities the responsibility of creating and maintaining green spaces and providing urban equipment, as well as repairing or replacing them when damaged. Furthermore, other legal frameworks regulate the furnishing of residential pathways and public squares. (Official Gazette, 1989)

Problem Statement

According to a report by the United Nations, by the year **2025**, approximately **60% of the world's children** will live in urban environments. For children, these environments represent a vast field of experiences through which they learn and interact with the various components that shape them.

Many researchers—such as **Kamal Abdul Razzaq**, **Nagham Faisal Youssef**, and **Zina Ahmed Al-Shammaa**—have questioned the influence of the elements found within these urban environments, particularly regarding the spaces where parents take their children, how children interact with other social groups, and how their movements and behaviors respond to the physical and social characteristics of these settings. This topic represents one of the most prominent issues in contemporary social studies.

Hellman, **Briza**, and others have stated that **urban outdoor spaces** enable children to develop their social skills and engage with their communities through the elements they contain. For instance, when a child sits on a public bench, it reflects an acceptance of sharing space and interacting with others. (Beaudoin, 2007, p. 3)

Another study confirmed that, starting from the age of seven, children need to go outdoors—to streets, playgrounds, and parks—to develop social relationships with their peers. (Matthews, 2003)

In this regard, the architect and urban planner **Ward** emphasized that "we should not design a city where every element is scaled down to fit children, but rather a city that integrates children into everyday life according to their needs—a city in which we live together with them."

The topic of **children's urban spaces** raises numerous questions: on one hand, concerning the child's needs and behaviors, and on the other, regarding the characteristics of the spaces they frequent and the elements they contain. In this context, **Germanous** conducted a study exploring the integration of children into urban public spaces, considering it both a **cultural-spatial** and **spatial** issue.

Algeria, recognizing the importance of this matter, has sought to enhance public spaces in its cities by equipping them with diverse **urban furnishing elements**. However, these efforts have often fallen short in actual implementation. Daily observations of Algerian public spaces—streets, squares, and plazas—reveal a lack of consideration for children's needs and the **human scale**. Many urban elements (such as benches, installations, and fixtures) are poorly positioned or disproportionate to their surroundings, undermining their intended function of serving citizens of all ages.

Consequently, these poorly designed spaces often become areas of neglect and waste accumulation, leading to **environmental pollution** and negatively impacting children on **behavioral**, **cultural**, and **health** levels. As the saying goes, "the city is an open book whose chapters are its components"—and children, in particular, are deeply influenced by what they encounter within it.

Main Research Question

How do the elements of urban furnishing in public spaces influence children's behavior?

Research Objective

The research aims to:

- Highlight the importance of **public spaces** as an integral part of the **urban fabric** of the city, particularly in relation to **children**, and to identify the **impact of urban furnishing elements** on children's behavior within these spaces.

Research Methodology

The study relies on a **statistical approach**, primarily through the **distribution of questionnaires** and **direct interaction** with visitors to public spaces, with a particular focus on **children**. Specifically, in this study, we **distributed questionnaires to the parents of children** in the public spaces under investigation, targeting **weekends and school holidays** when these spaces are most frequented.

Objectives of the Questionnaire

The primary objective of designing this questionnaire is to **study the impact of urban furnishing elements** that were not fully addressed in the observational protocol. In addition, the questionnaire allows us to understand:

- **Parents' perceptions of public spaces.**

- **The importance of children as key users of public spaces** and their specific needs.

- **Ensuring the reliability of evaluating the current status** of urban furnishing elements in public spaces.

- **Identifying shortcomings in the design and planning** of the study area from the perspective of children's parents.

Steps in Preparing the Questionnaire

1. **Preparation of a preliminary questionnaire** to be used for data and information collection.

2. **Submission of the questionnaire to the supervisor** to test its suitability for data collection, followed by preliminary modifications based on the supervisor's feedback.

3. **Review by a panel of experts** with relevant experience in the study's subject, who provided advice, guidance, and suggested modifications or deletions where necessary.

4. **Conducting a preliminary field pilot study** of the questionnaire and making required adjustments.

5. **Distribution of the questionnaire to all members of the sample** to collect the necessary data for the study.

Sample Estimation

Through repeated visits to the study sites, we **observed the number of visitors** to the public spaces under investigation during **peak hours** and periods of **high usage**, such as **weekends and school holidays**. The results were as follows:

Weekends

Table 1: Observation Dates and Average Attendance in the Studied Public Spaces During Weekends

Public Space	Observation Date	Average Number of Parents 10:00–12:00	Average Number of Parents 14:00–16:00	Study Sample
Ben Boulaid Park Walkways	12–13 November 2023	28	66	95
84 Housing Square	4–5 March 2024	35	58	93

| Liberty Square | 20–21 May 2023 | 39 | 50 | 89 |

Source: Researcher, 2023/2024.

School Holidays

Observations were conducted **twice in each public space during each school holiday** (Winter, Spring, and Summer).

Table 2: Observation Dates and Average Attendance in the Studied Public Spaces During School Holidays

Public Space	Observation Date	Average Number of Parents 10:00–12:00	Average Number of Parents 14:00–16:00	Study Sample
Ben Boulaid Park Walkways	19–20 December 2023	28	66	95
84 Housing Square	25–27 March 2024	35	58	93
Liberty Square	15–16 July 2024	39	50	89

Source: Researcher, 2023/2024.

Average Study Sample for Each Public Space

Table 3: Estimated Study Sample

Public Space	Study Sample
Ben Boulaid Park Walkways	95
84 Housing Square	93
Liberty Square	89

Source: Researcher, 2024.

The results of the questionnaire were analyzed using the **SPSS statistical analysis software**.

Questionnaire Sections

The questionnaire was divided into **four main sections**, each designed to collect specific information:

Personal Information of the Study Sample:

This section includes questions about the children's **accompanying adults** in the public space. The main objective is to examine how characteristics such as **age, gender, social, and cultural status** of the accompanying adults influence the **frequency, duration, and patterns of the child's visits** to public spaces.

Use of Public Space by the Child:

This section focuses on the child's **engagement with the public space**, highlighting the most important characteristics and aspects of the space from the child's perspective.

Current Status of Urban Furnishing Elements in Public Spaces:

This section gathers opinions from both **accompanying adults and children** regarding the urban furnishing elements, as well as observing the child's behavior toward these elements.

Child Interaction and Behavior Toward Urban Furnishing Elements: The last section examines how these elements **affect the child's behavior**, aiming to study the impact of urban furnishing on children

Discussion of Questionnaire Results

1.3. Discussion of Variables in Sections One and Two: General Information about the Study Sample and Use of Public Space

Based on the questionnaire results from the three public spaces, the following observations were made:

The majority of respondents were **young adults under 39 years old**, with **females predominating**. Since the questionnaire was distributed during weekends and holidays, this timing allowed women to go out for errands, as the public spaces are located in the city center where commercial shops are concentrated. This explains the **variable visiting times**, sometimes in the morning and sometimes in the afternoon, depending on opportunity. In contrast, **Ben Boulaïd Park** is specifically visited for leisure and relaxation, which explains the **consistent afternoon visits** and longer stays, attributed to the abundance of urban furniture, particularly benches, allowing caregivers to rest while supervising their children, with play equipment being the most attractive element.

Easy accessibility to all studied public spaces increased their use, especially as they are located along public transport routes, highlighting the importance of public space location in overall urban planning.

Parents do not allow their children to visit public spaces alone due to security concerns, explaining the high percentage of accompanied children.

Children's enthusiasm for public spaces stems from their developmental need to interact with the external environment, explore, and engage in new experiences that help them acquire skills not learned within the family environment.

Discussion of Variables in Section Three: Current Status of Urban Furnishing Elements

Respondents appreciated the presence of **vegetation** in all three public spaces, considering it a **decorative element** that enhances the aesthetic appeal of the space. Vegetation also provides **shade**, contributing to user comfort. However, some vegetation obstructed visibility and movement due to **inadequate periodic maintenance**, which, according to the municipal technical department, is conducted only during spring.

Opinions on **benches** were divided. Caregivers found the number sufficient, though benches were randomly distributed, and they remained neutral regarding comfort, which is subjective. Regarding children, benches were deemed **unattractive in color and inappropriate in size**, as they were not designed for children's proportions.

Respondents consistently encouraged children to use **trash bins**, despite their limited number, random distribution, unsuitable size, and unappealing colors, indicating a **high sense of civic responsibility**.

Play equipment was well-received by caregivers regarding number, safety, construction materials, and colors attractive to children. This reflects both the natural inclination of children to play and caregivers' desire for children to interact with their environment and expend energy.

Monuments and commemorative elements attracted children's attention, as reflected in responses indicating curiosity about their meaning, emphasizing the functional importance of each urban furnishing element.

The **flooring** of the three public spaces received negative feedback from caregivers for lacking **safety features** and aesthetic value, as flooring is often considered secondary in the initial design, installed only within the remaining budget after completing the space.

Discussion of Variables in Section Four: Children's Interaction with Urban Furnishing Elements

Play equipment was the most significant contributor to physical activity for children in **Ben Boulaïd Park** and **1st May Square**, followed by the floor surfaces in **Freedom Square**, which lacks play equipment. Despite not meeting safety standards, children use these spaces for running and play, the most frequent activities observed across all three spaces, explained by children's natural tendencies.

Play equipment also facilitates **interaction among children**, which may result in **negative behaviors**, such as minor conflicts, which are considered normal.

Urban furnishing elements have a **psychological impact**, making children feel **happy and comfortable** by allowing them to expend excess energy.

Socially, urban furnishings **promote interaction and friendship formation** among children. Children's willingness to be present in public spaces reflects their **acceptance of social interaction and participation**.

Questionnaire: Urban Public Spaces and Children's Interaction with Urban Furniture

Note: Wherever "public space" appears, it has been replaced with the actual name of the study site and user type for clarity.

Section 1: General Information about Respondent

Purpose: To understand the impact of guardian characteristics on children's use of public space.

Age of Respondent:

- 20–29

- 30–39

- 40–49

- 50–59

- 60+

Guardian Gender:

- Male

- Female

Number of Children Accompanied:

- 1

- 2

- 3

- 4+

Section 2: Use of Public Space

Purpose: To study children's and guardians' usage patterns of the public space.

Frequency of Visit:

- Daily

- Once per week

- 2–3 times per week

- Once per month

Time of Visit:

- Morning

- Evening

- Both

Purpose of Visit

- Recreation / Relaxation

- Meeting friends

- Practicing a hobby

- Children's play

- Shopping

- Medical visit

- Studying / Reviewing

Duration of Stay

- Less than 1 hour

- 1–3 hours

- More than 3 hours

Children usually visit the space:

- Alone

- With family

- With friends

Accessibility of the Space:

- Easy

- Moderate

- Difficult

Reason for choosing this space:

- Proximity to other visited facilities

- Size of space

- Space design

- Presence of urban furniture elements

Which elements attract your attention the most?

- Chairs / Seating

- Trash bins

- Play equipment

- Greenery / Plant elements

- Artistic elements

Do your children feel excited when visiting this space?

- Strongly Disagree

- Disagree

- Neutral

- Agree

- Strongly Agree

Section 3: Current Condition of Urban Furniture Elements

Purpose: To evaluate guardian satisfaction with urban furniture elements.

A. Plant Elements

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Tree and plant arrangement provides sufficient shade					
Trees and plants obstruct vision or movement					
The plants add aesthetic value to the space					
Plant elements do not affect physical safety					

B. Physical Elements

Chairs / Seating

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I find a seat immediately upon arrival					
Seating is well-distributed and offers scenic views					
Arrangement allows easy communication					
Arrangement allows monitoring children while playing					
Seat dimensions are comfortable					
Seat dimensions suitable for children					
Seat colors are attractive for children					

Trash Bins

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Sufficient number of bins					
Bins are evenly distributed					
Encourage children to use bins					
Bin dimensions suitable for children					
Bin colors are attractive for children					

Play Equipment

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Equipment capacity is sufficient					
Equipment variety is adequate					
Equipment materials are safe					
Installation ensures children's safety					
Equipment colors are attractive for children					

Monuments / Artistic Elements

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Attract children's attention					
Children ask about their meaning					
Add artistic value to space					
Colors are visually appealing					

Flooring

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Floor type is suitable for its intended activities					
Flooring ensures children's safety					
Flooring has aesthetic value					

Section 4: Child Interaction with Urban Furniture

Purpose: To study the effect of urban furniture on children's physical, psychological, and social behavior.

Physical Dimension

1. Which element contributes most to physical activity?

- Chairs / Seating

- Play equipment

- Trash bins

- Flooring

- Artistic elements

2. Types of physical activity towards urban furniture:

- **Positive:** Play, Sport

- **Negative:** Fighting, Hitting

Psychological Dimension

When using urban furniture, children feel:

- Comfort

- Happiness

- Anxiety

- Discomfort

- Stress

- Fear

Social Dimension

Urban furniture contributes to:

- Interaction with peers

- Making new friends

- Social isolation / avoiding others

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