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ASSESSMENT OF THE QUALITY OF PUBLIC SPACES IN THE NEW CITY OF ALI MENDJELI IN CONSTANTINE (ALGERIA)

Abstract: The contemporary city is built around open spaces, which have always contributed to the improvement of the image of the city and the living environment of its inhabitants. These open spaces, also called public spaces, remain neglected spaces in urban planning in Algeria. Our article focuses on the assessment of public spaces based on a multi-criteria analysis able to provide a comprehensive assessment of the quality of open spaces. Using structured observations throughout the day over a period of 15 days following an observation grid, we calculated a Public Space Index (PSI) across five dimensions, including inclusiveness, meaningful activities, safety, comfort, and pleasurability. The Public Space Index (PSI) is constructed from 45 variables to assess the five dimensions of public space. Our choice focused on the new city (Ali Mendjeli) located at Constantine, Algeria, a city that has been built recently (about thirty years). In this city, we have neglected the issue of public spaces in its planning. Recently, there has been a growing awareness of the need to improve the image of the city and the living environment of its inhabitants. So, the aim of this research is to assess the quality of its public spaces. The results of our research showed that the design of its public spaces had not taken into consideration many things in relation to the users of the space. Despite this, the public space studied meets the quality criteria for the five dimensions studied with a score of 69 out of 100.

Key words: city, open space, public space, public space index, living environment

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Introduction

Ali Mendjeli's new city, which was constructed as an extension of Constantine (a crowded metropolis). The city has witnessed significant sprawl and exceptionally quick population increase since the early 1980s. As a result of this phenomena, New Ali Mendjeli City was established (Lakehal, 2014).

Around actuality, the city's first residents started to appear around 1990. It is a city that was built as an emergency to house the people who lived in Constantine's slum areas. This new town of Constantine had been planned within the framework of ordinary urban planning instruments, with a succession of reports and studies on this site (Foura & Foura, 2005). The city is initially divided into five neighbourhoods. There are four neighbourhood units per district. Over time, the new town of Ali Mendjeli has undergone two extensions around its perimeter. the first heading southward and the second heading westward (see Figure 1).
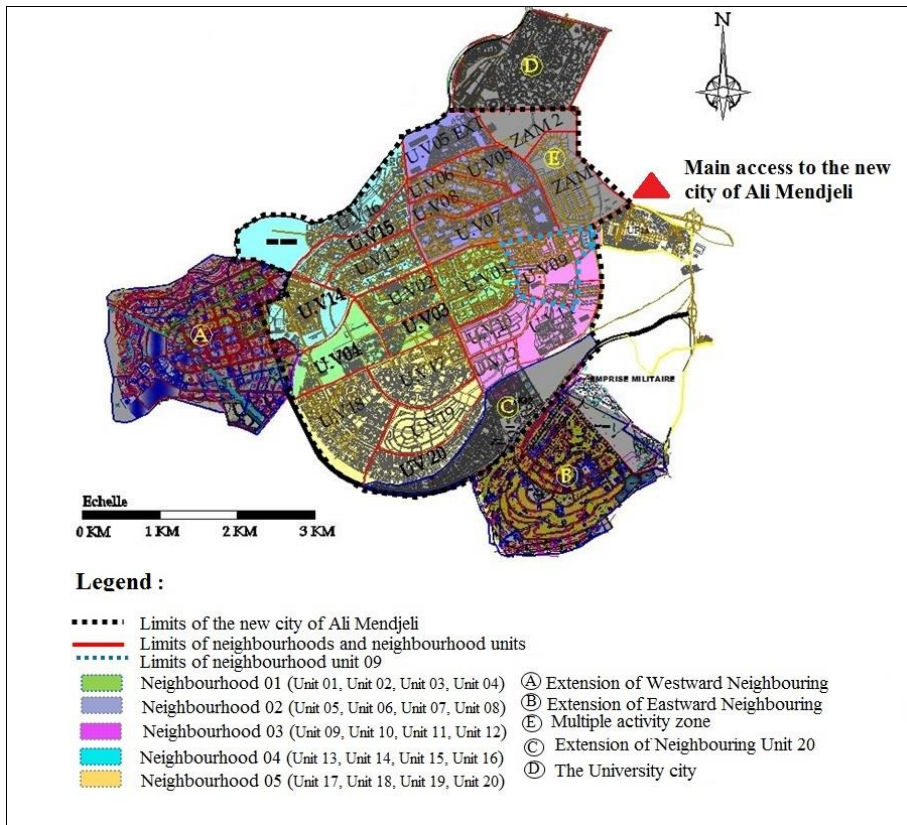

Fig.1. Map of the new town of Ali Mendjeli. Source: Base map DUAC, 2020. Implementation: Authors, 2020

Despite the city's 30-year existence, there have been a glaring lack of outdoor public spaces. There are not enough public places where people may gather and have fun, and this problem has existed for some time. Recently, with the creation of EVANAM (establishment for the development of the cities of Ain Nehas and Ali Mendjeli), an establish-

ment in charge of the management of this city and which contributes to improve its image. Its mission is to plan and monitor projects in the new Ali Mendjeli city. In this regard, the problem of a lack of public spaces in the city was among their priorities. They suggested setting up a number of public areas in the city to achieve this. These spaces are generally designed in a random way without taking into account the needs of users in public spaces.

A question challenges us in this regard: Do the public spaces offered in the new Ali Mendjeli city meet the standards of quality of space? At this point, the quality of public spaces is now among the problems that have negatively affected the image of the city. Or the public spaces are far from reaching the contemporary standards of cities. This article is interested in evaluating the quality of public spaces in the new town of Ali Mendjeli. In order to answer our question, firstly we will expose the literature review in relation to our research topic and secondly, we will expose our methodology followed in this article to reach the desired results and objectives.

Literature Review

The planning process for attractive cities should include the experiences, opinions and needs of citizens, as this is becoming more and more crucial for decision-makers in urban design (Weijs-Perrée et al., 2020). The quality of public spaces is today one of the problems that has negatively affected the quality of life of the inhabitants and the image of the city (Praliya & Garg, 2019). And therefore, the users of its public spaces. Moreover, these public spaces are an essential part of the urban landscape (Lara-Hernandez & Melis, 2018) and contribute to the improvement of quality of life, environmental quality, and sustainability (Praliya & Garg, 2019). Every urban space has potential qualities inherited from its shape, history and faces (Pinon et al., 1991).

The way public places are now designed falls far short of modern city norms. For modern societies to be socially and psychologically healthy, a good public space is required. A good public space is necessary for the social and psychological health of modern communities (Mehta, 2014). Additionally, open spaces help people to feel confident and increase the sense of unity and belonging (Pasaogullari & Doratli, 2004; Rad & Ngah, 2014).

According to Lynch (1998), the city was not constructed for just one person, but for many. These individuals typically come from various social strata, have varied upbringings, and temperaments. The design of human-cantered urban spaces with the needs of people in mind has emerged as one of the most important environmental for competitive cities (Tang & Long, 2019). Therefore, our interest leads to this problem of taking care of the design of public spaces. In this regard, outer urban spaces are now the subject of a renewed interest on the part of cities, sensitized to their image in a context of economic competition and aware of the importance of affirming their social cohesion (Pinon et al., 1991; Mehta, 2014).

The outer urban space enables citizens to build a positive image of themselves and promotes communication between groups of population sharing heterogeneous memory values. It gives the city an image that ensures its regional and even international reputation and attractiveness (Bassand et al., 2001). A public space is an area open to the general public, which generates public use and active or passive social

behavior, and where people are subject to general regulations governing the use of space (Mehta, 2014).

Finally, the urban outdoor space also has other functions that are less obvious than the most distinguished ones, such as: circulation, communization and meeting (Muret et al., 1987). The history of cities shows that public space over time to change its function according to the needs of users. Positive open space design should include enclosure and definition. There should be no room for doubt or extraneous detail (Llewelyn, 2000). Public space is now used for a variety of social, recreational, and practical activities, including moving around, shopping, playing, engaging with people, and even relaxing (Mehta, 2014; Carmona, 2019). The best public places frequently feature hubs of activity, such pavement cafes or markets, in addition to calm areas for resting and people-watching (Llewelyn, 2000).

According to Ziyaee (2018) and (Werner, 1992), A well-designed urban space is one that gives its occupants memories, identities, and meanings.

The Public spaces, or outdoor spaces, are all places that are open to everyone. They are most often open air, but can be partially or totally covered (De Sablet, 1991). However, not all public areas are open, and not all open locations are necessarily in the public domain (Carmona &Tiesdell, 2007). Public space is the immediate extension of private space; it is both urban and public, and it has the formal and material qualities necessary for collective existence. It is an essential component of the city since it fosters human contact and contributes to social cohesiveness (Lakabi & Djelal, 2011).

This type of space mainly includes roads and streets, city squares, and various permanently accessible facilities and buildings owned by the community. Or everybody has the opportunity to access public space without any restrictions placed on them from outside. Consequently, it is a shared space in which social interactions take place (Mierzejewska, 2011).

It is a notion that was created in the 1960s by social scientists, and in the late 1970s it first appeared in the lexicon of urban planners and technicians. It wasn't until the modern city, and in particular the vast housing estates, came into being in 1977–1978 that the expression "urban space" first appeared. Finally, this expression has appeared in the 1980s, coinciding with a time when cities and urban planning were in crisis (Bassand et al., 2001).

That is why, the search for quality in public space becomes a vital necessity. The approaches generally used take a singular look at public space and its quality (Hadji, 2013). In this respect, there is a lack of studies on how to assess the quality of open spaces (Oppio et al., 2021). This is why the researchers tried to propose criteria for measuring and evaluating the performance and quality of public space (Mehta, 2019).

According to Mehta (2019), several works have been interested in the problem, namely the works of: (1) Van Melik, Van Aalst, and Van Weesep (2007); (2) Varna and Tiesdell (2010), Nemeth and Schmidt (2011).

In our research, we have based ourselves on the work done by Mehta (2014) to assess the quality of public space; it was measured and evaluated using a public space index (PSI). Which was calculated using five dimensions: inclusiveness, meaningful activities, safety, comfort, and pleasurability (see Figure 2).

Five Dimensions of Public Space
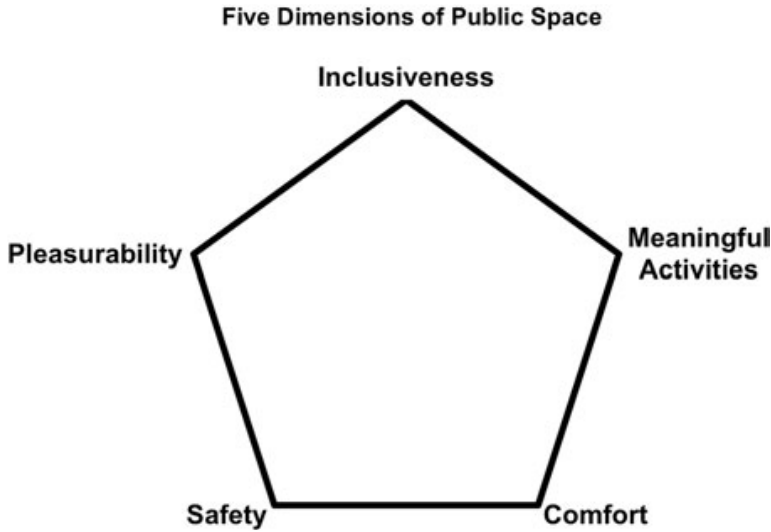
Fig.2. The five dimensions/aspects of public space. Source: Metha (2014)

Materials and Methods

In order to ensure a high standard of urban living, our goal in this article is to propose a technique for assessing the quality of public space that city administrators in Algeria can utilise as a tool for decision-making (Hadji, 2013).

We drew inspiration from Mehta's (2014) work in order to accomplish this and evaluate the quality of public space by conducting organised and semi-structured observations over the course of 15 days. Our field survey was carried in March 2023. The study was conducted at this time of year because of the pleasant weather. This enables me to obtain accurate information regarding how this public space is used. One part of the survey is completed by the researcher to calculate the public space index by observing the characteristics of the space, its use, and the behaviour of its occupants. The other part of the survey is also conducted in the public space by collecting comments from the users of the space (Dietrich, 2018) about (age, live, work, frequencies of visits and the type of people who occupy the public space).

These specific times were chosen because they are times when people are typically available to go to the public space, during the week and even during the weekend. We chose to make three observations per day on site during 15 days and even on weekends: in the morning around 10am, in the afternoon around 4pm, and in the evening from 8pm.

Before that, by calculating the five dimensions of public space, in order to obtain a Public Space Index (PSI) which has been developed to assess the quality of public space. This Public Space Index (PSI) is designed to measure the quality of public spaces such as streets, squares, town squares and small urban parks. The results attest to the usefulness of this methodological tool for the study of public space (Evans et al., 2019).

According to Mehta (2014), the evaluation is constructed from 42 to 45 variables to measure the five dimensions of public space. By using a weighting for each variable ranging from 0.4, 0.7, 01, 02, to obtain the public space index (PSI).

Tab. 1. Public space index: variables, weightings, scoring and measuring criteria.

Aspect of public space	Variables	Weighting
Inclusiveness	1.Presence of people of diverse ages	0.4
	2.Presence of people of different gender	0.4
	3.Presence of people of diverse classes	0.4
	4.Presence of people of diverse races	0.4
	5.Presence of people with diverse physical abilities	0.4
	6. Control of entrance to public space: presence of lockable gates,fences, etc.	1.0
	7.Range of activities and behaviours	1.0
	8.Opening hours of public space	1.0
	9. Presence of surveillance cameras, security guards, guides, ushers, etc.intimidating and privacy is infringed upon	1.0
	10.Presence of posted signs to exclude certain people or behaviours	2.0
	11.Perceived openness and accessibility	1.0
	12.Perceived ability to participate in activities and events in space	
Total for Inclusive-ness		10
Aspect of public space	Variables	Weighting
Meaningful activities	13.Presence of community-gathering third places	2.0
	14.Range of activities and behaviours	1.0
	15.Space flexibility to suit user needs	1.0
	16.Availability of food within or at the edges of the space	2.0
	17.Variety of businesses and other uses at the edges of the space	1.0
	18.Perceived suitability of space layout and design to activities and behaviors	2.0
	19.Perceived usefulness of businesses and other uses	1.0
Total for Meaningful activities		10
Aspect of public space	Variables	Weighting
Comfort	20.Places to sit without paying for goods and services	2.0
	21.Seating provided by businesses	1.0
	22.Other furniture and artifacts in the space	1.0
	23.Climatic comfort of the space—shade and shelter	2.0
	24.Design elements discouraging use of space	1.0
	25.Perceived physical condition and maintenance appropriate for the space	2.0
	26.Perceived nuisance noise from traffic or otherwise	1.0
Total for Comfort		10
Aspect of public space	Variables	Weighting
Safety	27.Visual and physical connection and openness to adjacent street/s or spaces	1.0
	28.Physical condition and maintenance appropriate for the space	1.0
	29.Lighting quality in space after dark	1.0
	30.Perceived safety from presence of surveillance cameras, security guards, guides,ushers, etc. providing safety	1.0
	31.Perceived safety from crime during daytime	2.0
	32.Perceived safety from crime after dark	2.0
	33.Perceived safety from traffic	2.0
Total for Safety		10
Aspect of public space	Variables	Weighting
Pleasurability	34.Presence of memorable architectural or landscape features (imageabil-ity)	1.0
	35.Sense of enclosure	1.0
	36: Variety of subspaces	0.7
	37.Personalization of buildings on the streetfront	1.0
	38.Articulation and variety in architectural features of building facades on the streetfront	1.0
	39.Density of elements on sidewalk/street providing sensory complexity	1.0
	40.Variety of elements on sidewalk/street providing sensory complexity	1.0
	41.Perceived attractiveness of space	2.0
	42.Perceived interestingness of space	1.0
Total for Pleasur.		10

Source: Mehta (2014)

The rating criteria for each variable are based on a rating scale ranging from 0 to 3. The measurement criteria are generally Determined by observations using counts as well as the User's subjective rating. Still according to Mehta (2014), each of the five dimensions of public space has a total weighting of 10. The maximum score for each dimension is 30. A public space can receive a maximum score of 150 across all dimensions. To make comprehension easier, Mehta turns the final results into percentages (Evans et al., 2019) (see Table 1).

Study Area

Our case study is located in the new town Ali Mendjeli, precisely in the neighbourhood unit N05 (see Figure 3). A residential area comprising several types of housing.

Legend:

— — — *The limits of the neighbourhood unit N05*
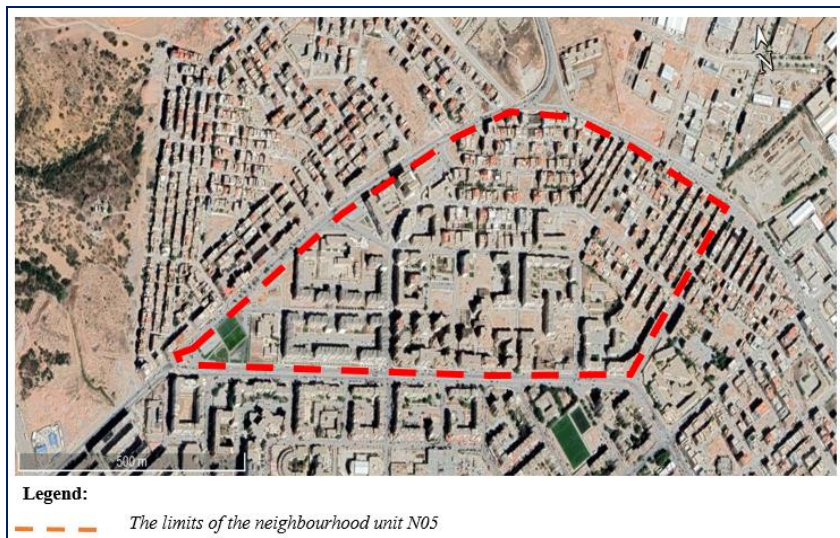
Fig.3. the limits of the neighbourhood unit N05. Source: Authors, 2023

The neighbourhood has totally changed with the arrival of this outdoor space. It has become a very popular area for people who live in the neighbourhood and for those who come from neighbouring areas. The presence of many businesses, including a cafeteria, fast food restaurants, shops, etc., has improved the public space's appeal. This public space has a trapezoidal shape with an approximate area of 9000 m² (see Figure 4).
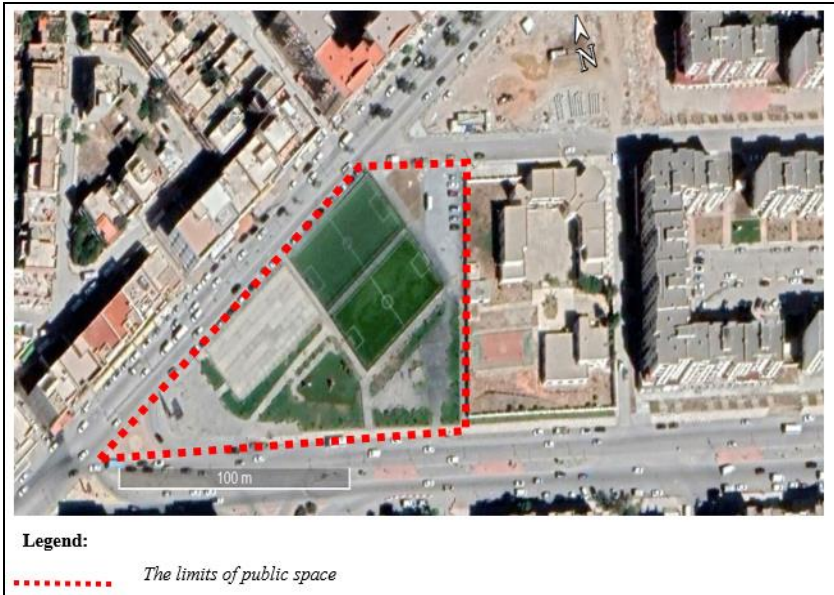
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Fig.4. the limits of public space in the neighbourhood unit N05. Source: Authors, 2023

The space consists of two lawned sports field and an asphalt sports field (see Figure 6), a small parking for car parks in addition to an outdoor arrangement consisting of three compartments (see Figure 5).

Fig.5. the sub-spaces that make up the public space. Source: Authors, 2023

Fig.6. sports fields in the public space (March 2023)

Each compartment is arranged differently from the others. The first compartment and the second compartment are completely mineralized (see Figure 7). These two spaces are reserved for people to sit in the presence of benches.

Fig.7. the two mineral spaces in the public space (March 2023).

The third compartment is almost entirely green (artificial and natural grass) and contains a playground for children (see Figure 8).

Fig.8. the children's playground (March 2023)

Results and discussions

Understanding the sampling of our study

In our work, we distributed 25 questionnaires to users of the public space, which in reality represents a percentage of 20% of all users of the public space (compared to the largest number of users present in the public space during our field surveys). We tried to cover all age groups so that, in the end, we would have reliable results (see Table 2). 22 questionnaires were distributed to men and three to women.

Tab.2. the sample of our study.

Age	18-24	25-34	35-44	45-54	55-64	65-74	over 75
counts	8	4	6	2	3	2	0
%	32%	16%	24%	08%	12%	08%	0%

Source: Authors, March (2023)

The majority (80%) of the people who use this public space live in the neighbourhood. 18% of users of the public space are visitors, and a small percentage of about 2% represent people who work in the sector (see Figure 9).
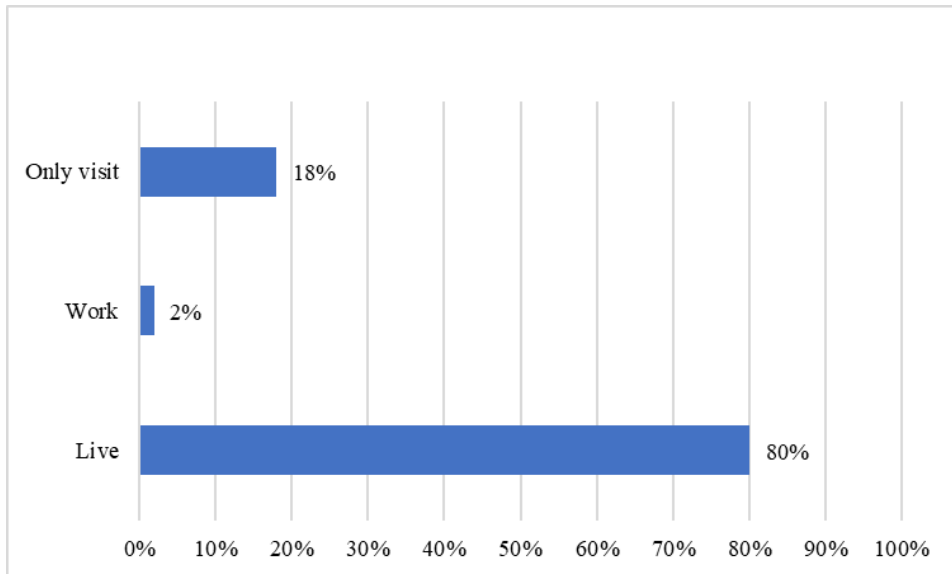
Fig.9. Type of users of public space. Source: Authors, March 2023

Now concerning the frequency of visiting the public space, the majority of responses were a few times a week (63%). The remaining respondents were divided by those who visited the public space once a day or more, few times a month, and only occasionally (see Figure 10).
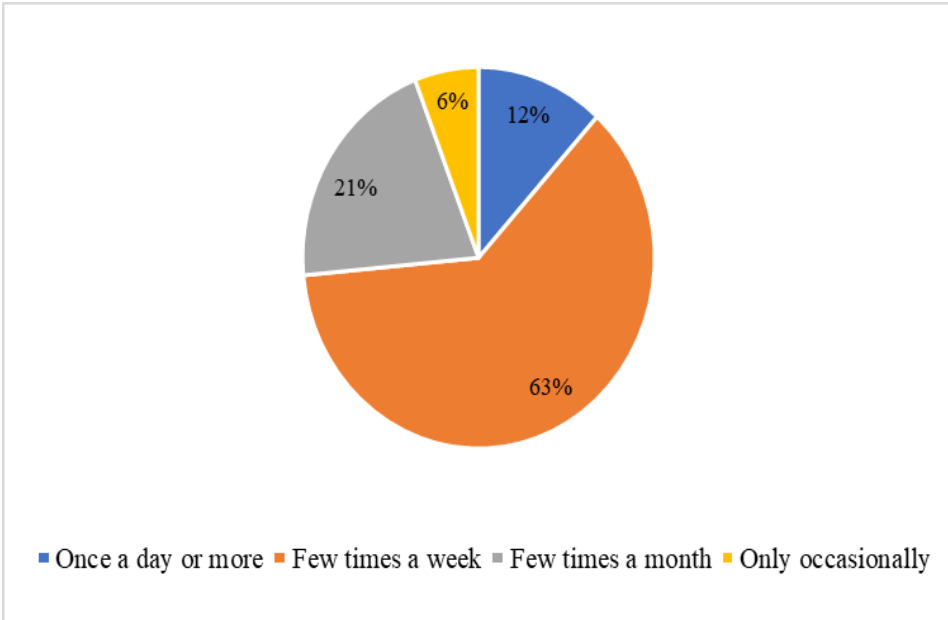
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Fig.10. Frequency of visits to public space by users. Source: Authors, March 2023

We found that the public space is more frequented in the evening and in the afternoon. A minority of people use the public space in the morning. Since this public space is not a sun-protected space (lack of shaded areas). We also found, during our survey, that public space is frequented by all categories by all categories of people and even both sexes.

In addition to this, the majority of the people who use the space in the morning are over 60 years old. In the afternoon, the space is frequented by children who use the playground and sports fields to play (see Figure 11).

Tab.3. Public Space User Counts

Observation times	Total (the average)
The morning around 10 a.m	22
in the afternoon around 04 p.m.	83
in the evening from 08 p.m.	132

Source: Authors, March (2023)

Fig.11. Children playing in the playground. Source: Authors, April (2023)

Indicateur of Public space index (PSI)

After the field survey and the filling in of Table 1, the results of our research showed that the public space studied is inclusive and pleasurable, according to the results obtained. There is therefore a certain variety in the activities. The results of our research showed that the public space studied is well rated with a public space index (PSI) of 69 out of 100, which means that it is a well rated public space. And in reality, this is a place that is very much appreciated by users. which responds very well to certain aspects. But in the other hand, it does not meet expectations in other areas.

Tab.4.Public Space Index Results

Variable	Results
Inclusiveness (Max. 30)	28
Meaningful Activities (Max. 30)	10
Comfort (Max. 30)	04
Safety (Max. 30)	11
Pleasurability (Max. 30)	16
Final Score (Max. 100)	**69**

Source: Authors, March (2023)

Figure 12 shows how the score was distributed between the following five aspects: Inclusiveness, meaningful activities, comfort, safety, and pleasurability.

The public space study achieved a high score both in terms of Inclusiveness and Pleasurability. The highest scoring aspect is Inclusiveness, which received a score of 28 out of 30 points. One of the main reasons for the high score on Inclusiveness is that there are no opening hours for the public space. In addition, there are no signs prohibiting the use of the public space, for example "no smoking".

The other aspect that is well noted is that of Pleasurability, with a score of 16 out of 30. This is due to the presence of several varieties of sub-spaces: playground, two sports fields, a parking and two mineral seating areas. In addition the space is visually connected and open to the other spaces surrounding the public space.

Comfort is the least appreciated aspect of the five dimensions (4 out of 30). It is considered an uncomfortable space. This is mainly due to the absence of shaded spaces with a considerable lack of presence of trees in space. The few trees on site are poorly distributed in the space, and the majority of them are small and not adapted to the space to create shade. This is a space that is not well supervised due to a lack of cameras, and the space is completely open.

Moreover, there is not a large variety of benches. There is just one type of bench made by combining two materials, metal and wood. Also, there is a lot of noise from taxi traffic because there are no vegetal barriers.

For significant activities, it is rated on average 10 out of 30. Despite this, the space is considered flexible and meets the needs of users. With the presence of shops and services (variety): cafeterias and fast food at the limits of the space.

Concerning safety in the public space, he also received an average score (11 out of 30). It is a self-controlled public space ensured by the constant presence of agents, but even so, the results show that it is a moderately secure space because it is poorly maintained and there is a total absence of surveillance cameras and the presence of agents for the surveillance and security of users.
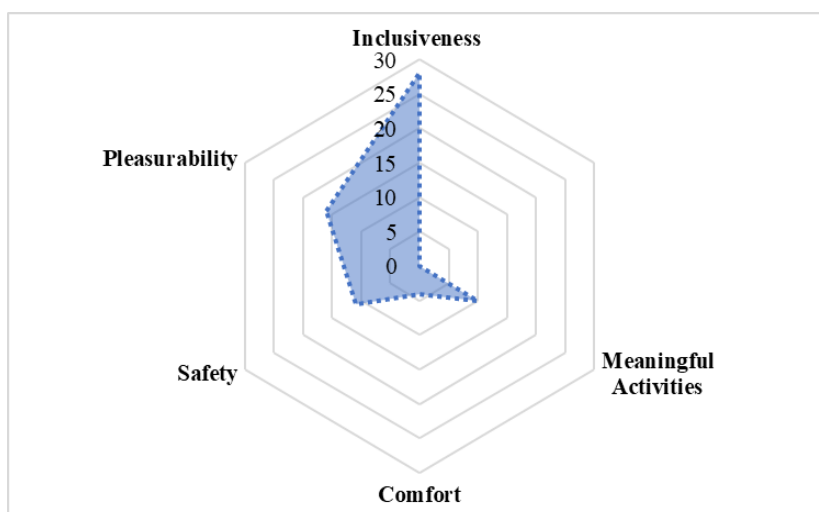

Fig.12. Public Space Index Results. Source: Authors, March (2023)

Conclusion

These spaces are considered quality generally if they are inclusive, have several activities on the public space, are comfortable and safe in the morning and in the evening, and finally, the space must be pleasurable. In our case study, although this public space was designed without an in-depth study, without the involvement of the user in the initial design of this public space, despite this, the public space known a strong affluence for the people who inhabit the neighborhood and even those who live around it. This is mainly due to the lack of these spaces in the city on the one hand and also to the quality of the public space.it is considered, according to the results of our research, an inclusive and safe space.

Assessing the quality of public spaces is essential to seeing the evolution in the use of space. This task remains somewhat difficult, especially to ensure quality public spaces. To do this, it is essential to set up a tool (Public space index) to assess the quality of public space. This tool must be consolidated by a survey of users. Finally, in order to have a quality public space, in the conception phase of the project, we should integrate the user of the space in the conception to achieve the desired objectives.

References

Abdelkebir, B., Maoui, A., Mokhtari, E., Engel, B., Chen, J., & Aboelnour, M. (2021). Evaluating Low-Impact Development practice performance to reduce runoff volume in an urban watershed in Algeria. *Arabian Journal of Geosciences, 14*(9), 814. https://doi.org/10.1007/s12517-021-07178-0

Bassand, M., Compagnon, A., Joye, D., & Stein, V. (2001). *Vivre et créer l'espace public*. Presses Polytechniques et Universitaires Romandes.

Carmona M., & Tiesdell S. (2007). *Urban Design Reader*. Oxford Architectural Press.

Carmona, M. (2019). Principles for public space design, planning to do better. *Urban Design International, 24*(1), 47-59. https://doi.org/10.1057/s41289-018-0070-3

Dietrich, K. (2018). An Evaluation of Public Open Space in Downtown Lincoln, Nebraska. *Community and Regional Planning Program: Student Projects and Theses, 54*. http://digitalcommons.unl.edu/arch_crp_theses/54

Evans, J., Evans, S. Z., Morgan, J. D., Snyder, J. A., & Abderhalden, F. P. (2019). Evaluating the Quality of Mid-Sized City Parks: A Replication and Extension of the Public Space Index. *Journal of Urban Design 24*(1), 119–136 https://doi.org/10.1080/13574809.2017.1411185

Foura, M., & Foura, Y. (2005). Ville nouvelle ou Zhun à grande échelle? L'exemple d'Ali Mendjeli à Constantine. *Les Annales de la recherche urbaine, 98*(1), 122-126. https://doi.org/10.3406/aru.2005.2606

Hadji, L. (2013). L'évaluation de la qualité des espaces publics: Un outil d'aide à la décision. *Cahiers de géographie du Québec, 57*(160), 25-40. https://doi.org/10.7202/1017803ar

Lakabi, M. S., & Djelal, N. (2011). Les modes d'appropriation et d'usage des espaces urbains dans la ZHUN sud de Tizi-Ouzou. De l'improvisation aux logiques individuelles. Insaniyat. *Revue algérienne d'anthropologie et de sciences sociales, 54*, Article 54. https://doi.org/10.4000/insaniyat.13250

Lakehal, A. (2014). La fabrication plurielle de centralités dans la périphérie de Constantine. *Carnets de géographes, 7*, Article 7. https://doi.org/10.4000/cdg.465

Lara-Hernandez, J. A., & Melis, A. (2018). Understanding the temporary appropriation in relationship to social sustainability. Sustainable Cities and Society, 39, 366-374. https://doi.org/10.1016/j.scs.2018.03.004

Llewelyn-Davies. (2000). *Urban Design Compendium*. English Partnerships.

Lynch, K. A. (1998). *The image of the city*. Massachussetts Institute of technology Press.

Mehta, V. (2014). Evaluating Public Space. *Journal of Urban Design, 19*(1), 53-88. https://doi.org/10.1080/13574809.2013.854698

Mehta, V. (2019). The continued quest to assess public space. *Journal of Urban Design*, *24*(3), 365-367. https://doi.org/10.1080/13574809.2019.1594075

Mierzejewska, L. (2011). Appropriation of Public Urban Space as an Effect of Privatisation and Globalisation. *QUAGEO, 30*(4), 39-46. https://doi.org/10.2478/v10117-011-0036-7

Muret, J.-P., Allain, Y.-M., Sabrié, M.-L., & Association pour l'information formation des élus locaux. (1987). *Les Espaces urbains*. Éd. du Moniteur.

Oppio, A., Forestiero, L., Sciacchitano, L., & Dell'Ovo, M. (2021). How to assess urban quality: A spatial multicriteria decision analysis approach. *Journal Valori e Valutazioni, 28*, 21-30. https://doi.org/10.48264/VVSIEV-20212803

Pasaogullari, N., & Doratli, N. (2004). Measuring accessibility and utilization of public spaces in Famagusta. *Cities, 21*(3), 225-232. https://doi.org/10.1016/j.cities.2004.03.003

Pinon, P., Dupré-Henry, D., & France, S. technique de l'urbanisme. (1991). *Lire et composer l'espace public*. Les Editions du STU.

Praliya, S., & Garg, P. (2019). Public space quality evaluation: Prerequisite for public space management. *The Journal of Public Space, 4*(1), 93-126. https://doi.org/10.32891/jps.v4i1.667

Rad, V. B., & Ngah, I. B. (2014). Assessment of quality of public urban spaces. *Sci.Int (Lahore), 26*(1), 335-338.

Sablet, M. (1991). *Des espaces urbains agréables à vivre: Places, rues, squares et jardins*. Éditions du Moniteur.

Tang, J., & Long, Y. (2019). Measuring visual quality of street space and its temporal variation: Methodology and its application in the Hutong area in Beijing. *Landscape and Urban Planning, 191*, 103436. https://doi.org/10.1016/j.landurbplan.2018.09.015

Weijs-Perrée, M., Dane, G., & Berg, P. (2020). Analyzing the Relationships between Citizens' Emotions and their Momentary Satisfaction in Urban Public Spaces. *Sustainability, 12*(19), 7921. https://doi.org/10.3390/su12197921

Werner, K. (1992). Introduction: Appropriation of Public Space. *Arch. Behav, 8*(1), 3-6.

Ziyaee, M. (2018). Assessment of urban identity through a matrix of cultural landscapes. *Cities, 74*, 21-31. https://doi.org/10.1016/j.cities.2017.10.021