

# Assessment of the Intensity of Use of Public Places

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## ABSTRACT

Public spaces and especially public places are important for population and local communities. Previously, the study, creation and analysis of these spaces were the specialty of engineers, architects and urban planners who were observing public spaces in their material, technical and formal aspects. Nowadays the sciences such as anthropology, sociology... etc. contribute to the explanation of phenomena, practical aspects and representations of city dwellers.

The use of public spaces differs from one type of space to another. They are for meeting, traffic, social interaction ... etc. the evaluation of the intensity of use of public space requires a measuring instrument represented by a scale of intensity of use to be able to estimate the degree of the latter, since the use of the public place on the one hand it is qualitative because we talk about the acts of users and secondly it is quantitative because it is related to the number of users attending the public place.

The aim of this article is to find out how and on what basis to evaluate and estimate the intensity use of public space and especially the public place.

**Keywords:** Scale; intensity of use; user; public place; qualification; quantification.

## INTRODUCTION

Public space and in particular the public place is a structured and delimited space which may contain users, persons, or any population attending this space in a usual or occasional manner. The capacity of this space to receive such or such size of population for a fixed period of the day is related to conditions environmental and physical aspects of this space.

Think of a scale to measure the intensity of use of public space (the place public) is needed to complete research on the use of public spaces.

We will see in this article how we came to establish the scale of intensity of use of public place, in addition to its instructions for use.

## Problematic

The use of the public place or public space in general is relative to the behavior of the users of the place of a component and the second part it is relative to the number of the population frequenting the place.

To do this, evaluate and estimate the intensity of use should be the compromise between these two factors, which is the behavior of users and their number.

So, the problem is how to go from the fuzzy form of degree of intensity of use to an exact form, in addition on which basis this intensity of use of a public place will be determined?

## Objectives

The objective of this article is to evaluate the intensity of use of the public place by establishing a credible, valid and simple scale of intensity of use.

## METHODS

Through a reading and analysis of different scales in various fields, see the classifications of measurement scales, in addition to analyzing the use of the public place and its relationship with the intensity of use, we tried to bring out a scale who can assess the use of public space and especially the public place both quality and quantity.

## Conceptual Definitions

### The Public Place

Public space in general, however, is not always the subject of a rigorous definition. Public space can be considered as the part of the public domain not built, allocated to public uses. The public space is thus formed by a property and by a use assignment. (Hanafi A, 2018)

The public place is a public space, an uncovered space, usually surrounded by buildings, an architectural setting with a stage scenery where the resident is an actor and the passer-by as a spectator.(Toussaint J.Y et al, 2001) However, it ensures the social and cultural exchanges, the festivities, the commemorations, and the interactions, transmission of daily news, the communication and trade exchanges.

A public place is at once a “convergent” space, that is to say: having internal elements likely to attract city dwellers, and a “divergent” space that imposes a certain relationship to the surrounding urban structures.(Bertrand JM et al, 1984) (See figure: 1)

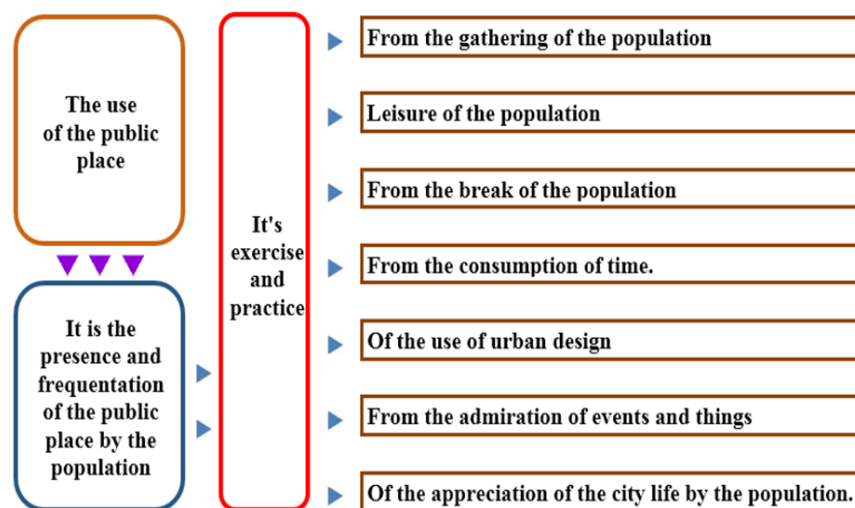


**Figure 1.** (a): Omonia Place Athens / Greece (whose name means “Place de la Concorde”)in Greek)  
(b): Piazza Navona (Piazza Navona in Italian) in Rome / Italy;  
(c): Place of arms in Oran / Algeria;  
(d): Square Port Said Algiers / Algeria. Source: archives author

### The Use of the Public Place

The use is the practice, the way to behave according to the social norm considered.(Larousse.fr) The use of a space or a place is a human activity socially determined, it is the habitual frequentation of this place.

P. Pannerai et al. (2002) defines practice in the context of spatial practice announces for this “*Social practice includes concrete activities: work, non-work, frequentation, journeys, social relations, rites, representations that engage and influence life daily*”. (PANNERAI P. et al, 2002) (See figure: 2)



**Figure 2.** relative to the different types of use of the public place. Established by the author.

The use of a public place is the exploitation of its space and its urban design by different ways by the people through time; it's the practice of gathering, the meeting, the leisure, the break, the consumption of time, the use of the urban design, the admiration of things and events and the appreciation of city life by the population. (Hanafi A, 2010)

### **The Users of the Public Place**

The population that frequents a public place includes all the users of the latter at a time of the day. Thus, it is composed by men, women, children, and all social classes without segregation or elimination: intellectual, poor, rich, unemployed ... etc.

### **The Animation of the Public Place**

Animation is the opposite of calm and rest. She is the character of what is animated, lively and full of life. For B. Gauthiez (2003), It is the intensity of the frequenting a public space, by individuals, vehicles and animals. (Gauthiez B, 2003)

This term is commonly used to describe the intensity of social life and its external manifestations in an agglomeration, neighborhood and a street. (Choay F. et al, 2003)

In addition, the animation of a neighborhood or a public space has as its factor the nature and the number of their functions as well as the mode of use, circulation and frequentation of this latest.

### **The Intensity of Use**

In general, it is the degree of activity, strength or power in the exercise of this last. It is still the amplitude of a phenomenon expressed in next numerical value a determined scale. However, this term is used in several fields of study to express multiple phenomena.

In our subject, the intensity of use of the public place expressed the degree, the force, the importance, the value, the power, the amplitude of an activity within the public place; still it means the force either weak or strong to exercise an activity by the users. (Hanafi A, 2010)

The use: is exploitation of the public space by any manners.

✓ The use of urban design: to use, enjoy, use to sit ... etc.

✓ Leisure: games, hobbies, fun ... etc.

✓ Circulation: cross the space of the place.

It should be noted that the practice and the exercise of these activities by the population of the place is relating to the capacity of the space of the place, since the latter is a space structured and delineated to contain a designated population at a time duration well determined.

### **Relation; Intensity of Use / Capacity of the Public Place**

Knowing that space is a physical, material and palpable data. Any analysis must to rely on this data. Indeed, the different graduations (degrees) of the intensity of use will be relative to the capacity of the public place and proportional to the number of users present at the latter and at a moment of the day.

### **Elaboration of the Measurement Scale**

#### **The Measure**

It is the evaluation of any magnitude by comparison with another of the same nature or species taken for unity. (Larousse. fr) According, to Gilles (1994, p.34) *"Measuring, it is to establish a correspondence between the whole constituting the phenomenon to be measured and a set of numbers that one chooses according to the nature of the phenomenon"*. (Gilles, 1994; cited by: Lemelin A, 2004)

So, measuring is comparing two objects or two things in relation to a given property, provided that things are similar and allow comparison a degree in less or in more.

For example: a room with an area of 20.00 m<sup>2</sup> is held that it is 20 once more of a square meter which is actually a unit of surface measurement.

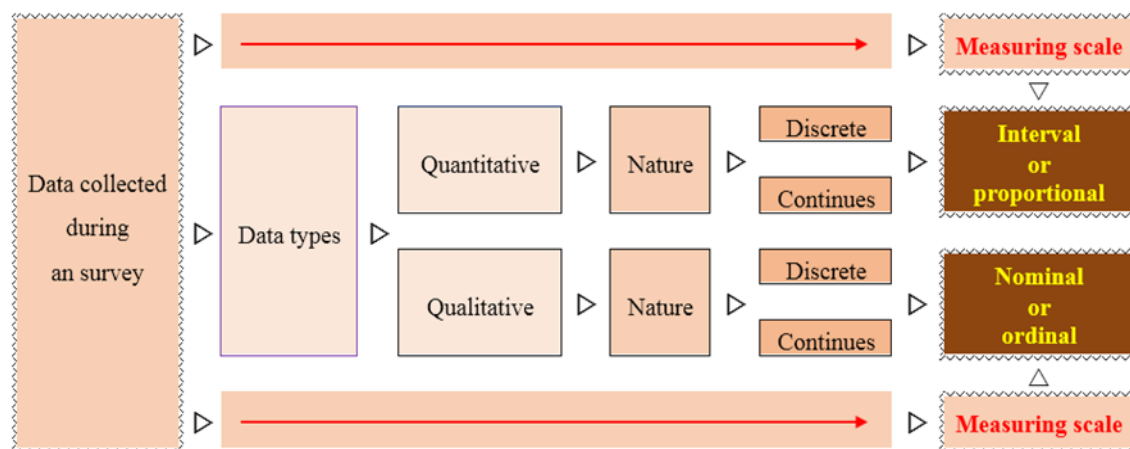
#### **Property of Measured Data**

According to A. AYACHE and al (no date) the data collected during any investigation are characterized by three properties (see figure: 3):

✓ Types of data collected: quantitative and qualitative.

✓ The nature of the data collected: continuous and discrete.

✓ The adequately measurement scale for the data collected: nominal scale, ordinal scale, interval scale and proportional scale.(Ayache A et al, no date)



**Figure 3.** relative to the properties of the data measured during a survey. Established by the author.

### The Measurement Scale (Definition)

According to S. Stevens Stanley (1946) “scales are a set of tools that are constructed to measure or quantify the answers to certain questions, in particular those that are related to feelings, attitudes, opinions or beliefs.” (Stevens Stanley S, 1946)

The scale of measurement permit to attribute numbers to things, events and following objects some rules; this latter is possible unless the principle of isomorphism is respected.

### Classification of Measurement Scales

#### Nominal Scale

This scale is used to qualify things and elements of a typical category “name” not-hierarchical; means that these elements do not fit into a gradation logical but through a modality where there is no relation of order. The nominal scale only allows to differentiate the things studied by means of codes. (Cardenas Gonzalez J. A, website visit: 09/2016)

#### Ordinal Scale

This scale is not far from the nominal scale, the most is that we can arrange the elements, things or events in a logical order or gradation. This scale makes reference to not measurable characters.

For example, the comfort of a home is found the scale of the sensation of comfort: very cold, cold, cool, neutral, warm, hot and very hot.(Boulet H, website visit: 09/2016)

#### Interval Scale

It is more accurate than those already seen first. Note that the data echeloned on this scale are quantitative data. And the interval between two categories always have the same value and the same signification.

For example: the difference between 14° C and 15° C is the same as between 26° C and 27° C.(Stevens Stanley S, 1946)

#### Proportional Scale

«The proportional or report scale has all the properties and all the levels of information from other scales plus the immense advantage of lending itself to absolutely all the arithmetic and static operations that may exist. » (Boulet H, website consult: 09/2016) this scale is characterized by equal proportions of measured values. It means, that we can obtain the values of one by multiplying the values of the other by the same number.

### Measurement scales (Examples)

- THURSTONE scale: to measure variables separated by equal distances and difference interval of 1 ° C; 1 m; 1 people for example. (Bonnet C, 1986)

- GUTTMAN scale: to classify phenomena into a series of factors having an absolute point 0 and equal distances between them; between class and class (n) times larger or smaller than following a ratio.
- LIKERT scale: it is a nominal and ordinal scale; measure a variable (01 category or class); classified according to an established order from big to small or the opposite

### The Scale of Intensity of Use of the Public Place

According to F. Schatz et al (1991) the scale is “the transition from a fuzzy form to a form more exact”.(Schatz F et al, 1991) And for touch in close the behavior of users and see the degree of intensity of use of the public place, the research technique used during an survey of the use of a public place with its different types it is the observation participant. (Bastien S, 2008)The data collected on the one hand are of a qualitative nature, given that they come in the form of symbolic information: gestures and behaviors users. Therefore, the analysis will describe and evaluate a case, a phenomenon, a situation, a conduct, allure, attitude, manner, actions of users of the place.(Andréani J .C et al, 2005)Secondly of quantitative nature, in the form of data statistics, relating to the size of the population, relating to the number of people present, frequenting and using the space of the place in different ways.

Therefore, the rate of presence of people (men, women, child) in the public place reflects the degree of use of the latter. If the presence rate of people is low, the use of the place is weak, On the other hand, if the presence of people in the public place is elevate, the intensity of use of the latter is strong, since the use of the space of the place, its urban design, its layout ... etc. is relative on the one hand to the number of people who use it and on the other hand to the capacity and on the surface of the public place.

Indeed, any presence of the population and any activity exercised by its population within the space of the public place is relative to the number of users of this population that the space of the place itself can contain it. therefore, relative to the space capacity of the public square.

If the capacity of the place is (n) users, the intensity of use is strong as the number of users reaches (n) users. As a result, the intensity of use is proportional with the capacity of the space of the public place.

Before seeing the scale of intensity of use of the public place, we review some examples directly related to our subject.

#### The Cafeteria, Example 1

The cafeteria: is a public place, structured and limited, it receives users who occupyit during its opening time. Users occupy the cafeteria by using its tables and chairs.

The occupation of all the tables of the cafeteria by the users means that the cafeteria is complete, so it is a very strong occupation, on the other hand if the cafeteria is empty, without users it means null occupation (null use).

We adopt the interval scale (see paragraph 6.4.3. example (the cafeteria) according to the occupation of its space (see figure: 4)

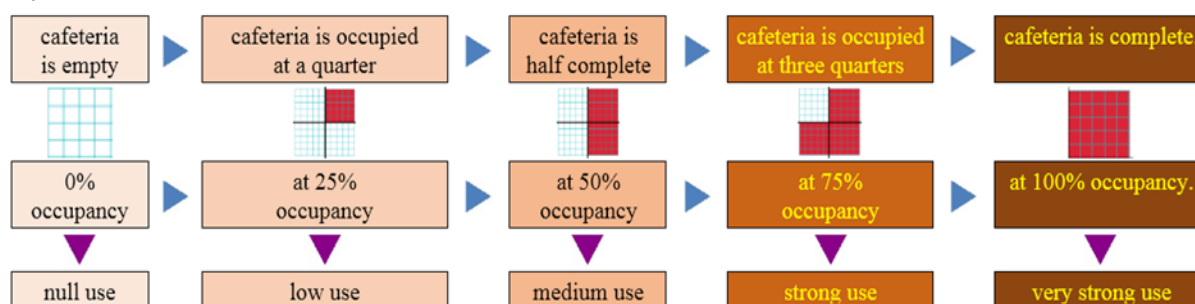


Figure 4. relative to the scale of use of a cafeteria. Established by the author.

#### The Bus (Urban Transport), Example 2

This time we take an urban transport: the bus. After observation we see that the bus is a structured space open to the entire population of the city, the maximum capacity of the bus is the presence of a maximum number of passengers (sitting and standing) authorized within this bus.

The scale relative to the second example (the bus): according to the use of the bus. (See figure: 5)



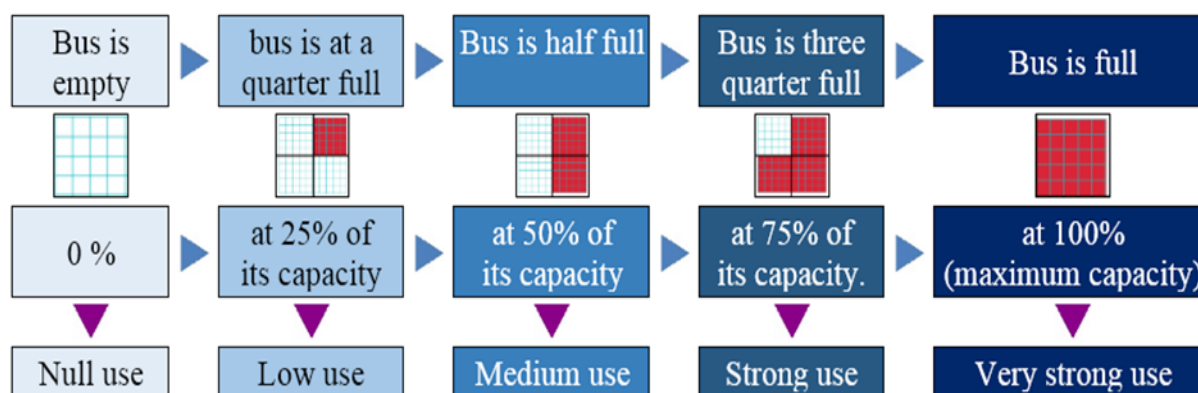


Figure 5. relative to the scale of use of the bus. Established by the author.

## The Scale of Measurement of Intensity of Use, Quantitative / Qualitative Approach

### Zone (Area) of User within the Public Place

The public space, and in particular “the public place” is a space that can contain persons of different sex. The capacity of this space to receive this or that size of population is relative to these dimensions and to the vocation of the public place: ornamental, of circulation, monumental or an esplanade.

For the user can have the comfort and the pleasure by exploiting and using ‘the public place’; he must have a zone (area) of his own, this zone (area) allows him to exercise his activities without disturbing anyone or being disturbed by another.

### Different Positions of the User in the Space of Public Place

- Standing position.
- Sitting position.

The determination of personal space that is “the regulator of intimacy”; according to R. Sommer, (1979) this is the limit (frame) established between the person and the others against all that is perceived as aggression. (Sommer R, 1979)

E.T. Hall, (1971) confirms than the limit (frame) vary according to the culture of each social group, the place and the moment. He also established a typology of distances to four (04) types of distances. (Hall E. T, 1971) (see figure: 6)

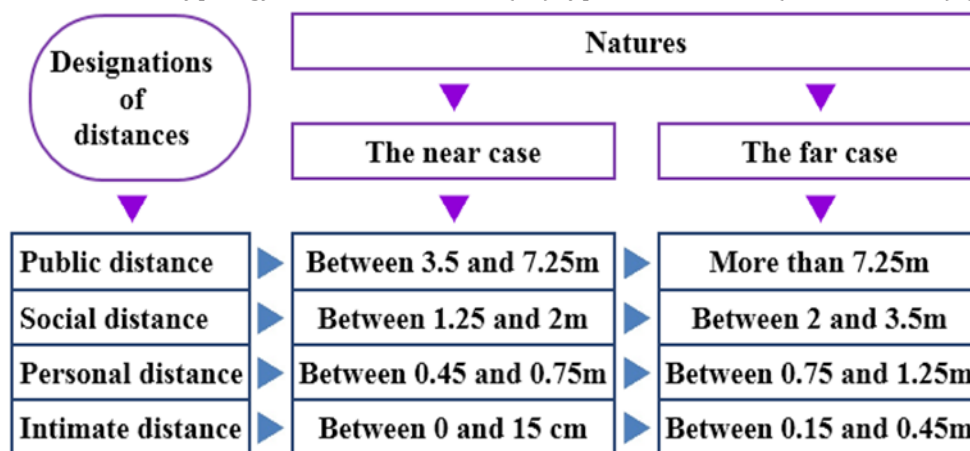


Figure 6. relative to the distances of the personal space.

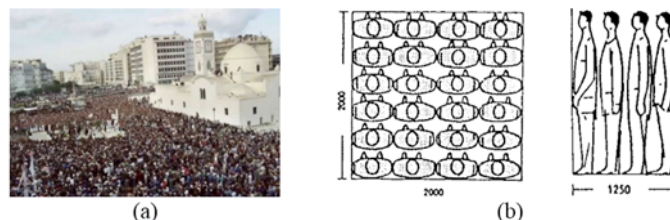
Established by the author; according to Hall E.T; 1971

### The User of Public Place in Standing Position

The user of public place in standing position must have a zone (area) that allows him not to be embarrassed or disturbed by any person, it still allows him to launch gestures in all directions, besides taking or picking up something that fell on the ground ... etc. apart from the case where people gather in large numbers to assist an event or a concert, this case is different.

✓ Standing position without movements:

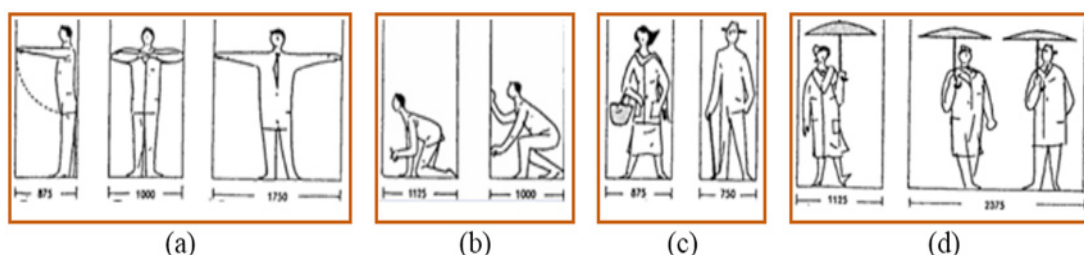
We begin with the case where the users of the public place are gathered for an event. We observed here that the space of four (4) m<sup>2</sup> can contain 24 users, inserted next to each other. Note that in this case, the user is not free in his actions, rather it is waxed by the persons. (See figure: 7)



**Figure 7.** (a): relating to a demonstration in place of martyrs Algiers 03/2019. Archives author.  
(b): relating to the ratio of individual to space.(NEUFERT E, 2002)

✓ Standing position with free movements:

In general, the user of the public place needs an enough space to be free in his actions. See figure: 8)



**Figure 8:** (a): Launch gestures; (b): pick up an object fallen to the ground; (c): carry a bag by hand(d): carry an umbrella or umbrella by hand. (NEUFERT E, 2002)

We result that the necessary zone (area) in square meters for the user will be freer and in comfortable situation varies between 0.25 m<sup>2</sup> and 3.00 m<sup>2</sup>; it means that the zone (area) is:  $0.25\text{m}^2 (0.5\text{m} \times 0.5\text{m}) \leq \text{zone (area)} \leq 3.00\text{m}^2 (1.75\text{m} \times 1.75)$ .

The zone (area) for a user in a comfortable standing position must be:  $1.25 \times 1.25\text{m} = 1.56\text{m}^2 \approx 1.50\text{m}^2$ .

*The User in a Seated Position*

The space of the public place is arranged by “public benches” to allow pauses, recreation or rest in general. The public bench makes it possible to sit down three medium-sized users at ease. (See figure: 9)



**Figure 9.** (a) Public Bench in Ben Badis / Biskra public place.  
(b) public bench in Dhalaa / Biskra public place. Source author.

**The Quantitative / Qualitative Approach**

As already mentioned at the top of this article the data relating to the use of the place collected during in situ survey are qualitative data on the one hand and quantitative (statistics) on the other hand; since the exercise and practice of all activities at the within the public place (meeting, leisure, gathering, games, entertainment ... etc.) are relating and proportional to the number of the population present in public place.

If the presence of people in the public place is at half of the capacity of the space of the public place it implies that the intensity of use is medium. However, if the public place is full by its users, the intensity of use is very strong of use.

This scale of intensity of use is formed of five graduations (five degrees) beginning with the empty public place, wants to say: null intensity of use, until its saturation as space by its population: very strong intensity of use. (See figure: 10)

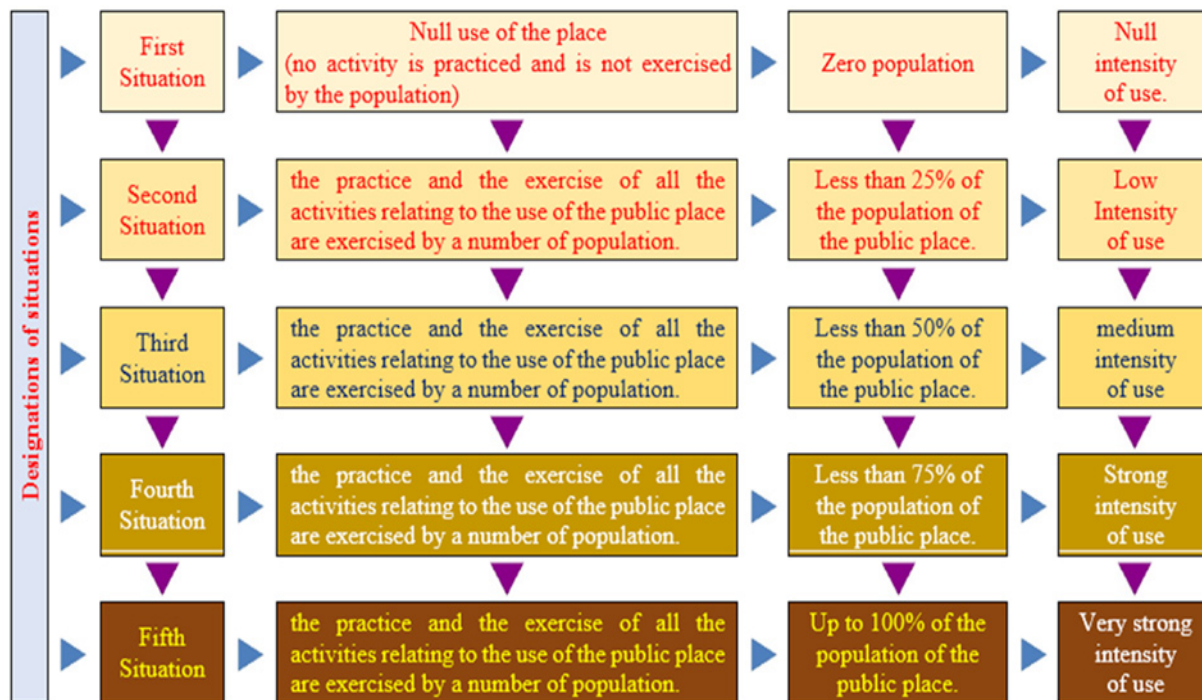


Figure 10. relative to the intensity scale of use of the public place. Established by the author

Recap of Scale of the Intensity of Use(See Figure: 11)

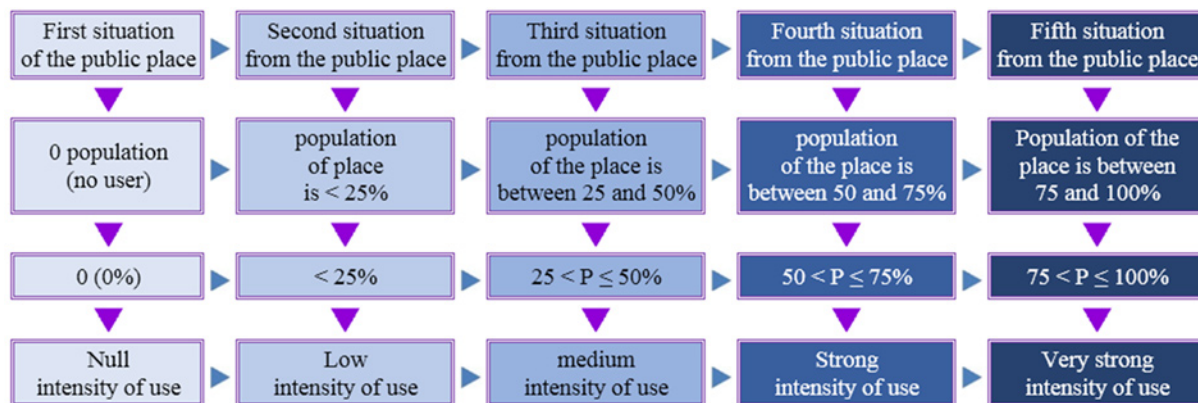


Figure 11. relative a demonstrates the scale of intensity of use. Established by the author.

## Application of Scale of the Intensity of Use

The public place is used by both sexes of society: men and women and still all age tranches.

The public place is exploited for: meeting, observation, discussion, circulation, the break and all this is exerted by men / women and adult / child.

## Period of Use of the Public Place

The exploitation and use of the public place are like the use of any space, it is done within a specified period and this use can change from period to another. So, for better understand all phenomena and the manner of use, the day was divided into distinct periods and according to the seasons.

- In the morning: it is the first part of the day, it is between sunrise and noon, the period morning.
- Afternoon: part of the day between noon and evening.
- Evening: decline of the day; it is the end of the day.



## **Relation, Public Place / Users**

In first time, we must determine the capacity of the public place by its users as it is a structured and delimited space, that is to say, calculated the number of persons who the public place can contain them in a time already determined. This number of the population will serve us a reference to the application of our scale of intensity of use.

For this, we divide the surface of the free space (part without urban design) of the public place concerned by the survey on the zone (area) reserved for the user where he will be in a comfortable situation. (See paragraph: The user while standing)

## **RESULTANTS AND DISCUSSION**

### **The scale of intensity of use and observation grid (see figure: 12; We take the city of Biskra / Algeria as an example)**

On site, and by applying the scale of intensity of use and the observation grid the task of the investigator becomes simple, where he begins with:

- Determine the number of hours in each period: morning period / afternoon period and the evening period, since these changes according to the season. (See cell represented by the symbol ① in the figure: 12).
  - ✓ For the autumn season, the morning period from: 7.30H to 12.00H. the period in the afternoon from: 13.00H to 17.00H and the evening period from: 18.00H to 20.00H.
  - ✓ For the winter season, the morning period from: 8.00H to 12.00H. the period in the afternoon from: 13.00H to 17.00H and the evening period from: 18.00H to 20.00H.
  - ✓ For the spring season, the morning period from: 7.00H to 12.00H. the period in the afternoon from: 13.00H to 18.00H and the evening period from: 19.00H to 21.00H.
  - ✓ For the summer season, the morning period from 6.00H to 12.00H. the period in the afternoon from: 13.00H to 18.30H and the evening period from: 19.00H to 21.00H. (source: Station meteorological station of Biskra / Algeria).
- As already indicate at the top of this article the research technique used it is Participant observation, the investigator must estimate the number of users of the place by sex: men / women and at each hour relative to the period of the observed day: morning period / afternoon period and the evening period and recorded the number in the cells that are suitable, whose cells represented by the symbol ② (see figure: 12) on the scale of intensity of use and observation grid reserved for the men population, and for the women population the cells mentioned by the symbol ③. Or, the global population is the sum of the two populations: men, and women relating to each hour of the three periods of the day, the investigator has to put them in the cells carrying the symbol ④ (see figure: 12).
- Calculate the average of the global population of the place and put it in the cell that carries the symbol ⑤ (always on the scale of intensity of use and observation grid, figure: 12). Indeed, the result of the average of the global population is the sum of the population global of all hours divided by the number of hours of this period.
- The investigator writes the dominant type of use at each period of the day: period morning / afternoon period and the evening period in the cell mentioned by ⑥ in the scale of intensity of use and observation grid.
- In bottom of the scale of intensity of use and observation grid, there are two zones: one indicated by the symbol ⑦ for the quantitative (statistical) scale of intensity of use and the second mentioned by symbol ⑧ reserved for the qualitative scale of intensity of use. (See figure: 12)
- The investigator must calculate the rate of intensity of use for each day period: morning period / afternoon period and the evening period, based on the average of the population already calculated and recorded in the cell: ⑤. (see the example: 01) Then and after to see his correspondence with the quantitative scale of intensity of use, he begins by filling the cell: ⑨, ⑩, ⑪, ⑫ or ⑬. (See figure: 12)

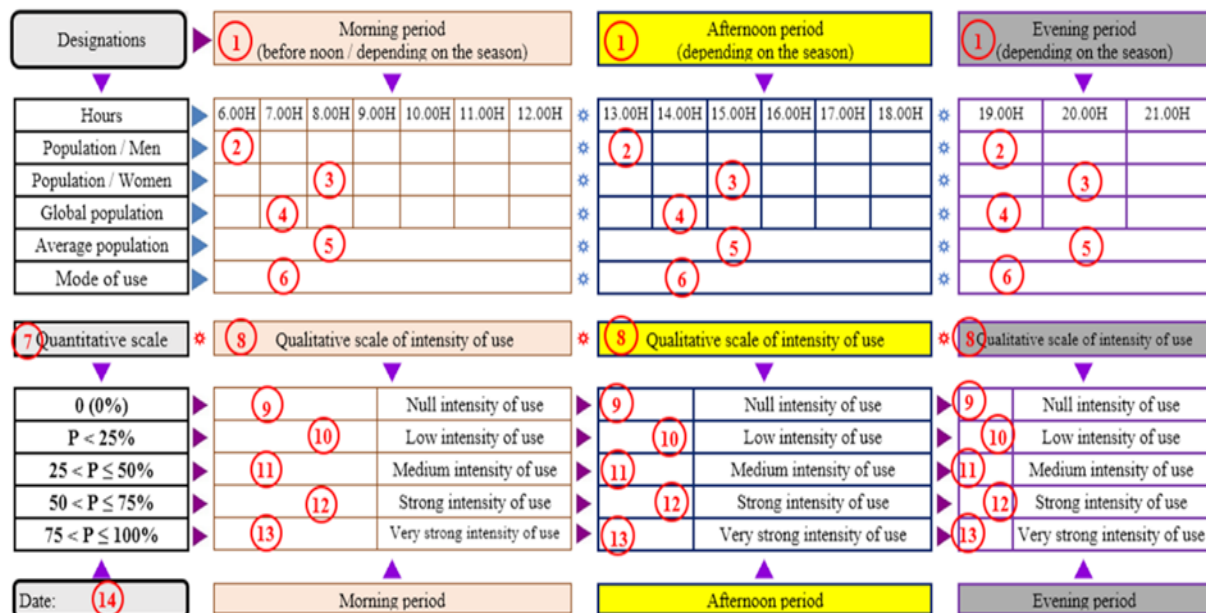
**Example 01:** Calculating the rate of the intensity of use for each period of the day:

Assuming that the average of the global population (men and women) in the morning period was 520 users and the total number of the population (its total capacity) of the public place concerned by the study is evaluated at 1500 users, we obtain by the application of the formula: 1, the rate of intensity of use of the desired period (morning). (See formula: 1):



**Formula 1.** relative to the calculation of the rate of intensity of use of a desired period.

- The investigator records the result obtained in the corresponding cell. To this example the rate = 34.66% => 25% < Population < 50% is the cell indicated by the symbol (11).
- Now we have arrived at the objective of our study which is the evaluation of the intensity of use of the public place relative to the desired period. For example: 01, the intensity of use of the place during the morning period whose rate equal 34.66%, it is of medium intensity of use. (See figure: 12)
- At the bottom of the scale of intensity of use and observation grid, indicated by the symbol (14) is reserved to set the date of the day of the survey. (See figure: 12)



**Figure 12.** relative to the scale of intensity of use and observation grid. Established by the author.

## CONCLUSION

Our aim was to master the situation use of the public place and establish a scale that will allow us to evaluate and estimate the intensity of use of this later, since the use of the place to is between two types of data, on the one hand qualitative data: meeting, gathering, pause ... etc. and other share quantitative data (statistics) on the size of the population attending the place.

Above all, we tried to make a reading and analysis on the different scales of measurements and their characteristics, in addition their compatibilities with our subject with its specificities.

The result has been that the use of a more efficient scale about us and simple at the time of its exploitation proven necessary.

For this purpose, the scale of intensity of use established allows us to evaluate and with accuracy the two qualities of use of a public place at the same time and find the relation between the two in addition to having a real qualification, credible and valid. This measuring instrument is of the interval scale type, based on five equal gradations (degrees) allowing measure the intensity of use of a public place and for the duration of the desired day. Recalling that this work was established and validated as part of thesis of master. (Hanafi A, 2010)

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**Citation:** Hanafi Abdelhakim, Alkama Djamel. *Assessment of the Intensity of Use of Public Places*. *Int J Innov Stud Sociol Humanities*. 2020; 5(1): 28-39. DOI: <https://doi.org/10.20431/2456-4931.0501003>.

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