



**SUDAN UNIVERSITY OF SCIENCE AND
TECHNOLOGY
COLLEGE OF GRADUATE STUDIES**



Reimagining streets as places for people:

a case of Nile Street in Omdurman

اعادة تصور الشوارع كأماكن للناس :

دراسة حالة شارع النيل امدرمان

A Thesis Submitted in Fulfillment of the Requirements for the
Award of the Degree of
Master of Science in Urban Design

Supervising:
Dr. Mona Mustafa Al-Taher

Prepared by:
Mohamed Khatir Mohamed

July ,2022

بسم الله الرحمن الرحيم

الآيه

قال الله تعالى:

{اقْرَأْ بِاسْمِ رَبِّكَ الَّذِي خَلَقَ * خَلَقَ الْإِنْسَانَ مِنْ عَلَقٍ * اقْرَأْ وَرَبُّكَ الْأَكْرَمُ * الَّذِي عَلَّمَ
بِالْقَلَمِ * عَلَّمَ الْإِنْسَانَ مَا لَمْ يَعْلَمْ}

[العلق: 1-5]

صدق الله العظيم

Dedication

To whom I owe gratitude and the beauty as long as I live to whom
was her supplication the secret of my success after God's success,
Dear mother, to whom I carry his name with pride. Dear father, to
them, I dedicate my love and gratitude to my dear brothers,
sisters, and friends Those who supported me and helped me. to
them my love and gratitude.

To everyone who taught me a letter and enlightened my path with
advice I dedicate this humble effort to all of them...

Acknowledgements

I extend my sincere thanks and appreciation to Dr. Mona Mustafa, for she was a beacon of knowledge. Her wise guidance in order for this research. I also thank my dear mother who has been supportive of me throughout my life.

I also thank all my friends, professors, and students who supported me for their continuous support and my thanks to all my professors at the College, I also thank all the people who contributed to the success of this research, whether with guidance or assistance, and I ask God to reward them with the best reward on my behalf, and that it be in the balance of their good deeds, as I hope Almighty God to benefit from this research, and serve researchers, specialists, and society.

مستخلص البحث

تلعب المساحات المفتوحة دوراً حيوياً وفعالاً على المدن والمجتمعات المحلية ، وتعد الشوارع جزءاً رئيسياً من عناصر المدينة ، فتعتبر ذات وظائف متعددة حيث يتجمع الناس للتواصل الاجتماعي وممارسة العديد من الأنشطة لكن للأسف تم إهمال دور الشارع واصبحت فقط لحركة السيارات .

يركز البحث ويهدف الي (إعادة تصور الشوارع كمكان للناس وقدرة الناس للبقاء فيه) ودراسة حياة الناس وكيف ومتى يستخدمون هذه الأماكن ، ودراسة الأنشطة التي تتم فيه . سيركز البحث علي مدينة امدرمان وتم اختيار شارع النيل امدرمان كعينة للدراسة ، من كبري شمبات حتي تقاطع حي اب روف .

تتمثل مشكلة البحث الاساسية في قلة جودة تصميم الشارع كمكان للناس يتفاعلون فيه وتتداخل الأنشطة, وعدم الاهتمام بصورة المكان التي تجذب الناس ، وغياب معايير تقييم جودة الشارع كمكان يهدف الارتقاء الحضري. اعتمدت منهجية البحث على المنهج الوصفي واستخدام أكثر من طريقة لجمع البيانات لتحديد اوجه القصور فيها من خلال اسقاط كل ماتم تناولة في الدراسة النظرية علي منطقة الدراسة ، وتم استخدام الملاحظة ومراجعة الأدبيات وادوات تقييم المكان ، وقد استخدم جان جيل الملاحظة (أين - متى - من - كيف) للتقييم عدد من الاماكن . وقم تم جمع المعلومات من خلال التواجد على الموقع لفترات مختلفة من الأسبوع .

من ابرز النتائج التي توصلت لها الدراسة غياب عوامل الجذب عن المكان , يفقدها الرؤية البصرية المريحة ويشكل لدى المشاهد شعور بانخفاض قيمة المكان وبالتالي الحاجة لتغييره ، التغيير سيرفع من قيمة المكان بعناصر جاذبة تكسبها مزيداً من الهوية وهذا بدوره سيرفع ايضاً من القيمة الاقتصادية للمكان ، كما لوحظ عدم وجود فصل واضح للأنشطة للمجموعات المختلفة وخاصة العائلات لذلك يجب من ان يكون هنالك فصل واضح للأنشطة المختلفة حتي يمكن الارتقاء بالمكان ووضع في بؤرة الاهتمام كما تعيد الشعور بالانتماء للسكان

وكان ختاماً محاولة الخروج بتوصيات تساعد في الارتقاء بالمنطقة، كان اهمها اعادة النظر في القوانين العمرانية السائدة بهدف الوصول لفكر يساعد في تحقيق متطلبات البيئة العمرانية التي تساعد بالارتقاء بالمكان ليصبح مكان يمكن ان يشغله الناس ويتفاعلون فيه . هذه التحسينات يمكن أن تغير شارع النيل وتجعله مكاناً جذاباً للناس ، أمناً ويسهل الوصول إليه. سيؤثر ذلك ويرفع القيمة الاجتماعية والاقتصادية والثقافية لشارع النيل والمناطق المجاورة واشراك المستخدمين لضمان استمراريته .

الكلمات الدالة

شوارع ، الشوارع كأماكن ، أدوات الحياة العامة ، اعادة التصور.

Abstract

Open spaces play a vital and effective role in cities and local communities, and streets are a major part of the city's elements. They are considered to have multiple functions, where people gather for social communication and practice many activities, but unfortunately the role of the street has been neglected and became only for the movement of cars.

The research focuses and aims at (re-imagining the streets as a place for people and people's ability to stay in it), studying people's lives and how and when they use these places, and studying the activities that take place there. Rove.

The main research problem is the lack of quality of street design as a place for people to interact and activities overlap, and the lack of attention to the image of the place that attracts people, and the absence of criteria for evaluating the quality of the street as a place with the aim of urban upgrading.

The research methodology relied on the descriptive approach and used more than one method to collect data to identify its shortcomings by projecting everything that was dealt with in the theoretical study on the study area, and observation, literature review and place assessment tools were used, and Jan Gil used the observation (where - when - who - how) To evaluate a number of places. The information was collected by being on the site for different periods of the week.

One of the most prominent findings of the study is the absence of attractions from the place, losing it a comfortable visual vision, and forming in the viewer a feeling of depreciation of the place and thus the need to change it. That there is a clear separation of the different activities so that the place can be upgraded and placed in the focus of attention as well as restore a sense of belonging to the population

Finally, it was an attempt to come up with recommendations that would help in upgrading the area, the most important of which was to reconsider the prevailing urban laws with the aim of arriving at an idea that would help fulfill the requirements of the urban environment that would help elevate the place to become a place where people could occupy and interact. These improvements could transform Nile Street and make it an attractive, safe and accessible place for people. This will affect and raise the social, economic and cultural value of Nile Street and the surrounding areas, and involve users to ensure its continuity.

Keywords: Streets, streets as places, tools of public life, reimagining

Table of Contents

ABSTRACT	1
Chapter 1	
1 INTRODUCTION	0
1.1 Introduction	1
1.2 Significance of the Study.....	2
1.3 Research Problem.....	2
1.4 Research Objectives and Questions.....	3
1.5 Research Methodology	3
1.5.1 Triangulation.....	4
1.5.2 Direct Observation.....	4
1.5.3 literature review	5
1.6 Scope and Limitations of the Study.....	6
1.7 Thesis structure.....	6
Chapter 2	
2 LITERATURE REVIEW	7
2.1 introduction:	8
2.2 Concept of Urban design:.....	16
2.3 Urban space	16
2.3.1 Types of urban spaces:.....	16
2.4 Public space:.....	8
2.5 Classification of public spaces	9
2.6 principles of public places:.....	12
2.7 Dimensions of “public spaces”.....	15
2.8 Successful Place:	16
2.9 Factors constituting to the social dimension of streets.....	19
2.10 Street.....	21
2.11 classification of street.....	21
2.12 street as a place	23
2.13 The sociable street	24
2.14 Public Life	26
2.14.1 Public Life Study	26
2.15 Conclusion.....	27

Chapter 3

3	METHODOLOGY AND CASE STUDY	27
3.1	Introduction	28
3.2	Methodology.....	28
	Choice of methods:.....	28
3.2.1	Triangulation.....	28
3.2.2	Direct Observation.....	29
1.	Public life tools selection.....	31
3.2.3	Observation period.....	35
3.2.4	Performance of direct observations	35
3.2.5	Mapping - performance	36
3.2.6	Counting - performance	36
3.2.7	Tracking - Performance	37
3.2.8	Photography - performance	37
3.2.9	Twelve quality standards – performance.....	47
3.3	RESEARCH LOCATION.....	40
3.3.1	Sudan climate.....	49
3.3.1	Khartoum:	40
3.3.2	Planning of Khartoum:.....	41
3.3.3	Omdurman	42
3.3.4	Family and Social life	43
3.4	Case study.....	49
3.4.1	Nile street -Omdurman	49
3.4.2	Activates and social life.....	51
3.5	Direct observation	53
3.5.1	Mapping	54
3.5.2	Counting Pedestrian Flow.....	57
3.5.3	Tracking Who Walks?	59
3.6	The Twelve Quality Criteria:.....	61
3.7	Survey.....	64
3.8	Photographing.....	68
3.9	Conclusion:.....	72

Chapter 4

4	RESULTS, RECOMMENDATION AND CONCLUSION	72
4.1	introduction.....	73
4.2	Results	73
4.3	Recommendations	73
4.4	Summary of this chapter.....	76
	CONCLUSION AND PROSPECT	88
	REFERENCES.....	90

Table Of Figure

Figure 1:Ten principles of public places	14
Figure 2:Dimensions of public space	15
Figure 3:successful public space	18
Figure 4:categories of outdoor activities	20
Figure 5: principles of public places	25
Figure 6:general life studies	34
Figure 7:Omdurman region in the Sudanese capital Khartoum.	40
Figure 8:Köppen climate classification map of Sudan climate zones	49
Figure 9:1905_map_Khartoum_and_Omdurman_by_Thomas_Cook.....	41
Figure 10:Omdurman	42
Figure11:Omdurman	43
Figure 12: Crowds gather in front of the shrine of Sheikh Hamed El-Nil	44
Figure 13: Local kids in Sowakin, Sudan.....	44
Figure 14:Eid in Sudan	45
Figure 15:Omdurman local market	45
Figure 16:People setting at street	47
Figure 17:activities at street.....	47
Figure 18:Set Shai	48
Figure 19:Street vendors.....	48
Figure 20:Nile Street location	49
Figure 21:Nile Street map location.....	50
Figure 22:Nile Street activates-at 6:00 pm.....	51
Figure 23:Nile Street activates-at 4:00 pm.....	52
Figure 24:Nile Street café and sitting area	52
Figure 25: Stationary activities mapping.....	54
Figure 26:Sitting commercial and public and standing.....	55
Figure 27:The map show street vendors and were people standing	56
Figure 28:Street shots taken	68
Figure 29:The activities of the representative of selling vegetables and fruits ...	68

Figure 30:the change of activities and the beginning of the café's work.....	69
Figure 31: the beginning of come to the cafés.	69
Figure 32: six o'clock in the evening, shows the influx of people to the place...	70
Figure 33:The photo was taken at eight in the evening.....	70
Figure 34:seven in the evening, it shows the various forms of café and seating. 71	
Figure 35: at seven in the evening and shows the young people in groups.....	71
Figure 36:The photo shows the various seating	72

Table Of diagram

Diagram 1:Tally people who decline to participate in the survey.	64
Diagram 2: relationship with the area	64
Diagram 3:What brings you to this space today?	64
Diagram 4:How often do you visit this place?	65
Diagram 5: spending time at place	65
Diagram 6:feeling safety at public space.....	66
Diagram 7: How did you get here today?.....	66
Diagram 8: how people feel about this public space	67

Chapter 1

1 Introduction

1.1 INTRODUCTION

This chapter starts with the preface of the research background and justification. The research problem, case study background, and significance of the research are presented in the following section. It further continues with defining research objectives and research questions. The final section explains the conceptual framework that is structuring the fundamental knowledge of the research. Background and Justification

Since the 1960s the study of public space and its effect on people has become an established field of study (Gehl and Svarre, 2013). This is because of the discovered impact the urbanized cities have on their citizens, from their streets to their parks (Project for Public Spaces, 2012) which became a hot topic in the urban community after the 1960s.

“Streets and their sidewalks, the main public places of a city, are its most vital organs. Think of a city and what comes to mind? Its streets. If a city’s streets look interesting, the city looks interesting; if they look dull, the city looks dull.” (Jacobs, 1961) This famous quote from Jane Jacobs acknowledges that streets are the most important public spaces where people experience a city. Historically, cities have been organized around their streets (Svensson et al 2004; UN-Habitat 2013).

Streets were once the major places for socialization, trading, and recreation (Marshall 2005; UN-Habitat 2013). However, ever since the growth of motorized vehicles started in the 1950s, the ‘place’ function of streets has been overlooked. From now on traffic engineers led the street planning and they became responsible for the design of urban streets.

Streets are the most important element of the urban environment. They are where people go to work, walk and engage in social activities (Badawi, Samaa and Elborombaly, Hossam 2015). Streets represent a significant component of users (Badawi, Samaa and Elborombaly, Hossam 2015) mental image of their cities (Badawi, Samaa. 2017). Designing streets to encourage walkability is a major topic in urban design discourse (Badawi, Samaa, and Aida Nayer 2017) Studies show that enhancing the urban

environment may encourage walkability, especially in streets designed and built for cars (Ewing, Reid, Susan Handy, Ross C. Brownson, Otto Clemente, and Emily Winston 2006).

The study about streets as public space is not new. In fact, from the late nineteenth century till date there have been various studies on street designs, street significance, measurement and reclaim (Appleyard and Lintell, 1972; Jacobs, 1961; Mehta, 2013). Likewise, the UN-Habitat (2013) recently recognized streets as drivers of city prosperity for the overall quality of life and social wellbeing of the people.

However, literature that focuses on the street as a public space within cities of Africa is limited; few empirical studies have focused on the qualities.

Even today, the main role and function of streets are considered to facilitate the efficient flow of vehicular traffic. However, with today's growing emphasis on urban and social sustainability, it is being recognized that there is a need to shift the function of streets and instead favor the 'place function' over the 'traffic function'. Streets are so much more than a corridor of vehicular movement. In recent years, the concepts of 'streets for people' and 'streets as places', two concepts that put people first in the design of streets, have become important around the world and gained much attention.

1.2 Significance of the Study

The result of this study will contribute to the theoretical and practical knowledge of the concept of imagining great streets for people. This research suggested the tool for street for people to guide urban designers, architects, NGOs to take into consideration of the significant role of great and livable streets in Sudan. In addition, the result clarifies the most important aspect of the and opportunities to help create great streets.

1.3 Research Problem

The global interest in developing public places such as streets and making them a better place for people, that is a clear deterioration of the public live for the streets as a

whole in Sudan, and there are no places where people can go out for leisure, cycling or even safe walking. Several problems led to this deterioration, including:

- Poor quality street design as places for people to meet and interact.

1.4 Research Objectives and Questions

General objective

The main goal is to reimagine the streets as places for people, and the ability for people to staying in the road.

Specific objectives and questions:

To achieve the general research objective, the specific objectives and the following research questions have been ingested.

- **Studying the public activities of people on the street.**
 - Who are the people who use the place?
 - How do people use the place?
 - When do they use the place?
- **Identify the uses and activities in the streets.**
 - What are the uses and activities on the street?
 - To what extent do activities vary at different times of the day?
 - Where are the areas of activities?

1.5 RESEARCH METHODOLOGY

I will discuss in greater detail the research design and methodologies adopted for the study. I will use qualitative methods of collecting data.

The qualitative methods consisted of a community focus group and an interview and the tool From PPS evaluation tool to help people in judging any place, good or bad.

- PPS evaluation tool

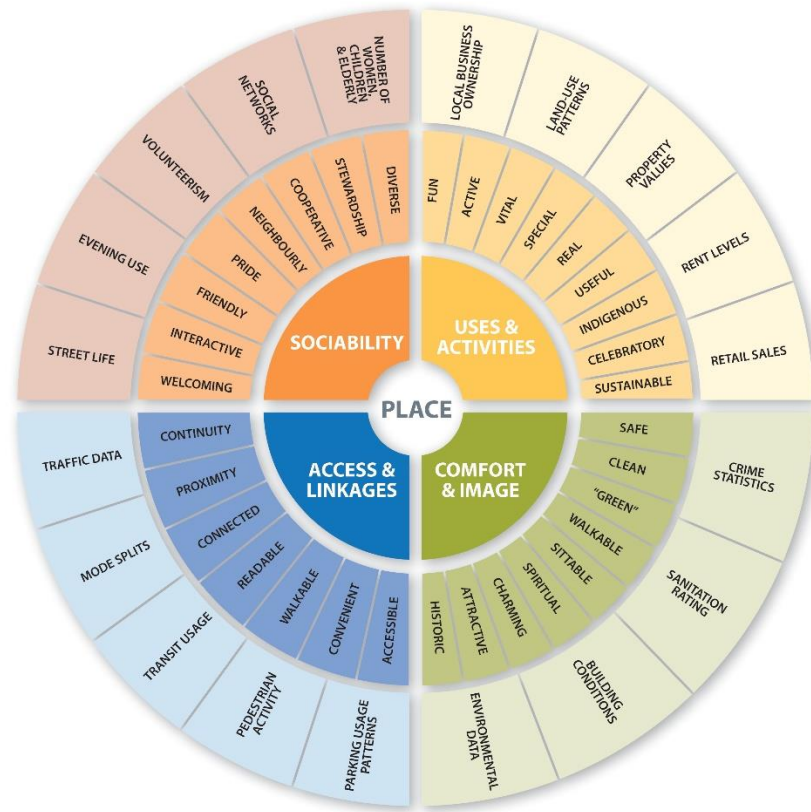


Figure: - PPS evaluation tool

Source: Project for Public Spac

1.5.1 Triangulation

Triangulation refers to the use of more than one method for collecting data by using more than one method, the credibility, and validity of the research results increase. The benefit of triangulation is that it allows the researcher to understand the phenomenon from several angles by revealing different aspects. This in turn leads to a more comprehensive understanding of the phenomenon itself.

The different nature of the six questions of requires in its study a set of different methods of answering them. For this study, two methods were used:

1.5.2 Direct Observation

The methodology of this study is inspired by Jan Gehl's method of observation. However, the study of analyzing public space already began in the 1960s by other public life

researchers, such as William H. Whyte, as a criticism to the planning profession of that time for having forgotten the life of humans and the human scale in our cities (Gehl and Svarre 2013).

Walk-By Observation According to Mehta (Mehta, Vikas. *The Street 2014*), the mapping of stationary and lingering activity of people is an effective method to understand the preferred location of where people gather and the kind of activities, they are engaged in.

To capturing the social activities at Nile Street Omdurman, use walk-by direct observations to record social activities in this location. Symbols were

standardized and used in recording walk-by observations data, and this method was used in both a structured and unstructured manner. Duration of stay and engaging in social. The walk-by observation will provide a glimpse of the behavior movement of the section of the street at various times from morning to evening. However, the list of questions is

Public life tools selection:

1. How many? 2. Who? 3. Where? 4. What? 5. How long?

The tools chosen for this study to measure and analyze the interaction between public space and public life are:

- **Mapping** Stationary activities
- **Counting** Pedestrian flow
- **Tracking** Who walks, how fast?
- **Tracing** People's movement patterns
- **Photographing**
- **Twelve quality criteria**

1.5.3 literature review

Another purpose of this study is to explore the key concepts and main theories of how to design 'streets as places'. Within this scope it was essential to determine the fundamental factors that contribute to making a successful place, therefore, a literature review was conducted. The literature review was executed by evaluating similar thesis, published books, journal articles, newspaper articles, governmental and nonprofit organizations. Based on the purpose, several keywords were used to search for relevant literature.

The most relevant keywords connected to the purpose of this study are streets as places, shared space, complete streets, healthy streets, livable streets, public space, and temporary/tactical urbanism. Based on the keywords I came across some influential practitioners and urban writers within this subject such as Jan Gehl, William H. Whyte, Donald Appleyard, Jane Jacobs, Allan Jacobs, Matthew Carmona, and Vikas Mehta.

1.6 Scope and Limitations of the Study

i. Spatial Limits:

- Nile Street in Omdurman: from the bottom of the Sham-bat bridge to a mosque and Ab-ruf Street.

ii. Time Limits:

- The study included the recent changes that occurred in Nile Street, Omdurman, in the last three years to the present.

iii. Scientific Limits:

- Since changes have occurred in the last 10 years, the study will include an assessment of Nile Street in terms of urban quality.

1.7 Thesis structure

The thesis consists of seven chapters.

chapter 1:

Introduction, the topic of the research and the issues raised for discussion, provides basic information on the context of the study, to justify the research problem, its objectives and questions. It also explains the limits of the temporal and spatial research and concludes the chapter with a summary of the conceptual framework.

Chapter 2:

Literature reviews the chapter reviews the relevant literature by discussing concepts about public spaces and streets as public spaces and examining people's lives in public spaces which will shed light on the next chapter of the research.

Chapter 3:

Methodology and case study. Data Collection This chapter provides information on field work and methods used for data collection and data analysis.

Chapter 4:

The results and discussion of the results. This chapter focuses on the results of the research on the study of the place and people's lives, evaluating and analyzing them, and finally thinking about the results and coming up with recommendations.

Chapter 2

2 Literature Review

literature Review

parts the chapter attempts to review the various literature on and define the basic concepts, on streets as a public space, the importance of streets as a public space for people, and how to attract them. Related indicators and methods. Thus, it provides a conceptual overview of the role of streets within the city for a better understanding of a later part of the study.

2.1 introduction:

When we start thinking about the future of our cities, the first thing we should think about as urban planners and designers in the public spaces in our cities, is their future, and also that we think about the current and constantly evolving spaces such as the street. This is represented in the planning and design of public places, including streets and even downtown and commercial areas, for trade, neighborhood identity, and social interaction that takes place in them. However, trying to revitalize public spaces.

public places are the heart of society, whether they are squares, streets, or others. It directly affects people's lives. The research revolves around the evaluation of public places and their main concepts to raise their quality, especially the streets as places for people to share and practice different activities such as walking and cycling. What these places contain also directly affects their attraction to people from kiosks, shops, and places to sit and rest.

This is the goal of this villa, as it contains a wide range of concepts, connotations, and ideas such as (public places, the quality of public places, streets as places for people, public life). And the introduction of these concepts to apply them to the study area.

2.2 Public space:

Origin of the word "public" This Latin word publicus originated and evolved from the word poplicus (of people), which evolved from populus "people". The closest interpretation of public space is "people's space". In urban design, as a noun referring to people or users, it is an adjective for the authority that these people represent. Using the two representations of the word public, JB Jackson defines public space as a space based on ownership and land-use pattern, that citizens can use and enjoy, while the

responsibility for its creation and maintenance is borne by public authorities (Jackson, 2018).

These public places appeared in proportion to the needs of the people and that they occupied them. This space is like a city square, green spaces, parks, markets as well, stadiums, water edge streets, shopping malls, etc., and these places originated from human needs and requirements.

Various definitions of the literature exist on what constitutes public space are “publicly accessible” places where communities renew themselves through dialogue, action, and reflection along with a variety of activities (Carr et al., 1992; Lynch, 1972). Furthermore, Carmona (2009).

And also, public space can be defined as “the common ground where people carry out the functional and ritual activities that bind the community, whether in the normal routines of daily life or periodic ceremonies” (Carr et al., 1992).

Open public spaces were defined by Jacobs (1961) and Madanipur (1999) as outdoor spaces with free access for people such as cafes, retail stores, bazaars, parks, streets, and pedestrian paths. Thus, open public space is successful while becoming a convenient place for social interaction (Danisworo, 1989; Whyte, 1985), attracting many visitors to carry out their activities there (Danisworo, 1989; Whyte, 1985), with a wide range of activities occurring individually or Collective (Rivlin, 1994; CABE and DETR, 2001; Rossi, 1982; Gehl, 2002), informal and appropriate for leisure (Whyte, 1985; Project for Public Space, 2000), democratic and non-discriminatory (Car, 1992), accessible to all Categories and ages, including people with disabilities and the informal sector (Nasution & Zahrah, 2012).

Therefore, we can conclude that these definitions of public space are the place where people can reach to meet and practice various activities, meaning that anyone can occupy this place and this place affects our daily life in a very large way.

2.3 Classification of public spaces

classified public space into:

1. Outer public space: the land that lies between private land ownership, is accessible to all and constitutes public space in its purest form. These are public squares, streets, highways, parks, parking lots, etc.

2. Indoor public places: a public institution such as a library, a museum, and a city hall, as well as public transportation facilities such as a train or bus station, an airport, etc.
3. External and semi-public internal space: legally private, and this space retains rights to regulate the access and conduct there. And be like universities, sports stadiums, restaurants, shopping centers, etc., so we can say that open public places are characterized by the presence of people and the activities they perform.

And there is another classification for public open spaces Urban public spaces can be classified according to different criteria. The table is the classification of urban public open spaces according to the criteria provided by Wang (2002). Carr et al (1993) also provided a typology of contemporary urban public spaces as shown in table 1.

Table 1: A Typology of Contemporary Urban Public Spaces of Public Space

Source: based on carr etc. 1993

Type	Sub-category
Found/neighborhood spaces	Found spaces/everyday open spaces
Playgrounds	Playground
	Schoolyard
Waterfronts	Waterfronts, harbors, beaches, riverfronts, piers, lakefronts
Atrium/indoor marketplace	Atrium
	Marketplace/downtown shopping centre
Community open spaces	Community garden/park
Squares and plazas	Central square
	Corporate plaza
Greenways and parkways	Interconnected recreational and natural areas
	Public / central park
	Downtown park
	Commons
Public parks	Neighborhood park
	Mini/vest-pocket park
	Memorial
Markets	Farmers' markets
	Pedestrian sidewalks
	Pedestrian mall
Streets	Transit mall
	Traffic restricted streets
	Town trails

Table 2: A Typology of Contemporary Urban Public Spaces of Public Space

Source: based on wang, 2002

Criteria	Category	Examples
Natural/ Man-made	Natural	Scenery Site
		Protected Area Waterfall, mountain, forest, etc. Reserved Area Forest, wetland, etc
	Manmade	Streets
		Squares
Park and greenbelt Indoor spaces		
Function	Residence	Community centre, greenbelt, pleasure ground for kids, etc.
	Transportation	City entrance, crossroads, pedestrian street, etc.
	Recreation	Park, amusement park, shopping centre, etc.
	Work	Greenbelt in factory, municipal squares, etc
Land Use Pattern	Residential Use	Public service facilities in a community, outdoor space in a community
	Urban Public Facility Use	Cultural, entertainment, commercial, financial, historical, and municipal facilities that open to the public
	Greenbelt	Public greenbelt, urban park, etc.
	Location	Municipal Level
District Level		District commercial centre, park, greenbelt, etc. All this serve people live in the district
Street Level		Community centre, outdoor facilities, etc. Those facilities serve people live around them

2.4 principles of public places:

1- open and welcome

That is, everyone can reach that place and feel welcome and respected.

Everyone should feel included when they are in a public place. This requires us to plan a public space that helps everyone feel cultural, physically, and socially included. People should feel safe, welcome, and belong when they are in a public place.

2- community focus

Public space brings people together and builds strong, connected, and resilient communities. Public places are where we connect with friends and loved ones and enjoy social connections. We may find ourselves side by side with people we don't know or share space and experiences with people who are different from us. This can help create community relationships and support networks that are useful when societies face broader economic and social transformations.

Public spaces allow people of different cultures, ages, and religious groups to communicate and interact together, so public spaces should allow freedom of expression, teamwork, public debate, and opportunities for people of all backgrounds to feel part of their community.

3- culture and creativity

The public space provides a platform for culture and creative expression that makes spaces more vibrant. Indigenous peoples must be able to access public spaces for any practice that connects them to their culture, country, and dreams. We find that some public places have difficult or painful histories and stories.

Public spaces can bring art, music, performances, and cultural events into communities and create opportunities for more artists and their audiences to express themselves.

4- Local character and identity

The public space reflects the identity, history, and stories of the place. The many layers of built and natural heritage within the public spaces create a sense of character, place, and identity. This heritage may be evident in a building or a landscape or embedded in stories, memories, and history.

5- green and flexible

Public space connects us with nature, enhances biodiversity, and builds resilience to climate change in societies. Public space connects ecosystems with networks of green spaces, waterways, jungles, and wildlife. These are places where animals seek food and shelter, and where priority should be given to native trees and plants, given their suitability to the Australian climate and soil conditions.

6- healthy and active

The public space allows everyone to participate in activities that promote our health and well-being. Public spaces help people interact and communicate. Where we go to play or exercise, or where we may participate in a team sport. Or go out for a walk or ride a bike. Green spaces, nature trails, and river and coastal walks can benefit mental health, reduce depression, anxiety, and stress, and improve memory and focus.

7- local businesses and economies

Public spaces support dynamic economic life, city centers, and towns. Public spaces can include lively main streets, restaurants, outdoor cafes, and tourist destinations. They can be ideal for markets, food carts, and live performances. All these elements bring activity and attract residents of different categories, customers, employees, and services, which in turn attract business and investment.

8- Safe and secure

Everyone should feel safe to access and use public spaces at all times of the day. People want to feel safe, and they will feel more comfortable when there is a greater mix of people around - including children. Public spaces should provide a mix of uses at all times of the day and be well lit at night, especially along paths.

9- Designed for location

The public space must be flexible and responsive to its environment to meet the needs of its community. Design multi-purpose connected and flexible open spaces and facilities that multiple people can use for many activities, day, and night. Where we can design places that everyone can enjoy, regardless of their age, abilities, and mobility.

10- management

Public spaces that are well managed and maintained perform better and invite people to use and take care of them. All public spaces require some form of management. Many stakeholders are often involved, and different interactions or relationships will affect the quality of the public space and venue management priorities.



Figure 1: Ten principles of public places

Source: Project for Public Space

2.5 Dimensions of “public spaces”

The physical dimension is the provision or physical structure of public space, which provides an environment for social integration, while the social dimension is about How are these places used? Moreover, the psychological dimension relates to how people perceive place and giving Which helps this meaning in developing the connection and sense of place with it belong to the community.

These dimensions constitute the main units of analysis in what makes public space active and efficient Studies have shown a strong relationship between the physical characteristics of public spaces and use it. Gehl (1987) suggests that the physical design and condition of public spaces can Significantly affect the pattern of use. He argues that good quality public spaces can attract an A range of activities, making them lively and lively. Maybe the quality of public space is Rated for availability, physical features, design elements, and degree of Accessibility.

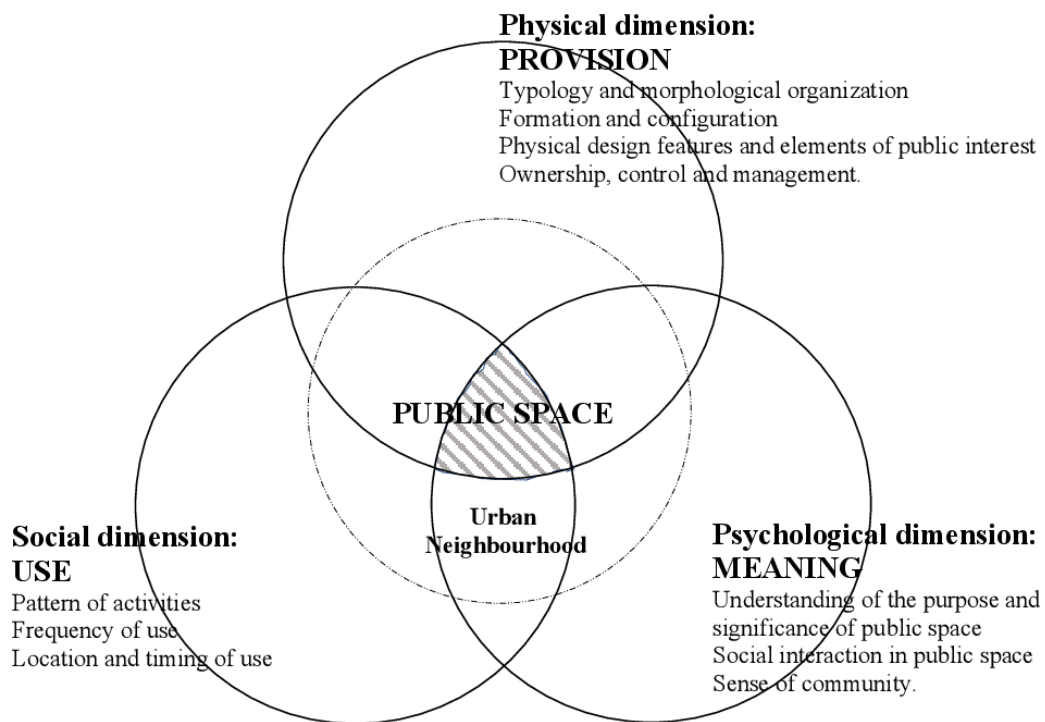


Figure 2:Dimensions of public space

Source: (Chitrakar 2015)

2.6 Successful Place:

Wonderful place the world is now turning and focusing on this concept of designing good and pleasant places for people in cities, where people share the same space but with a great diversity of activities. Great public spaces are where various activities take place, social and economic exchanges take place, friends meet each other, and cultures mingle.

The project is for the public Space (PPS) defined successful public space as: “It is easy to have a successful public space to, and also be visible”, so that people can easily use different parts of the place. Although the development and design of active public spaces first needs to provide accessibility that attracts a variety of users and the activities that take place in the place, and this enhances social interaction between the users of the place. Public Places Project (2000) p. 18 identifies four key qualities of successful public spaces:

A) Access and connections

B) Comfort and image

C) Use and activities

D) Sociability

Accessibility is meant to relate to seeing a place from a distance and an easily accessible location. For ease of movement in place. Image and comfort are related to the quality of the physical design of the public space. Public spaces with good maintenance can be a positive impact on how users perceive their comfort and safety in the place.

In general, these options provide places to walk or read and promote a positive local identity for the community. Uses and activities, when well-functioning, can enhance users' ability to constantly visit public places. As for the neglected places that do not have activities that can result in an empty and unused place.

Above all, public spaces must be able to enhance and enhance the social connection of the users of the place. Increased social contact between users of public spaces or between friends, family, or even strangers can be indicative of an increased connection of place and community affiliation.

1- Access and links

We can assess the accessibility of a place by its relation to its physical and visual surroundings. A successful public space is easy to come by and reach; It can be seen from a distance and up close. We can say that places that have a high rate of access are well

suiting to public transportation. The edges, in this case, are very important, through the presence of shops on the edge and the length of the street, and they are more exciting and attractive to people and safer for walking.

2- comfort and image

Spaces and places that have a good image are more successful than others. Convenience is represented in safety, cleanliness, and the availability of places to sit. In public places, we must give multiple options for sitting.

3- Uses and activities

Activities are the heart of the great public places, so they are considered a major reason for visiting and increasing the number of people in the place, so people want to come back to this place again, which makes the place special and unique. There are several principles to consider when evaluating activities and uses:

The more activities that are going on and the people have the opportunity to participate in them, the better. There is a good balance between men and women. People of different ages use the space (Retired people and people with young children can use the space during the day when others are working). (Public space design) The space is used all day. The greater the space for participation between individuals in groups, the better than the individual use of the space, i.e., a space where people can sit in groups and there is more social communication in it and it is more fun.

4- sociability

It may be one of the most difficult things that can be achieved, but if it is achieved, it will become a strong feature of the place, when people meet and meet each other and even neighbors and interact with each other and with strangers, this will lead to a sense of place and connection with it, so people become socially connected to this place that is enhanced by various social activities.

Another major feature of public space is activity, and that is the purpose of people coming to public places. PPS indicates (2000, p. 18) Whyte (1999), writes, p. 9: "What attracts people most is other people. Many urban spaces are designed as if it were the other way around and what people prefer is where they stay away from".

PPS developed the Place Diagram as a tool to help people judge a place, whether it is good or bad:

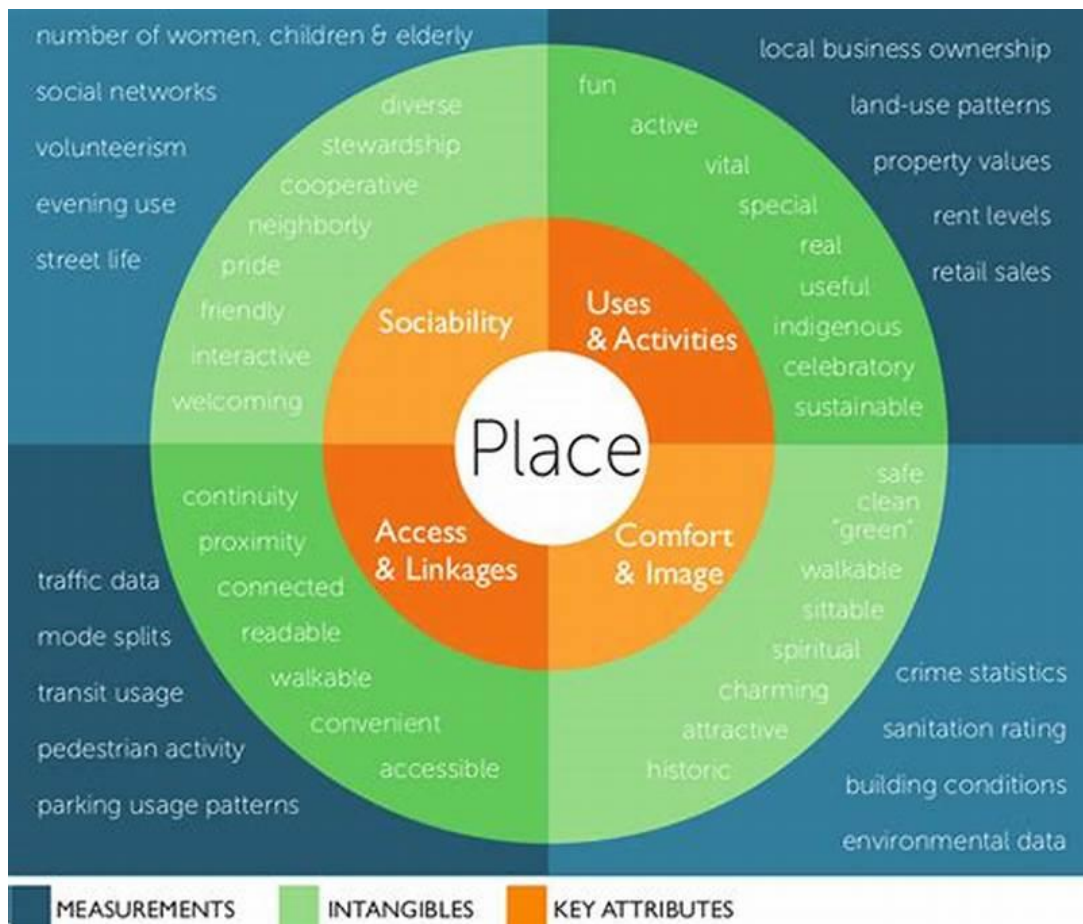


Figure 3:successful public space
 Source: Project for Public Space(pps2014)

2.7 Factors constituting to the social dimension of streets

Graphic scheme of Gehl's theory of how people's choice of activities is affected by the quality of the space (Gehl, 2011), note how a good environment leads to a high number of optional activities but the necessary activities very little or not at all.

According to Gill, (1996) he formulated three categories of outdoor activities that we refer to in our field guide. The first type is "necessary activities". These activities extend people's use of space by walking. Examples include everyday tasks, such as walking to work or school, receiving mail, or walking the dog. Gehl claims that these activities will occur in every type of weather and throughout the year as participants have no choice but to participate in this category of activities.

The second type of activity is 'optional activities', and they occur when there is a desire to participate in these activities at the appropriate time and place. Examples include sitting outside or playing games. Unlike essential activities, optional activities often do not occur in bad weather. Instead, optional activities occur when outdoor conditions are better, particularly if the weather is favorable.

The last type is 'social activities' which are the third way people move public space. Such activities usually appear when people gather in a place and socialize with each other. This type of activity involves children playing, gathering friends to talk, and briefly acknowledging each other. Often these activities are spontaneous.

Public places are important and their importance appears globally in developed and developing countries, as well as their study, planning, design, research, and construction.

According to a report on public spaces, nearly half of the population of the United Kingdom (a developed country) made more than 2.5 billion visits annually to urban green public spaces (Dunnett et al., 2002). The CABA Survey of Public Spaces in the UK suggested that nearly 85% of people acknowledge the fact that public spaces and the built environment they experience have a lasting impact on their livelihoods and the way they feel in places (Carmon et al., 2004).

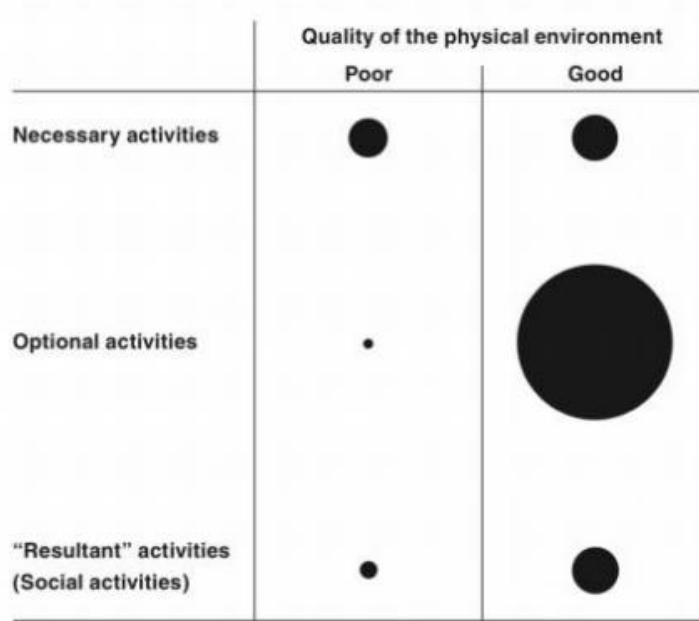


Figure 4:categories of outdoor activities

source: based on Gill, (1996)

And even in India (a developing country), a similar survey of 4 public spaces in Delhi suggested that 87% of people admit that spaces have environmental benefits and about 68% admit that these spaces offer psychological and health benefits to citizens (Paul et al., 2017). It can be said here that what is expected by two different countries in terms of development and they hold the same expectations from public places, this indicates that they are an important part of the design of the city and the welfare of the citizen. Public places have several values, including economic value; the impact on physical and mental health; Offers benefits for all ages; It helps reduce crime and fear It can also be said that these squares help create better economic, environmental, and social sustainability for all. The perspective of environmental sustainability was the core of sustainable development. From the perspective of social sustainability and as mentioned earlier, different types of public spaces link the home with places of work, study, and leisure, which provide an opportunity for social and cultural life to grow in a socially coherent and active manner. They also help maintain social customs, norms, and values, while at the same time restoring the culture of the local community and creating social justice and equity (Kim et al., 2018). And on these three points as the main pillars, one can say that public places can be a major catalyst for the sustainable development of cities.

2.8 Street

Streets can be defined as three-dimensional linear spaces enclosed on opposite sides of a building. The basic elements of the form and function of the urban environment are the streets. Compared to roads, streets, avenues, and avenues, it includes design elements that locate the primary purpose of being a route for vehicular traffic. A street form can be analyzed in terms of its qualities that allow room for great diversity, visually dynamic or visually static, closed or open, long or short, wide or narrow, and straight or curved (Carmona, Matthew, 2013) states that the main public city spaces are the most members Lively, it acts as a multifunctional space and its role is understood from different angles. This concludes the street as a physical space, a channel of movement and a public world, and finally, as a place.

2.9 classification of street

City streets play an important role in urban life, and it can be considered one of the most important roles, because the streets are channels for daily movement, from transportation to serving the population. Therefore, the classification of streets can be done in several ways according to the desired goal.

Urban streets can be classified into two types:

- 1- Job classification
- 2- Classification according to land use

City streets are complex places where functional classification schemes—whether from a state agency or the Federal Highway Administration—are generally limited as a basis for a design capable of meeting the social and economic goals of quality of life, mobility, and urban vitality. These state or federal standards must be adapted to the urban environment before they are adopted so that city leaders maintain the flexibility to make streets a supportive component of a socially and economically thriving public sphere.

Many cities use different types of street classifications to support planners, developers, and stakeholders with street measurements of dimensions, curbs, and sidewalk dimensions, to support new developments and rehabilitation A form of street classification to provide stakeholders and developers with a set of standard street cross-

sections to guide new development and rehabilitation. These establish requirements for street construction and dimensions of sidewalks, curbs, and setbacks.

Table 2:street typologies that factor together street type and land use context:

source: state agency or the Federal Highway Administration

STREET	CONTEXT	OVERLAY	
AVENUE	Commercial	Country	
BOULEVARD	Industrial	Route	
STREET	Residential	State Route	
ARTERIAL	City	Sanitation	Route
COLLECTOR	Town	Snow	Route
LOCAL	Village	Truck	Route
ALLEY	Campus	Ceremonial	
LANE	Cultural	Economic	
MAIN	Institutional	Historic	
TRANSIT		Scenic	
CONNECTOR	Center	Bicycle	Priority
MAJOR	Corridor	Driving	Priority
MULTI-WAY	District	Pedestrian	Priority
THOROUGHFARE	Downtown	Transit Priority	
AUTO-ORIENTED	Low-Density	Home	Zone
GENERAL	Marketplace	Pedestrian	District
MULTIMODAL	Mixed-Use	Transit-Oriented	
PARKWAY	Neighborhood		
PASEO	Park		
PEDESTRIAN	Urban		
SHARED	Workplace		
SLOW			

Parkways, Park Edge, Boulevards, Ceremonial (Civic Streets), Commercial Throughways Downtown Commercial, Downtown Residential, Neighborhood

Commercial, Residential Thoroughway, Mixed Use, Industrial, Shared Public Ways, Paseo, Alleys.

2.10 street as a place

A place is defined and understood by the physical characteristics of the place and the activities in it which means that they hold the people. In this definition, place transcends its limits. Physical characteristics are rather a combination of physical traits, activity, and load.

The street's role as a public space is its ability to serve as a place. Where the street is as a place The location of the destination also acts as a link for movement according to Dijkstra (1999) when the street is attractive enough that it can attract a wide range of users (eg shoppers, residents, visiting workers, etc.) spending time in the place. Through collective or individual actions and thoughts, a place comes to life. The essence of the place derives from its local identity and the distinctive character it promotes – cultural life (Harvey, 2006).

For this study, the street as a public space is the space in which people stay and engage in various activities. Therefore, achieving the role of the street as a place requires studying the community of this place and how they use this public space, and how they interact in it to reach a street and space with high interaction. Great Streets

Alan Jacobs describes a Great Street that is “markedly superior in character or quality” and people visit frequently. (Jacobs,1995)

- contributes to community
- comfortable and safe
- encourages participation
- remembered
- representative of a community

Public spaces are our open spaces, public facilities, and streets. They are publicly owned or of public use, accessible and enjoyable by all for free. Public spaces are the heart of our communities.

2.11 The sociable street

Public spaces play a vital role in social and economic life. Now new types of public spaces are being designed and planned in cities, which could be an important social resource in the future. Merriam Dictionary defines social relationships: nature tends to be companionship with others of the same kind, tends to seek or enjoy companionship, is friendly, or leads to pleasant social relationships (<http://www.merriamwebster.com/dictionary/social>).

Other definitions include enjoying or demanding the company of others, fond of companionship; friendly or agreeable especially easily and informally; And, characterized by on many street types, social media may be visible.

A social street can be defined as a street for everyone where everyone can reach it, and there where people are throughout the day, and people are harmonious whether it is individually or in groups - so the attention and focus is always on the streets that are social for a day or a week and not only in times of special occasions.

Social streets are synonymous with the qualities that Jacobs (1961) valued in the streets and sidewalks of Greenwich Village, which Walzer (1986) described as open spaces, designed for the many varied uses of citizens and perhaps unexpected things.

When we enter this kind of space, we are characteristically ready to hang out. (Walzer 1986, p. social streets are in which neighborhood residents and other people and workers use and practice various social behaviors of eating, strolling, partying, protesting, surviving. These streets are a desirable component of any good city.

The Public Spaces Charter was developed by (NSW) public welfare experts and community members to support the planning, design, management, and revitalization of (NSW) public spaces. It outlines ten principles of good public space, developed through research and evidence-based discussions with public space experts and community members. The Charter responds to consultation with stakeholders, state agencies, NGOs, community, environmental and recreational groups, as well as meaningful engagement with the people. The charter was developed to be used by anyone involved in planning, designing, or even managing public spaces. Great public spaces have a unique combination of the following elements in the *Figure 5*:

Figure 5: principles of public places



Source: NSW Public Spaces Charter(2018)

2.12 Public life

The (Gehl Institute) defines public life as the “activity that takes place in everyday public spaces—on streets, in parks and plazas, and spaces between buildings.” Public life consists of all the interactions in public spaces, whether they are necessary or recreational. As such, public life can take many forms, such as eating at a street café, reading on a bench, window shopping, or talking to others while waiting for a bus. The types of activities and number of people engaging in public life can illuminate the degree to which a community is social, livable, and prosperous.

2.12.1 Public life study

The main literature used for creating Jan Gehl’s method is his and Birgitte Svarres's book “How to study public life” from 2013 A public life study is a type of research that focuses on measuring a human activity and characterizing how public space is used by people moving through or staying still within a specific study area (Gehl,j, svarre). A public life study provides insight into how design, activation, social behavior, built environment, and urban form all influence activity in public space. A better understanding of those factors directly supports our efforts to make public spaces that people enjoy using.

By studying public life contexts, we can people-centered data that measures how people use our streets and sidewalks and how vibrancy changes over time. This will help us understand what makes a successful public space, evaluate designs and interventions, better equip us to make public realm investment decisions

A public life study typically answers one or more of the following questions about public spaces:

- **How** many people are there, either staying still or moving through?
- **Who** is there, by gender, age?
- **Where** are people lingering?
- **What** activities are people engaging in?

2.13 Conclusion

A review of the literature indicates that the physical and functional features of public spaces affect people's level of enjoyment, influence the social component of the place, and a sense of safety, as well as comfort in terms of climate change. Security in place. The development of public spaces must depend on the community and its cohesion, so the community must be well studied and the lives of people in public places studied. The environment of public places can enhance social communication and must be strengthened by increasing community cohesion. Also, public places must meet the needs of different users such as rest, relaxation, activity, etc.

Moreover, the literature illustrates many criteria that affect social life and the appropriateness of public spaces.

Studying people's lives in places isn't an adequate approach either, but people don't focus much on it. Therefore, some of these approaches have been reviewed in this study and will be applied in research because they are considered an essential component of measuring and evaluating the success of public spaces (streets).

Chapter 3

3 Methodology and case study

3.1 Introduction

This chapter explains the methodology chosen and explains the ability of storytelling tools to elicit and express the complexity of attachment to place. As a result, this chapter introduces systematic research approaches and methodologies.

The research aims to study the public life of people in the outdoor spaces of public places (streets) and how people use these places, i.e., measuring and describing human activity, to investigate who uses the place and what activities exist in the place, and to make recommendations for better planning and design to better meet the needs of users in these Areas (streets) in Omdurman.

We find that the methods used in the literature review are diverse, as evidenced by the review of the literature review. Interviews, observational studies, and more landscape-specific formats such as picnic interviews or photographic diaries, and even counting people are among the qualitative and quantitative research methodologies available.

3.2 METHODOLOGY

Choice of methods:

The different nature of the two research questions requires in its study a set of different methods of answering

them. For this study, two methods were used:

- Triangulation
- direct observation
- literature review

3.2.1 Triangulation

Triangulation refers to the use of more than one method for collecting data on a phenomenon. By using more than one method, the credibility, and validity of the research results increase. The benefit of triangulation is that it allows the researcher to understand the phenomenon from several angles by revealing different aspects. This in turn leads to a more comprehensive understanding of the phenomenon itself. Triangulation can be used in both qualitative and quantitative research. (Denzen 1970; Denscombe 2009).

There are four types of triangulations suggested by Denzen (1970). However, in this study, I will use the triangulation methodology, which encourages the use of several methods of data collection, different from each other.

3.2.2 Direct Observation

The methodology of this study is inspired by Jan Gehl's method of observation. However, it should be noted that a systematic study of analyzing public space already began in the 1960s by other public life researchers, such as William H. Whyte, as a criticism to the planning profession of that time for having forgotten the life of humans and the human scale in our cities (Gehl and Svarre 2013). Whyte used observations to understand public space and why some public spaces work and others don't. His work had a massive effect on how to critically think about how public space is planned and built. What we can learn from Whyte is that it places that matter, not projects and that to function as true gathering places, public spaces must be designed with people and uses in mind. (Whyte 1980).

According to Gehl and Svarre (2013), Direct observations are the primary tool for studying the interaction of public space and public life." The method allows us to understand how a space is used when it is used, by whom, and also why some spaces are used and others are not. (Gehl and Svarre 2013). The knowledge of all these questions can help make a place better and more functional.

The idea of direct observation is simple, with the observer walking around the site or choosing an external site where he resides, observes, and records general life and interesting patterns according to a set of questions and tools.

However, the role of the observer is only to observe and not interfere with the users' activities. Gill's motto when performing direct observation is "Look and Learn". This means that as an observer, he or she must get out into the city, understand how it works and use his senses. Although city life is complex, studies of public life help us understand the city.

The interaction between public life and space (Gill and Safari 2013). To understand public life, Gehl and Svarre (2013) present a set of general life questions or pointers that help the researcher plan and analyze the public space and the public life that takes place within it. Here are the five most frequently asked questions, or general life

indicators, used in general life studies. However, the list of questions is endless (Jill and Safari 2013).

1. How? 2. Who? 3. Where? 4. What? 5. How long?

1. How?

The first question of how many is the most fundamental question to public life studies. Everything can be counted, but the main focus in public life studies is to count, how many people are moving (pedestrian flow) and how many are staying in one place (stationary activity).” (Gehl and Svarre 2013).

1. Who?

How many provide quantitative data of the number of people using a space or walking by, but it doesn't say anything about who these people are. Sometimes it is necessary to register who these people are to get specific and useful knowledge about the complex interaction of life and form in public space.” (Gehl and Svarre 2013).

One way to do so is to divide people into subcategories such as age and gender. The knowledge of the division of age and gender in a public space is essential to understanding the dynamics of the space (Whyte 1980). The knowledge of who is using a certain public space can help to accommodate the needs of those groups that are being overlooked. Historically that is children, the elderly, and women (Gehl and Svarre 2013). This can tell whether a certain place is inviting to a diverse audience to spend time there or not.

Public spaces are designed based on where people are expected to go and to stay. (Gehl and Svarre 2013).

However, people do not always do what planners or architects expect. The where question allows the observer to analyze where people stay in space; whether it is in the corner, along the facade, next to an entrance, in the middle of a street et cetera. Equally important it also tells where people don't stay. It may also be used to analyze where activities are taking place, but also where activities don't take place.

4 What?

Observing what happens in space can provide specific knowledge of the types of activities in an area, such as staying, commercial or physical activities, and the requirements these various activities make on the physical environment.” (Gehl and Svarre 2013). The list of activities that can be mapped is endless, however, the most common activities in public spaces are sitting, walking, playing, conversing, and standing. Public space activities can be divided into three categories: necessary activities, optional activities, and social activities.

In public spaces where the physical environment is of poor quality the number of activities taking place is reduced, instead, people hurry and pass by rather than stay (Gehl 2011).

5 How long?

The understanding of how long-time people choose to spend in a certain place or how fast a person walks can provide information about the quality of physical frameworks. (Gehl and Svarre 2013). People walk slower and tend to stay a longer time in places where the physical quality of the space is higher. According to Gehl and Svarre (2013), the time dimension is essential to understanding life in public spaces. Many factors affect how long-time people spend in a certain place; however, the two most important factors are climate and the physical quality of the space (Gehl 2011). Climate describes the local weather, temperature, season of the year et cetera.

These indicators affect if and how long-time people spend in a public space.

A sunny day with a pleasant temperature attracts more people to stay for a longer time compared to a windy cold day. The physical quality of space also influences the time people spend in a certain outdoor public space. If the place is inviting and of good physical quality more people will stay longer (Gehl 2011).

These five basic questions, or public life indicators, leads to the next question, how do we measure them?

1. Public life tools selection

Direct observation offers a possibility to study how the temporary redesign of conventional streets into summer pedestrian streets affects public life, which is useful for

the aim of this study. Direct observation allows the observer to use a combination of multiple tools to uncover different points of view and create different understandings of the public life taking place on the streets. The selection of tools depends on what aspect of public life the observer wants to measure and analyze.

However, it is more important to choose the most relevant tools rather than choosing one tool over another. Other factors that affect which tools to use are local conditions, timeframe, and budget. The tools are used to systematically register the findings made during the observation. It is good to know that these tools can always be adjusted to the local context (Gehl and Svarre 2013).

The tools chosen for this study to measure and analyze the interaction between public space and public life are:

- | | |
|-----------------------------------|----------------------------|
| 1. Mapping | Stationary activities |
| 2. Counting | Pedestrian flow |
| 3. Tracking | Who walks, how fast? |
| 4. Tracing | People's movement patterns |
| 5. Photographing | |
| 6. Twelve quality criteria | |

Tool 1: Mapping

Mapping, also called behavioral mapping, is a tool used to register stationary activities, that is, where people are standing and sitting. (Gehl and Svarre 2013). Mapping is thus a snapshot of what people are doing and what sort of activities are taking place at that very moment. For this study mapping was used to map where people are staying and what they do.

Tool 2: Counting

Counting is the most fundamental tool to public life studies (Gehl and Svarre 2013). Everything can be counted such as pedestrian flow, age, gender division et cetera. This can provide quantitative data to better understand whether the temporary redesign of Nile Street into summer pedestrian streets resulted in more public life or not. For this study, I counted the flow of pedestrians, that is, how many people walked by.

Tool 3: Tracking

Tracking is a tool used to register average walking speed or how quickly people walk in a certain public space. (Gehl & Svarre 2013). People walk slower and tend to stay a longer time in places where the physical quality of the space is higher. This theoretical assumption is stated by Gehl and Svarre (2013).

Tool 4: Tracing

Tracing is a tool used to register people's movements in a certain space. The movement of people crossing a space can be illustrated by drawing each movement as a line on a plan of the site being studied. One line represents one person.

Tracing is a tool that provides knowledge about movement patterns in a specific space. The tool is not exact, instead, it is used to map the most dominant and subordinate lines of flow as well as areas that are less trafficked." (Gehl and Svarre 2013).

Tool 5: Photographing

Photographing is an essential tool to conduct public life studies. Gehl and Svarre (2013) note that photographing is used to document situations where urban life and form either interact or fail to interact after initiatives have been taken. Photos help to fast-freeze situations that take place in public spaces (Gehl & Svarre 2013). For this study, photographs are used to document and compare the physical changes of the streetscape and the public life pedestrian streets.

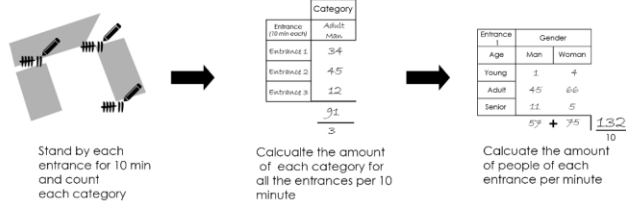
Question

Observation

1) How many? 40-50 min

Tool: Counting

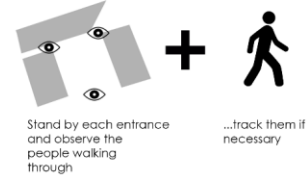
Example: Who walks how fast, when? p. 87*



2) Where? 15-20 min

Tool: Tracking+tracing

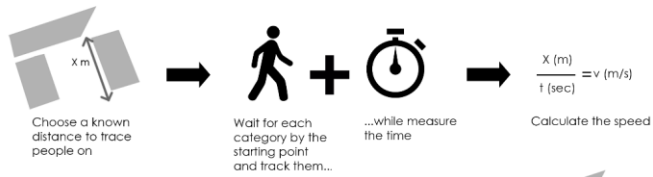
Example: The direct path p.89*



3) How fast? 20-30 min

Tool: Tracking

Example: Who walks, how fast, when? p. 87*



4) What and where? 5-10 min

Tool: Mapping

Example: Good places to stand. p 84*

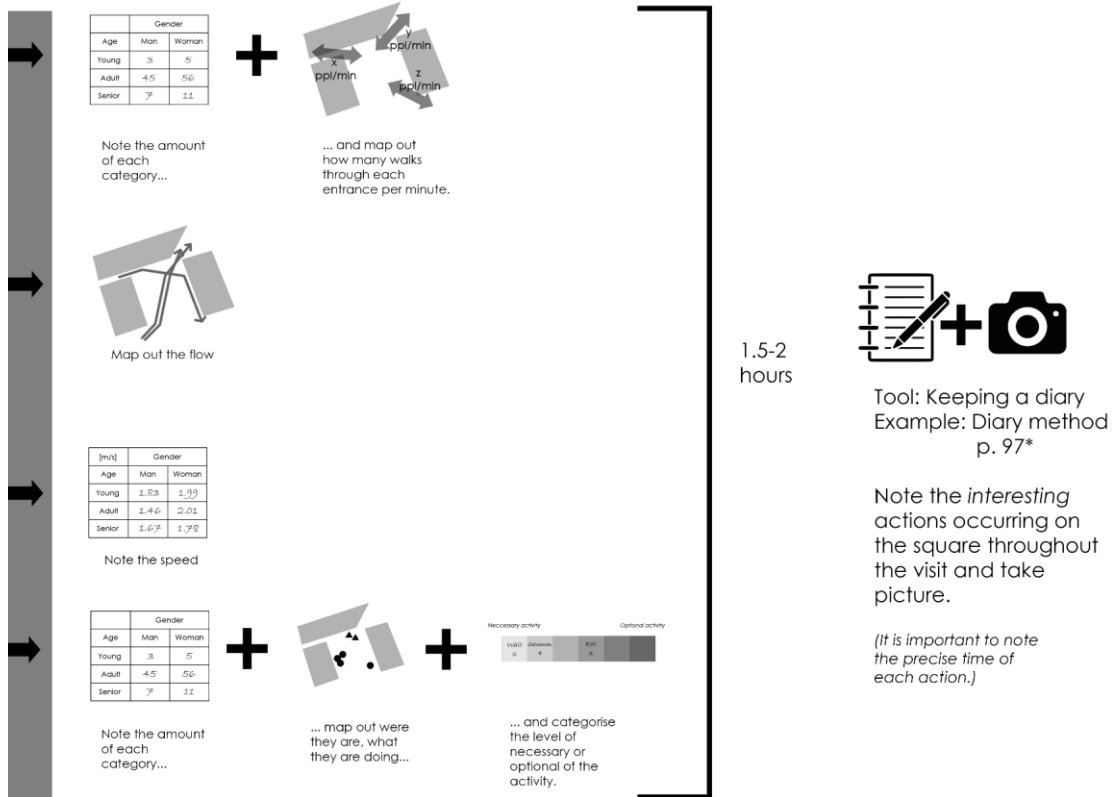


Figure 6: general life studies
Source: (Jill and Safari 2013).

Tool 6: The 12 quality criteria

Jan Gehl developed a tool called “The 12 quality criteria”. It is a checklist with twelve criteria that is used to assess public space qualities according to three main themes: Protection, Comfort, and Enjoyment. It assists the observer to understand if space is pleasant enough for people to stay in. The checklist evaluates the extent to which the individual public space lives up to the criteria for inviting people to come and stay. (Gehl and Svarre 2013).

The tool is applicable for a delimited public space, such as a street. However, the checklist does not assess the aesthetic qualities of public spaces. Even though the aesthetic qualities are of importance to determine if people decide to use a certain space or not, the purpose of this tool is merely to understand what is required to make people feel comfortable to stay in a certain public space. This is based on the knowledge of human needs and senses developed by Jan Gehl’s

lifelong experience of public life studies. This tool can be used to compare the summer pedestrian streets with the conventional streets to determine if the redesign had any effect on the subjective perception regarding these three main themes. Protection is an essential prerequisite for public life. Public spaces need to protect people against unpleasant sensory experiences such as protection from wind, pollution, rain, noise, and cars. If space is unable to protect people and satisfy basic needs people will ultimately avoid the space. Public space also has to be comfortable for people to use. When people can sit, stand, walk, listen, look, converse, play and exercise they feel invited to stay (Gehl 2010; Gehl and Svarre 2013).

5.1.1 Observation period

Data for the street were collected between 5/2-2022 and 6/3-2020. The observations were made only on days with good weather. Good weather provides the best conditions when studying outdoor public life (Gehl and Svarre 2013).

The observations were carried out during two different phases of the day, morning/noon (between 10:00-12:00) and afternoon/evening (17:00-19:00). The observations were carried out both on weekdays and weekends.

5.1.2 Performance of direct observations

In this part I will describe in detail how each tool was used and also how the direct observation was conducted. The performance of the tools used in this study are inspired

by the instructions described in the book “How to study public life” (2013) by Jan Gehl and Birgitte Svarre. The instructions are also available on the website gehlpeople.com.

5.1.3 Mapping - performance

Mapping was conducted with a technique called walk-by observation. This technique is used to record stationary and lingering social activities; in other words, it records what people are doing and what sort of activities they engage in in that very moment. Gehl (2011) divided outdoor activities according to three categories: necessary, optional and social activities. Mapping activities in this study only include the two last ones; optional and social activities. For necessary activities see “Counting - Pedestrian flow”. Optional activities include activities that are recreational and freely chosen such as reading a book, sitting down to observe other people or just to enjoy the view, sunbathing et cetera.

Examples of social activities are; conversations and greetings, discussions, children at play or the most common social activity, that is, passive contacts, meaning, watching and hearing other people (Gehl 2011; Gehl and Svarre 2013).

5.1.4 Counting - performance

This tool records the flow of people walking next to it. I started the observation by choosing a prediction post and then counted the number of people passing a randomly selected imaginary line.

The same imaginary lines were used throughout the Street Study. It doesn't matter the direction of the people in this case, it's just the number of people of value. After that, all the people who were registered were also divided into different classes of pedestrians.

This type of data will help in assessing the amount and type of pedestrians walking on the street. The pedestrian flow calculation was performed for ten minutes between 10:00 and 20:00 on different days.

When counting, these are the different categories of pedestrians:

Walking, running, support (eg, wheelchair), carrying (eg, stroller), rolling (eg, skateboard, skateboard carts), bicycles, scooters (electric), walking dogs.

5.1.5 Tracking - Performance

Tracking is a tool used to record the movement of people in a specific space. In this study, I was following, the movement of people across the street, for each person entering my range, I drew lines on a diagram of the street under study. In this study, lines were drawn for half an hour.

5.1.6 Photography - performance

Photography has been used to document and compare the physical changes of scenery in terms of use and the change of activities on the street as well as what people do on the street.

The checklist of twelve quality standards was used to evaluate Nile Omdurman Street according to three main axes: protection, comfort, and pleasure. Together, these three themes can be used to determine the degree to which the public space invites people to come and stay.

The twelve quality standards assessed the following factors below:

- Protection
 - 1- Traffic and accident protection (elimination of fear of traffic).
 - 2- Protection from harm by others (staggered functions throughout the day and year, lively public sphere, good lightning, eyes on the street).
 - 3- Protection from unpleasant sensory experiences (wind, pollution, cold/heat, rain/snow, dust, and noise).
- Comfort
 - 4- Options for mobility (walking space, good roofs, interesting interfaces, no obstacles, accessibility).
 - 5- Options to stand and relax (edge effect / attractive areas to stand / stay)
 - 6- Seating options (good basic seating options such as sight, sun, and people-oriented seating)
 - 7- Options for visibility (interesting views, obstacle-free lines of sight,
 - 8- Lighting (when dark)
 - 9- Options to speak and listen/hear (street furniture, low noise levels)
 - 10- Options for play, exercise, and activities (invitations to creativity, physical activity, exercise and play, day and night, summer/winter)

- Enjoy

11- Scale (public places and buildings designed for human scale) Opportunities to enjoy the positive aspects of the climate (sun/shade, heat/cold, breeze, seating position protected weather options)

12- Experience in aesthetic qualities and positive sensory experiences (good materials, good design and detailing, beautiful scenery, trees, water, plants)

Protection



Comfort



Enjoyment

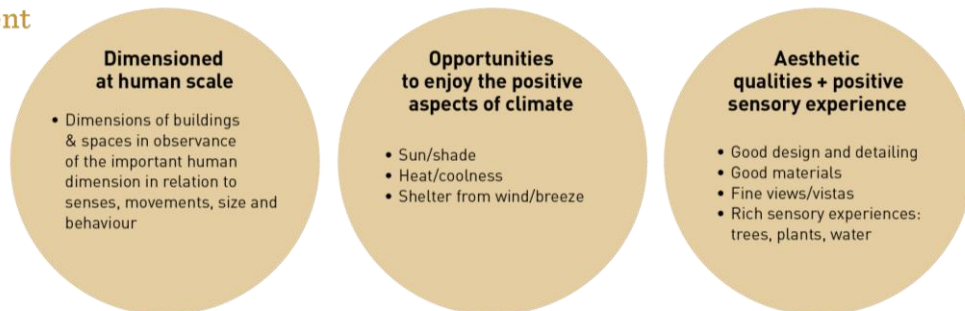


Figure 7 : Gehl's Twelve Quality Criteria for public urban spaces

Source: (Gehl Institute, 2018).

5.2 RESEARCH LOCATION

3.1.1 Sudan

Sudan is a country located in northeastern Africa. It has a population of 44.91 million people as of 2021 (Sudan Population 2022) and occupies 1,886,068 square kilometers (728,215 sq mi), its capital is Khartoum and Omdurman is the most populous city.



Figure 8:Omdurman region in the Sudanese capital Khartoum.

Source: trtworld.com/magazine

5.2.1 Khartoum:

The city of Khartoum, or the triangular capital, is the administrative capital of Sudan (wikimapia.org). Khartoum is bordered directly to the south by the confluence of the Blue and White Rivers. It is located in the northeastern part of the country between longitudes 5.31 - 34 east and latitudes 15-16 north. Its area is estimated at 22,736 square kilometers. It is 1352 above sea level and constitutes the largest residential community in Sudan (www.answers.com).

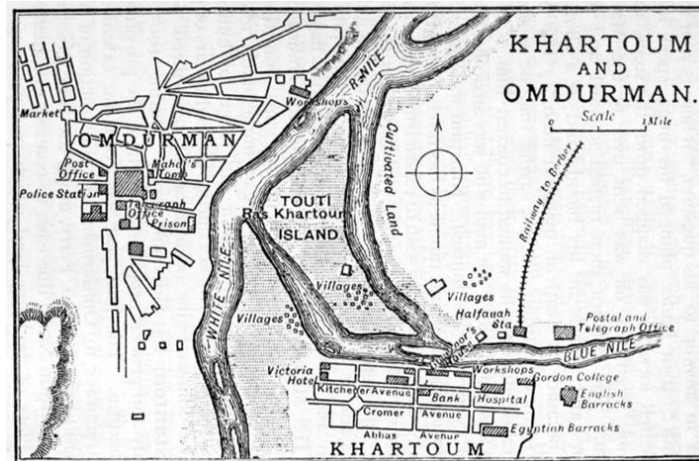


Figure 9:1905_map_Khartoum_and_Omdurman_by_Thomas_Cook

Source Ernest Alfred Wallis Budge (1906)

5.2.2 Planning of Khartoum:

Khartoum, the capital of Sudan and the commercial and industrial center of the country, acts as a vital engine for the country's national and regional economic development. Khartoum followed three urban plans (1977-1958-1990), in which the planners focused on population growth. During this period, the number of the population increased more and more, so the structural plan of the state focused on the development of external squares, recreational and archaeological places, waterfronts, and tourist areas, and the preservation of the country's cultural and historical features.

There is a large disparity between Khartoum and the rest of the cities and states of the country in terms of urban infrastructure and services that encourage people to migrate to Khartoum in search of better job opportunities and livelihood prospects, another reason that contributes to this large-scale urban migration is the instability in the country. Because of political and social differences, civil wars, and environmental problems such as desertification and drought in some areas.

The city has a population of about 5 million and a total area of more than 22,000 square kilometers. The annual growth rate is 8%. It is surrounded by about 500 villages, which may be soon. They are included due to the rapid pace of urbanization.

However, Khartoum is unable to accommodate a large number of urban migrants. It lacks adequate infrastructure, public services, affordable housing, and transportation.

I've caused the city Which led to the emergence of slums, overcrowding, pollution, unemployment, and poverty.

The site chosen was part of the new structural plan for the urban expansion of the state.

5.3 Omdurman

Omdurman city is considered the largest city in size after Khartoum in Sudan and constitutes the largest part of the state of Khartoum. The city is located along the western bank of the Nile and the White Nile opposite the city of Bahri and Khartoum, and its population is about 1 million people (July 2001 AD). It is in the most important commercial centers. It has an area of about 4,948 square km. Sometimes you write Omdurman. It is also called "Omdur", and the city has many historical monuments, popular markets, administrative and military buildings, the National Theater, the National Television, the Parliament Building, the Nile Mosque, and the Al-Hilal, Al-Mawrada, and Al-Mars clubs. Most of these buildings are located on the Nile waterfront, and therefore it is also known as the cultural capital.



Figure 10:Omdurman
Source: Sudan in photo

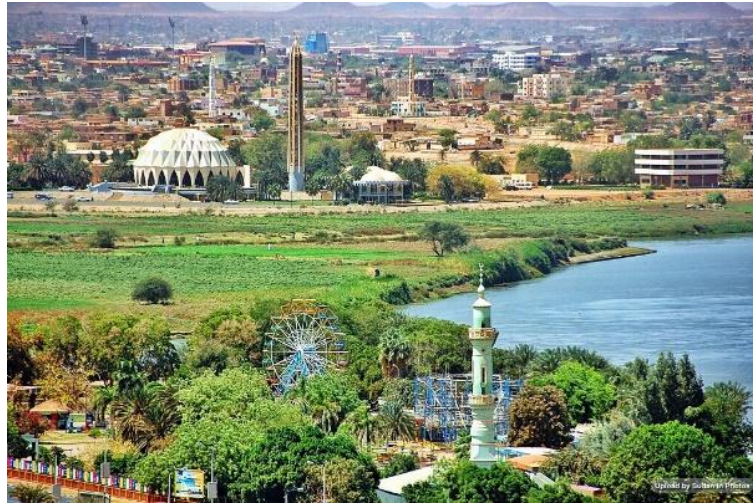


Figure11:Omdurman
Source: Sudan in photo

5.3.1 Family and Social life

Sudan is characterized by diversity. Many ethnic groups, languages, and religions coexist in Sudan, and many families, clans, and tribes claim Arab ancestry that can be traced back through many previous generations. However, the complexity of the races indicates a genetic and cultural mixing that goes back to a much further period.

Islam is an integral part of the Sudanese social fabric and media landscape, as well as a political mobilizing and polarizing force. However, other social, economic, and cultural factors play many interrelated roles in shaping the country.

Traditional life revolves around the tribe, which is one of the most important forms of social organization. Tribal traditions and customs regulate and influence much of the local economy, politics, and social life.

Rural societies are characterized by their traditional social structures and ethnic and tribal sub-cultures. Large-scale modern farming projects, such as the Gezira Irrigated Project, have attracted workers from all over the country, forming a kind of national melting pot especially in and around the capital, Khartoum. Young people make up 62% of the total population, and young people who struggle to get an education also face difficulty in finding work. Overall, 20% of Sudanese youth are unemployed, but the proportion of unemployed young women is even higher.



Figure 12: Crowds gather in front of the shrine of Sheikh Hamed El-Nil

Source: (Belal Khaled / TRTWorld)



Figure 13: Local kids in Sowakin, Sudan.

Source: By Marta Sobczak



Figure 14:Eid in Sudan

Source: alaraby.co.uk



Figure 15:Omdurman local market

Source: twitter.com

The public spaces are shared by the Sudanese community in which many activities are practiced. The use of these squares varies according to the months or even years, and most of them are related to holidays and celebrations. You find them using the spaces in the middle of the neighborhoods for collective iftars in Ramadan, or Eid prayers and on their occasions.

According to Lewis, the street was the beating heart and the heart of society. Sudanese use the streets in many ways. People of all ages gather from children, the elderly, young people, street vendors or small food selling points, singing and friends gathering in groups, whether for an event or discussions, and they may gather sometimes. When the sellers of tea, coffee, and other lives are in front of their homes facing the street, and sometimes they use them to exercise walking and cycling, although these places are not equipped, social contact is a condition for the empowerment of many other cultures, The economic and civic roles of public spaces. In the past decades, with increasing trends to commodify Space, a common concern among managers has been that in contemporary urban societies, particularly in North America, social life has been eroded by emphasizing a culture of privacy, individual comforts in the private sphere, and a bipolar lifestyle at work and home. a various collection of social ills has been associated with the increasing dearth of social contacts. As a solution, Oldenburg (1989) presented a case for a public social sphere - a third place - to live a balanced life. Oldenburg and Brissett (1980) also advocate places such as common ground, an instrument of settlement in a polarized society.

Therefore, the importance of the streets appears in society, and it is the only place that the Swans resort to for recreation, trade, and many other things. Here the importance of the streets appears, the streets are an important part of Public open space - in some cases occupies more than 50% of the urban land (Modon 1987). "[T]is 'street' often short for the urban world" (Joux 1990, p. 15) and for many city dwellers, streets represent the open air (Jacobs 1993). It is not surprising that the street has occupied a cherished place in the dictionary of urbanism" (Keith 1995, p. 297). As the most pervasive form of public space in the civilized world, the street has a simple structure capable of accommodating a myriad of social, cultural, economic, and political functions.



Figure 16: People setting at street
Source: thevelvetrocket.com



Figure 17: activities at street
Source: thevelvetrocket.com



Figure 18: Set Shai
source: skynewsarabia.com



Figure 19: Street vendors
Source cpj.org

5.4 Case study

5.4.1 Nile street -Omdurman

The state opened the Nile Omdurman Street during the era of the former governor, Abdul Rahman Al-Khidr, the governor of Khartoum 2013 . The Nile Omdurman Street is located on the eastern front of the city of Omdurman, along the Nile. It starts from the Al-Hattana area until the Al-Malazimin area and passes through major bridges established in the mouths of Al-Khairan, and the citizens of the area enjoy the passage Which was designated for pedestrians along the road and a width of 5 meters on the Nile, which is the longest pedestrian path in the state.

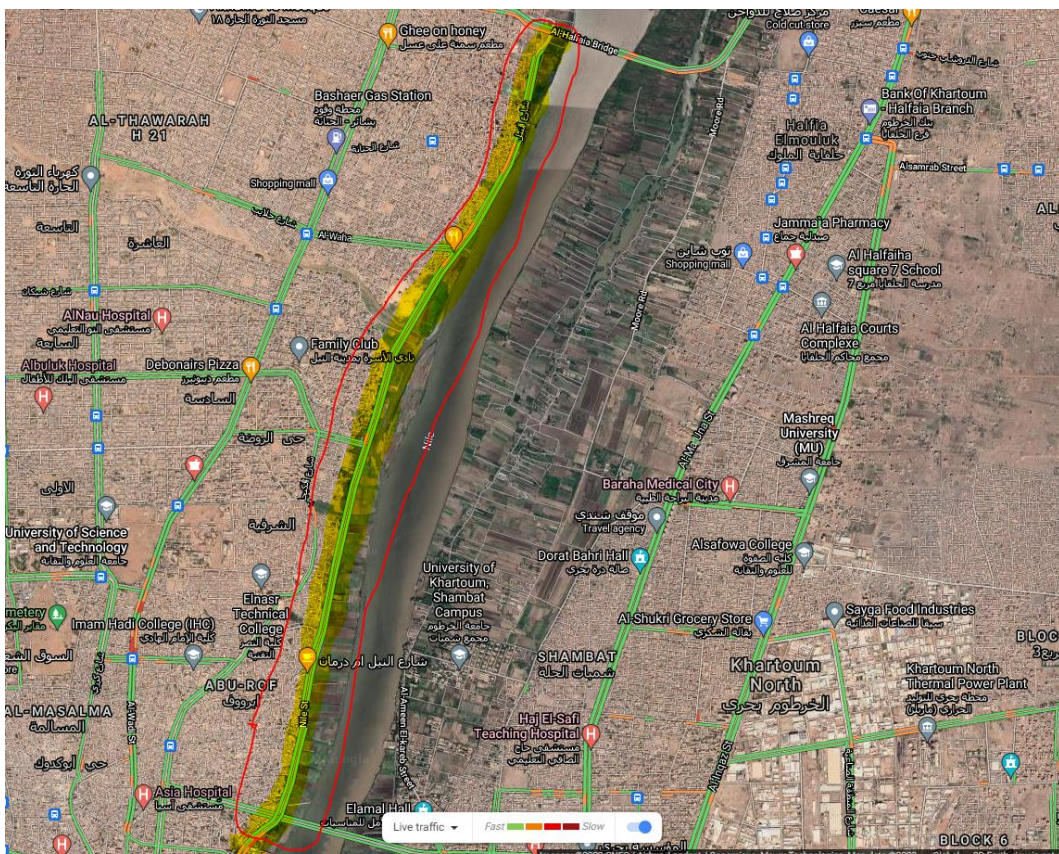


Figure 20:Nile Street location

Source: google map 2022

In the past, the Nile Street was a thicket of trees, but the governor, with the Ministry of Planning and the People's Committees, reached after their meetings that it was necessary to remove, expand and extend the street, and some lands were subdivided in compensation that was made in the Khartoum locality, the governor and the Ministry of Planning after estimating the costs.

Nile Street is a road with a length of 9,150 km in Omdurman, and the date of the beginning of the work was: 3/01/2010 and the work was completed in the year of the opening date: 1/19/2013

Most of it consists of 3 lanes in each direction with a width of 17 meters, a central island with a width of 2 meters, and two pedestrian paths (from the eastern side with a width of 2 meters and in the west with a width of 5 meters, including a protection wall with a height of 80 cm) and is located parallel to the western side of the Nile in the distance between the major Halfaya and its entrances to the radio southward.



Figure 21:Nile Street map location

Source: google map

5.4.2 Activates and social life

The Nile Street in Omdurman has recently become the main destination for Omdurman residents, and the first reason is the lack of outlets and places to go out and take a walk in Omdurman. On the west side, it is bordered by farms, greenery and the Nile, and on the opposite side of the Nile appears huge farms in the city of Bahri. It is considered the first destination for young people, families and friends to meet and entertain.

It has many activities that individuals practice, whether it is talking to each other in groups, playing card games, fishing, singing, cycling, walking, running, drinking coffee and tea in small cafes. There are many street vendors and sellers of vegetables and fruits, and sometimes some animal products such as eggs and chicken.

In addition to the entertainment role that Nile Street Omdurman provides to the citizens of the area, it also facilitates transportation from and through the center of Omdurman to the outskirts of the northern state of Khartoum, linking traffic from Al-Manshiya Bridge through Khartoum Nile Street to Al-Halfaya Bridge, and the ring road that connects Halfaya Bridge with Major Dabasin, according to Structural scheme of the state of Khartoum.



Figure 22:Nile Street activates-at 6:00 pm

Source: Nagi tweeter



Figure 23:Nile Street activates-at 4:00 pm

Source: researcher



Figure 24:Nile Street café and sitting area

Source: researcher

5.5 Direct observation

The results of the chosen method will be presented to answer the research questions for this study, which aims to identify the uses and activities:

1. What are the uses and activities on the street?

Direct observation was used to investigate and assess public life success.

Direct observations on Nile Street Omdurman were made according to the instructions of Jan Gehl and Birgitte Svarre's book "How to Study Public Life" (2013),

2. Who are the people who use the place, how do they use it and when do they use it?

it is a set of questions and indicators for public life, which help to draw a map and analyze public places and public life that occurs on the street. These indicators are:

1. How many? 2. Who? 3. Where? 4. What? 5. How long?

Based on these five public life indicators, Gehl and Svarre (2013) presented a set of public life tools on how to measure and analyze these indicators.

The public life tools used for this study to measure and analyze the interaction between public space and public life are:

1. MappingStationary activities.
2. Counting..... Pedestrian flow.
3. Tracking..... Who walks?
4. Tracing..... People's movement patterns.
5. Photographing.
6. Twelve quality criteria.

5.5.1 MAPPING

STATIONARY ACTIVITIES:

Mapping, or behavioral mapping, is a tool used to record stationary activities, i.e. where people stand and sit (Gehl and Svarre 2013). So mapping is a snapshot of what people are doing and what kind of activities are happening at that particular moment. In total, two observations were made in the morning and evening period between 10:00 and 19:00, the map below shows the static and moving activities in the place.

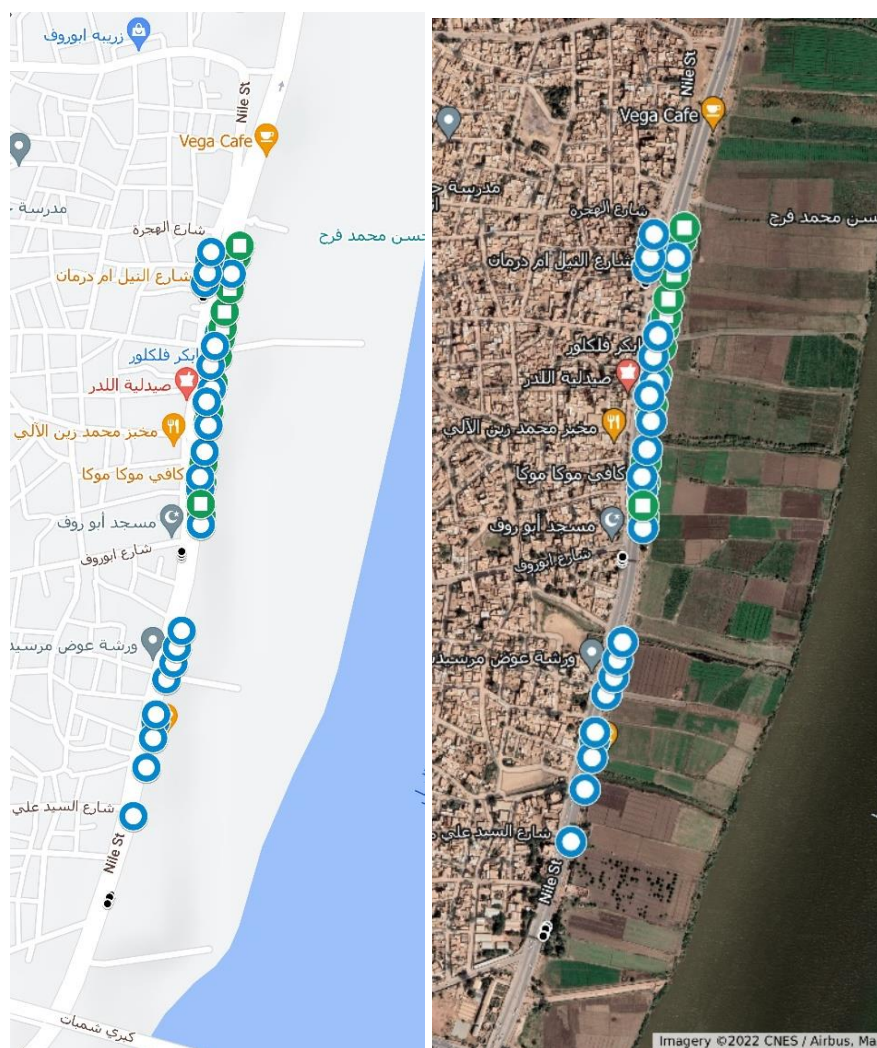


Figure 25: Stationary activities mapping

Source: researcher

● Location of activities

Restaurants and cafés start their work from the afternoon until eleven o'clock at night. Most of the activity is related to the consumption of food and drinks.

It is noticed that people pass by cyclists and walk since the afternoon and the activity increases at night. We also notice people sitting in groups of different genders and age groups. The street has no public furniture, so people sit in the shops' furniture in the evening.

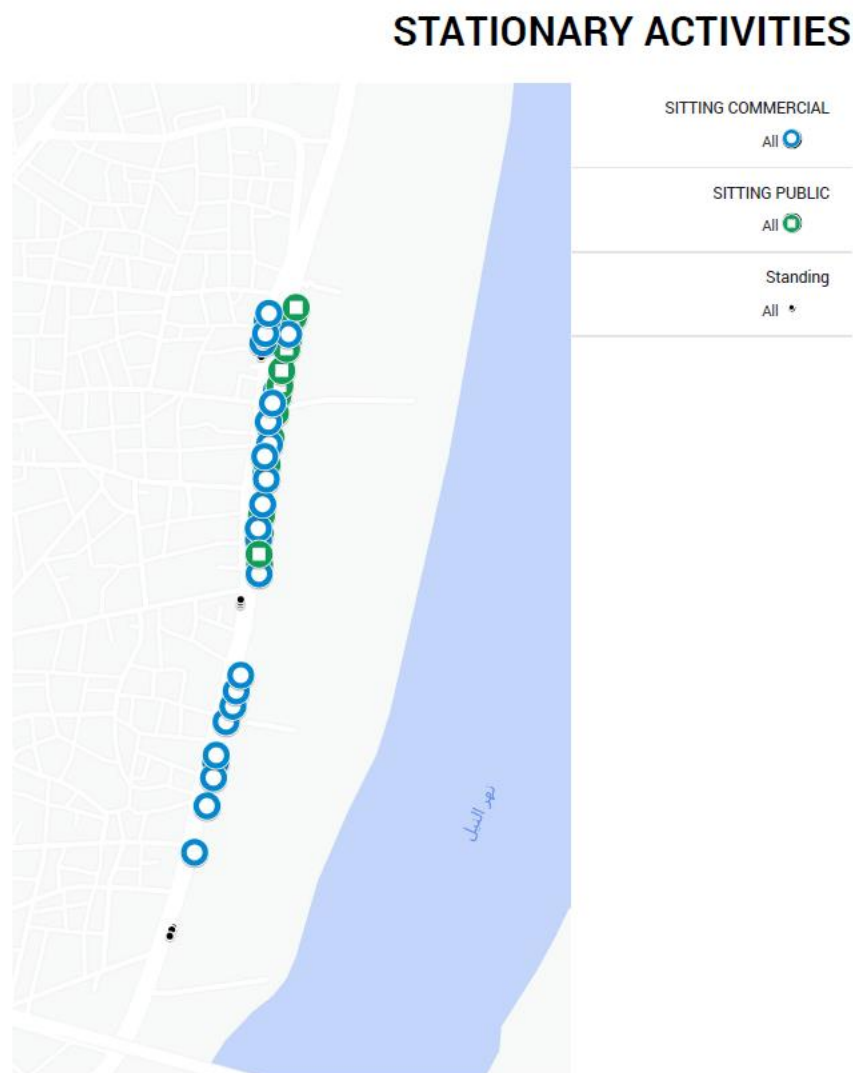


Figure 26: Sitting commercial and public and standing

Source: researcher

The fixed activities that take place on Nile Street during the morning are almost non-existent. Unstable activities related to selling or selling points of vegetables and fruits appear, and we are in the afternoon until sunset.

STATIONARY ACTIVITIES

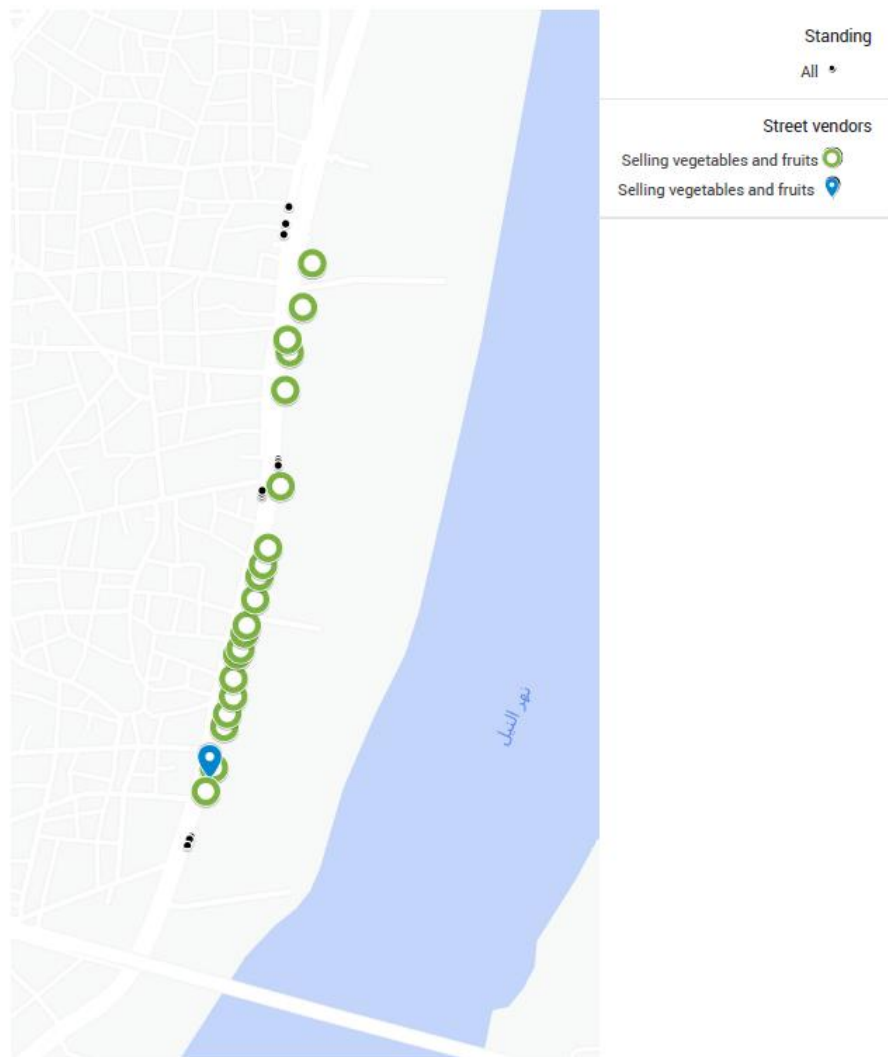


Figure 27: The map shows street vendors and where people are standing

Source: researcher

5.5.2 COUNTING PEDESTRIAN FLOW

Counting is the primary tool for public life studies (Gehl and Svarre 2013). for this study, I counted the pedestrian flow, that is, the number of people who walked in the place or performed a certain type of activity in the place. Counting can provide quantitative data for a better understanding of the street as a place for people .The flow was conducted for thirty minutes between 11:00 and 19:00 at the beginning, middle and end of the week.

Observations were made (three times in the street, in the morning, in the afternoon and in the evening).

Table 3:Summary of pedestrian flow on Nile Street During three periods on three different days

Observations	CATEGORIES										Total
	WALKING	Walking a pet	In a group	By themselves	Riding a bicycle	Relaxing/sitting	On a laptop or phone	Reading	Exercising/playing		
Sunday 2 jan 2022, 11:00 - 11:30 am	3	0	1	6	43	9	2	1	0	65	
Sunday 2 jan 2022, 5:00 -5:30 pm	16	0	6	20	9	16	5	0	8	80	
Sunday 2 jan 2022, 8:00 -8:30 pm	25	2	16	5	4	32	18	0	15	117	
Total	44	2	23	31	56	57	25	1	23	262	
Observations	CATEGORIES										Total
	WALKING	Walking a pet	In a group	By themselves	Riding a bicycle	Relaxing/sitting	On a laptop or phone	Reading	Exercising/playing		
Thursday 6 jan 2022 , 11:00 - 11:30 am	22	1	3	4	1	4	2	0	3	40	
Thursday 6 jan 2022, 5:00 -5:30 pm	42	0	7	15	4	4	0	0	9	81	
Thursday 6 jan 2022, 8:00 -8:30 pm	96	3	34	52	4	3	3	0	13	208	
Total	160	4	44	71	9	11	5	0	25	329	
Observations	CATEGORIES										Total
	WALKING	Walking a pet	In a group	By themselves	Riding a bicycle	Relaxing/sitting	On a laptop or phone	Reading	Exercising/playing		
Friday 7 jan 2022 , 11:00 - 11:30 am	11	0	2	5	2	9	2	0	0	31	
Friday 7 jan 2022, 5:00 -5:30 pm	32	0	0	8	3	7	6	0	0	56	
Friday 7 jan 2022, 8:00 -8:30 pm	127	2	35	76	15	28	16	0	12	311	
Total	170	2	37	89	20	44	24	0	12	398	

- The first table shows that the total number of people during

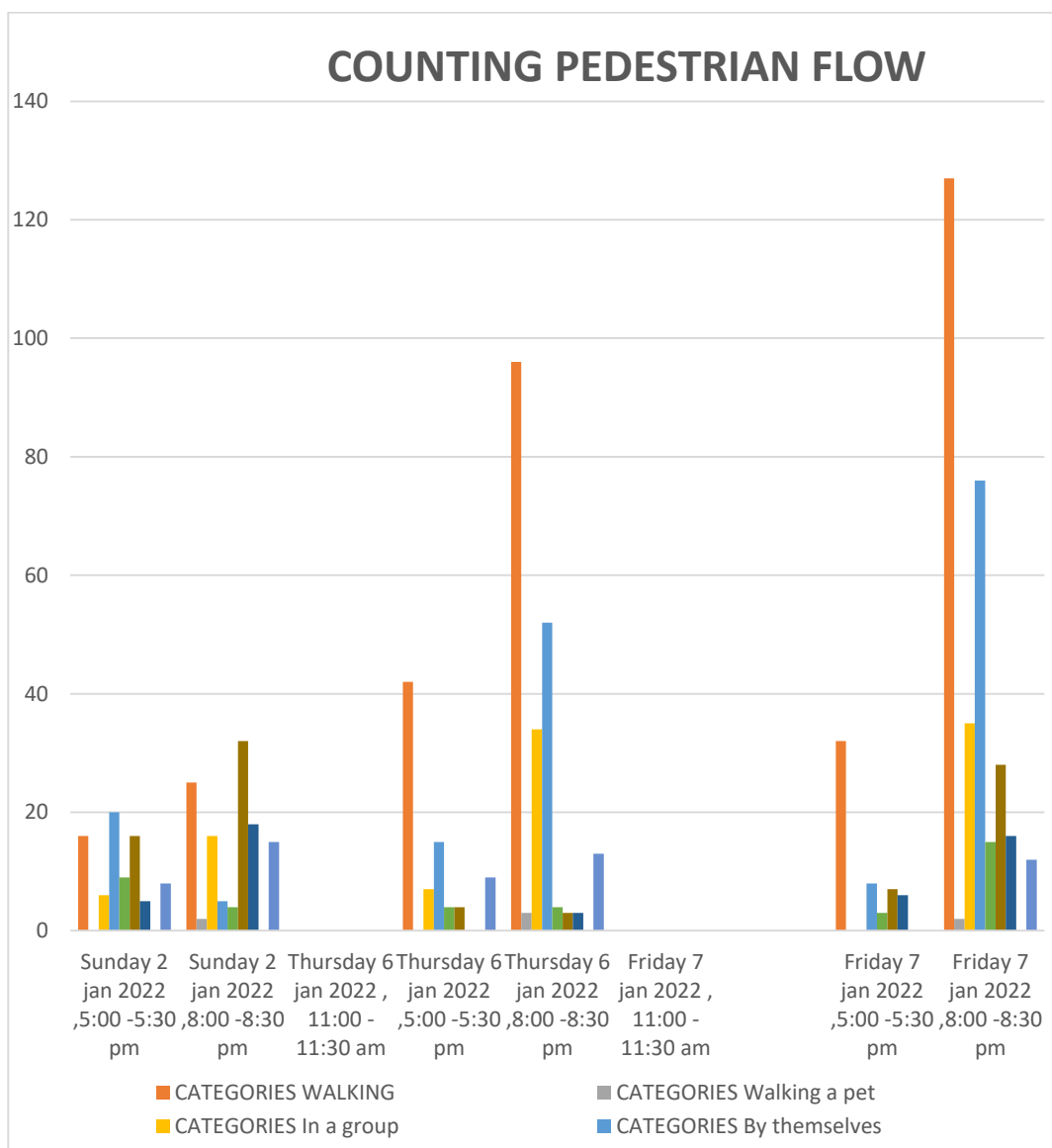
On Sunday, 262 people, most of the pedestrians were in the seated category 57.

- The second most common category was “walking”, with a total of 44 people.

On Thursday, the pedestrian category appears with the highest rate of 160 people, followed by the category of people sitting alone with 71 people.

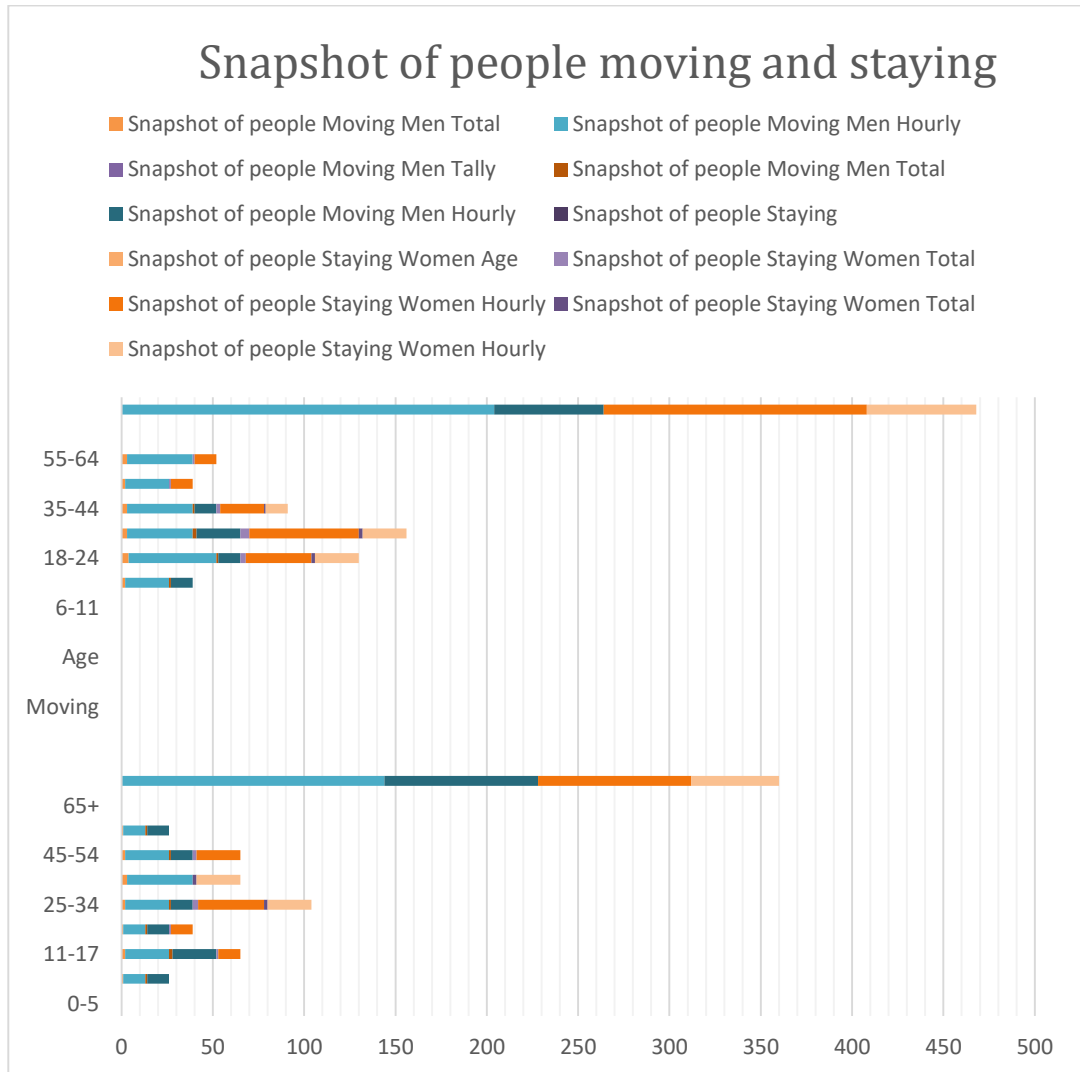
On Friday, the pedestrian category appears with the highest rate of 170 people, followed by the category of people sitting alone with 89 people.

Figure 28: shows the total flow of people registered during each pedestrian observation during the different periods for the different days.



5.5.3 TRACKING WHO WALKS?

Tracking is a tool used to record the movements of people in a specific space. The ages and genders of people moving in the void are recorded, their number, and whether they are walking through the void or sitting.



The chart shows that the highest rate of people moving in the street is men, especially those aged 25-34, followed by the youngest aged 18-24.

For women, the highest rate of presence is those aged 25-34, followed by those aged 11-17. We find that the youth group is the most present and passing in the street.

Tool 6: The 12 quality criteria

Jan Gehl developed a tool called “The 12 quality criteria”. It is a checklist with twelve criteria that is used to assess public space qualities according to three main themes: Protection, Comfort, and Enjoyment. It assists the observer to understand if space is pleasant enough for people to stay in. The checklist evaluates the extent to which the individual public space lives up to the criteria for inviting people to come and stay. (Gehl and Svarre 2013).

The tool is applicable for a delimited public space, such as a street. However, the checklist does not assess the aesthetic qualities of public spaces. Even though the aesthetic qualities are of importance to determine if people decide to use a certain space or not, the purpose of this tool is merely to understand what is required to make people feel comfortable to stay in a certain public space. This is based on the knowledge of human needs and senses developed by Jan Gehl’s

lifelong experience of public life studies. This tool can be used to compare the summer pedestrian streets with the conventional streets to determine if the redesign had any effect on the subjective perception regarding these three main themes. Protection is an essential prerequisite for public life. Public spaces need to protect people against unpleasant sensory experiences such as protection from wind, pollution, rain, noise, and cars. If space is unable to protect people and satisfy basic needs people will ultimately avoid the space. Public space also has to be comfortable for people to use. When people can sit, stand, walk, listen, look, converse, play and exercise they feel invited to stay (Gehl 2010; Gehl and Svarre 2013).

5.6 THE TWELVE QUALITY CRITERIA:

Protection	<p>Protection against traffic and accidents. Do groups across age and ability experience traffic safety in the public space? Can one safely bike and walk without fear of being hit by a driver?</p> <p>No pedestrian protection Riding a bike is dangerous</p>	<p>Protection against harm by others. Is the public space perceived to be safe both day and night? Are there people and activities at all hours of the day because the area has, for example, both residents and offices? Does the lighting provide safety at night as well as a good atmosphere? Lively public realm Eyes on the street Good lightning Overlapping functions</p>	<p>Protection against unpleasant sensory experience. Are there noises, dust, smells, or other pollution? Does the public space function well when it's windy? Is there shelter from strong sun, rain, or minor flooding?</p> <p>Pollution heat Dust and noise</p>
Comfort	<p>Options for mobility. Is this space accessible? Are there physical elements that might limit or enhance personal mobility in the forms of walking, using a wheelchair, or pushing a stroller? Is it evident how to move through the space without having to take an illogical detour?</p> <p>Space for walking Accessibility Good surfaces</p>	<p>Options to stand and linger. Does the place have features you can stay and lean on, like a façade that invites one to spend time next to it, a bus stop, a bench, a tree, or a small ledge or niche?</p> <p>Edge effect/attractive zones for standing/staying Supports for standing</p>	<p>Options for sitting. Are there good primary seating options such as benches or chairs? Or is there only secondary seating such as a stair, seat wall, or the edge of a fountain? Are there adequate non-commercial seating options so that sitting does not require spending money? Zones for sitting Good places to sit Benches for resting view, sun, people</p>
	<p>Options for seeing. Are seating options placed so there are interesting things to look at?</p> <p>river front farms and trees</p>	<p>Options for talking and listening/hearing. Is it possible to have a conversation here? Is it evident that you have the option to sit together and have a conversation?</p> <p>Low noise levels Street furniture that provides</p>	<p>Options for play, exercise, and activities. Are there options to be active at multiple times of the day and year?</p> <p>Invitations for creativity, physical activity, exercise and play</p>
Enjoyment	<p>Scale. Is the public space and the building that surrounds it at a human scale? If people are at the edges of the space, can we still relate to them as people or are they lost in their surroundings?</p> <p>Public spaces and buildings designed to human scale</p>	<p>Opportunities to enjoy the positive aspects of climate. Are local climatic aspects such as wind and sun taken into account? Are there varied conditions for spending time in public spaces at different times of year? With this in mind, where are the seating options placed? Are they located entirely in the shadows or the sun? And how are they oriented/placed in relation to wind? Are they protected? Sun/shade Heat/coolness Breeze</p>	<p>Experience of aesthetic qualities and positive sensory experiences. Is the public space beautiful? Is it evident that there is good design both in terms of how things are shaped, as well as their durability?</p> <p>Good design and detailing Good materials Fine views Trees, water, plants</p>

The checklist of the twelve criteria is used to assess the street according to three main themes: Protection, Comfort, and Enjoyment. The result of this assessment is subjective. Three themes can be used to assess to what degree a public space invites people to come and stay.

- **Criterion: Deficient**

Seven criteria were assessed as ‘deficient’ on Nile Street as a place.

These criteria are:

- Protection against traffic and accidents.

Pedestrians, cyclists, cannot drive safely, even people cannot cross the street safely.

- Protection against unpleasant sensory experience

The conventional street does not provide shelter from strong sun, rain, or wind.

- Options to stand and linger

The Nile Street does not provide any zones for standing or staying. The “place function” is vague.

- Options for sitting

The Nile Street does not provide many seating options. There are no public benches that invite people to sit down and rest. The only seating options are commercial. These are placed on the sidewalks and belong to the cafés and restaurants.

- Options for play, exercise and activities

The only space reserved for people is the sidewalk which is not wide enough to invite people to play, exercise and to be active on.

- Opportunities to enjoy the positive aspects of climate

Nile street does not offer opportunities to sit or stand at different locations to enjoy the positive aspects of the climate such as shade, sun, heat, and coolness to the same extent. This is because the sidewalk is the only space reserved for people.

- **Criterion: Decent**

Six criteria were assessed as 'decent' on Nile Street. These criteria are:

- Options for mobility

Nile street offers space for pedestrians. However, the sidewalk is still wide enough for people to walk on. But obstacles on the sidewalk such as outdoor seating, tables, signs et cetera do limit the already narrow space for people.

- Options for visibility

Reducing the number of seat options also reduces visibility options. There is no street furniture other than the extended fence and separator between the farms and the sidewalk, which made the street view less interesting.

- Options to speak and listen/hear

There are limited options to sit and talk on Nile Street. There is nothing but the fence separating the farms from the sidewalk for public seating. Other than that, the only seating options are commercial. It is placed on sidewalks and belongs to cafes and restaurants. The increased amount of automated traffic makes talking to him more difficult.

- The human scale is appropriate and good, everything is clear and the buildings in the ocean are not tall, so people do not get lost.
- Experience aesthetic qualities and positive sensory experiences

Although Nile Street is qualified to have aesthetic qualities and a sensory experience, and despite the removal of many design elements from the street itself, the aesthetic qualities are still felt somewhat in the facades of the buildings surrounding the street and the surrounding farms on the waterfront.

5.7 Survey

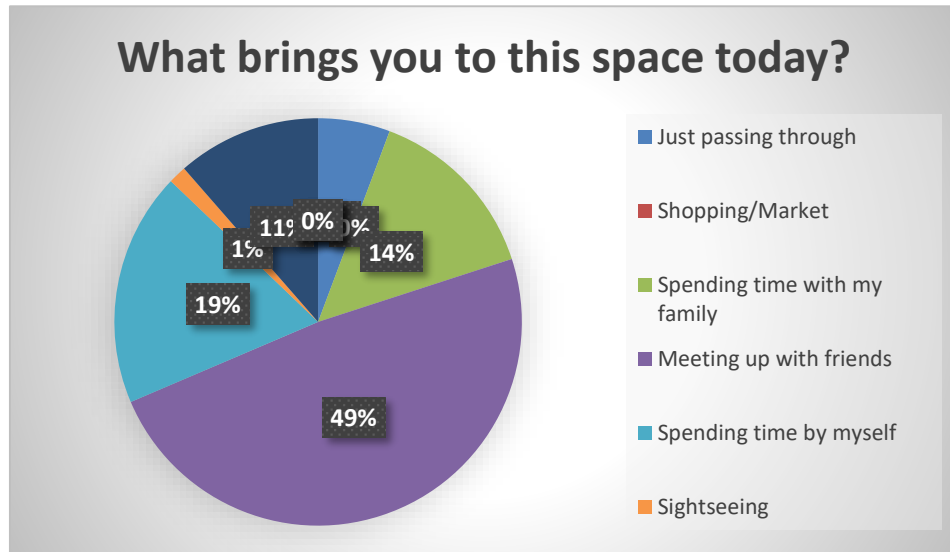


Diagram 1: relationship with the area

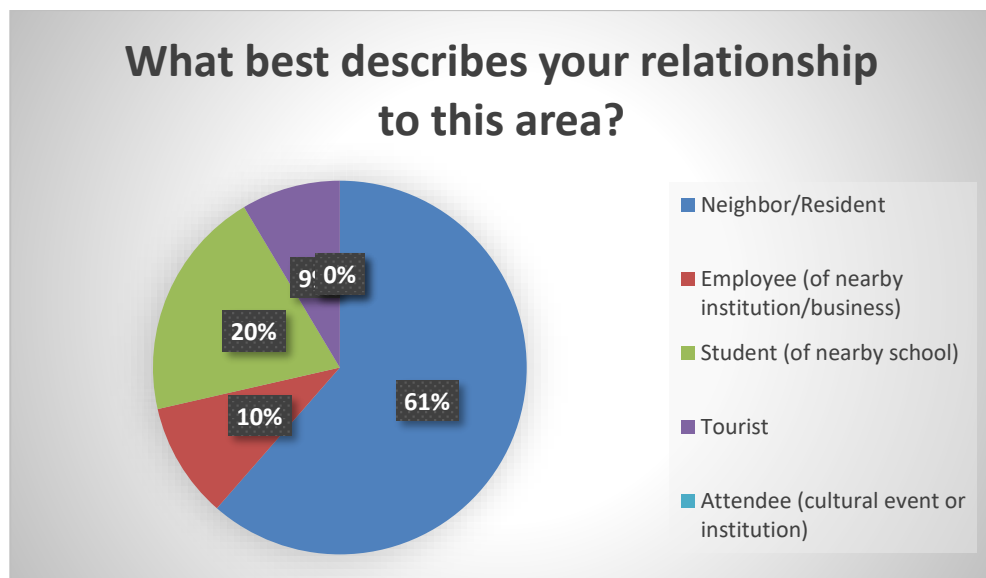


Diagram 2: What brings you to this space today?

The chart shows that the majority of those coming to the place come to meet their friends, sit down and talk. They are followed directly by people who want to sit alone and spend time.

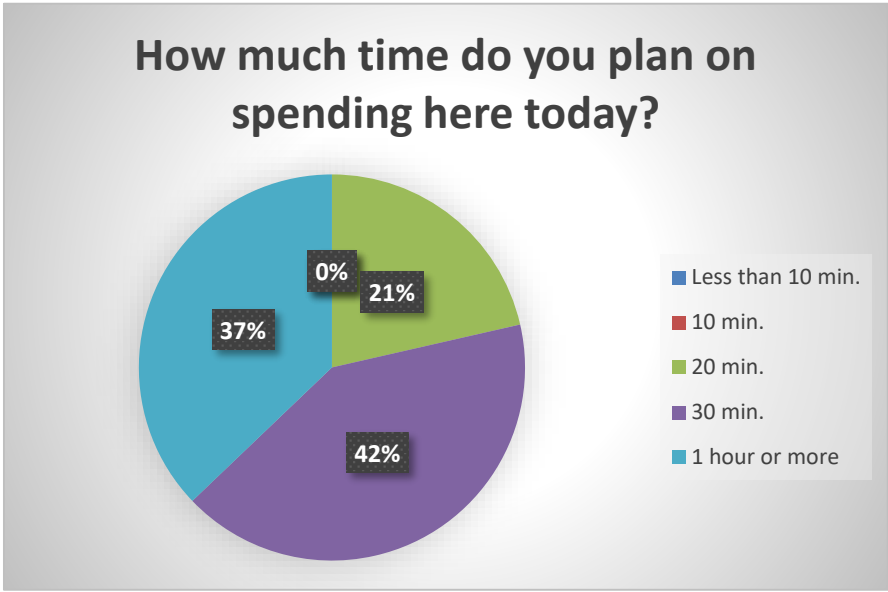


Diagram 3: How often do you visit this place?

The plan shows that the majority of those coming to the place come every week to Nile Street, and after them people come every month.

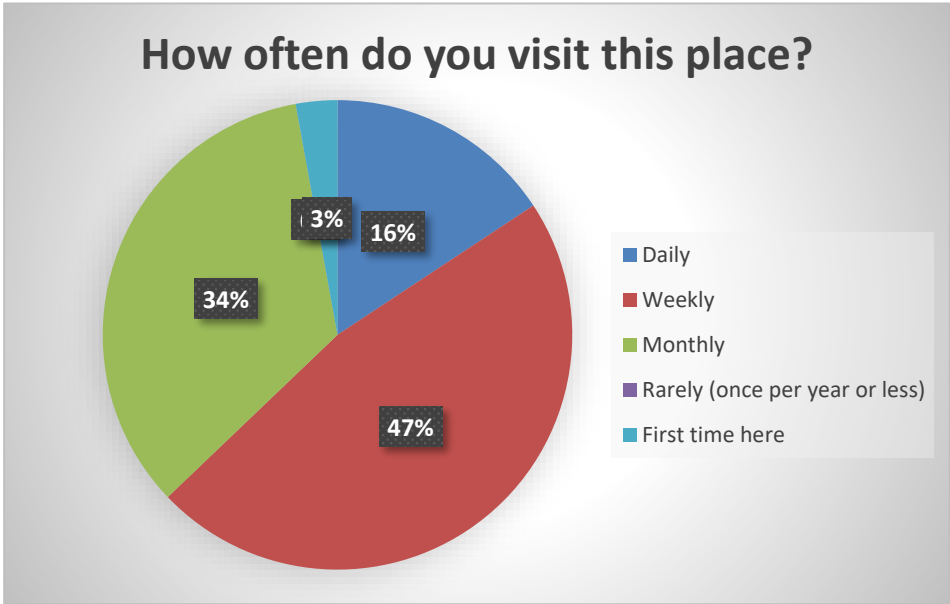


Diagram 4: spending time

The chart shows that the majority of those coming to the place like to spend time between half an hour and an hour or more on the street.

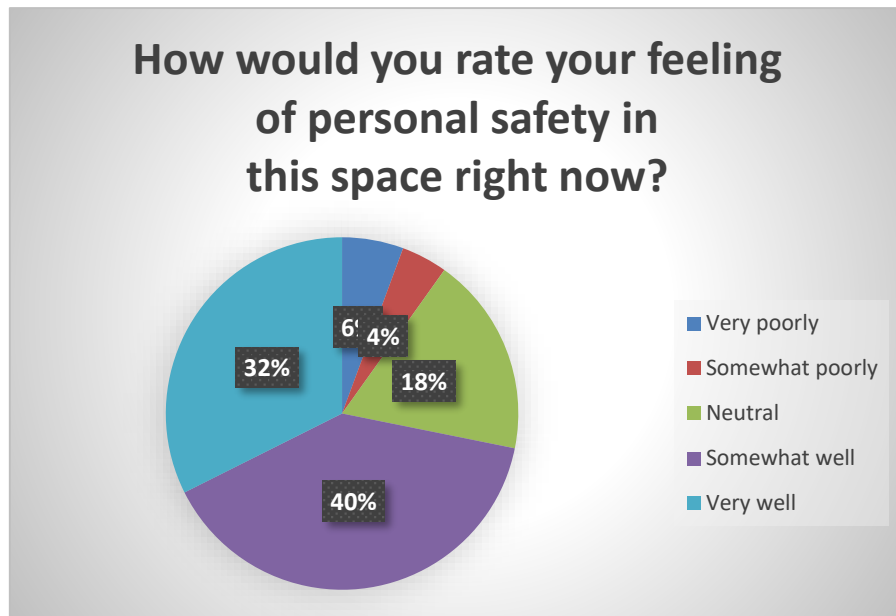


Diagram 5: feeling safety

The chart shows that the majority of those coming to the place think that the place is good to some extent, followed by the group that thinks it is okay.

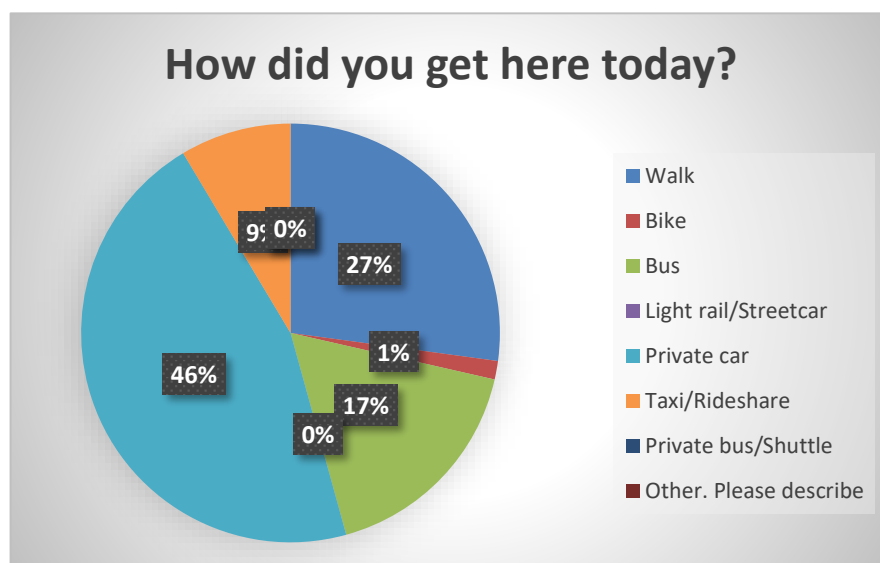


Diagram 6: How did you get here today?

The chart shows that the majority of those coming to the place, 46%, come with their own cars. And 27% come on foot, then those who ride public transportation, representing 17%.

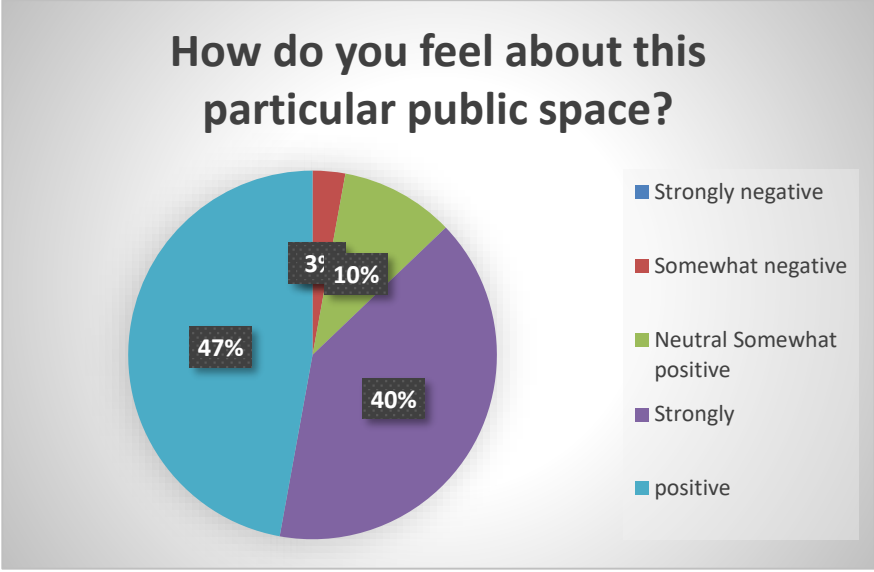


Diagram 1: how people feel about this public space

The chart shows that the majority of those coming to the place have a positive relationship with the place, as they represent 47%, and 40% show that they have a strong relationship with the place.

5.8 Photographing

Nile Street Omdurman was filmed in order to document and see the changes in street landscape and public life that occur at different times during the day.



Figure 28: Street shots taken

Source: researcher



Figure 29: The following picture shows the emergence of the activities of the representative of selling vegetables and fruits through regular street vendors daily

Source: researcher



Figure 30:the change of activities and the beginning of the café's work.

Source: wiam musadage



Figure 31: the beginning of come to the cafés.

Source: wiam musadage



Figure 32: picture at six o'clock in the evening, and it shows the influx of people to the place and the beginning of the café work.

Source: wiam musadage



Figure 33: The photo was taken at eight in the evening

Source: wiam musadage



Figure 34: The photo was taken at seven in the evening, and it shows the various forms of café and seating.

Source: researcher



Figure 35: The photo was taken at seven in the evening and shows the presence of young people in groups.

Source: google image



Figure 36: The photo was taken at five in the evening and shows the various seating, and it shows the overlap of activities between cafes and tea vendors.

Source: researcher

5.9 Conclusion:

The door discussed the history of the city of Khartoum, Omdurman and its community, how the community practices its culture and how the street is used as an open space, especially the Nile Street, after analyzing the Nile Street with the Places Assessment Tool, Jean Gehl for the study of people's lives, it appeared in the analysis that the population uses the Nile Street more in the evening than in the morning Young people are the majority using this place, and a survey was conducted on the Nile Street, and the respondents were asked several questions to reach more accurate results.

Chapter 4

4 Results, Recommendation And conclusion

4.1 introduction

In this chapter, the conclusions drawn after the analysis process will be discussed. The data collected will be used to make a number of recommendations about the results. It will be reflected at the end of the chapter summary.

4.2 Results

- There are no shaded places where people can be present during the morning and noon periods.
- There are no well-equipped places for social activities (families, seminars).
- There are no well-divided and clear areas to separate activities from each other (cycling, walking, talking).
- The absence of attractions encourages users to pass through these places, to sit, and to communicate with each other.
- Lack of places designated for recreational activities for different age groups (youth, children, and adults).
- Lack of economic activities in open spaces, such as providing certain places (booths) for them, selling products made by residents, and agricultural areas to benefit from them.
- The lack of places for sports activities (walking, biking, etc.) to improve physical health.
- Lack of seating places and special pedestrian paths for meditation and walking to improve the psychological and health status.
- Weak services that include electrical connections, lighting, sewage, surface drainage and hygiene, in addition to the lack of periodic maintenance

4.3 Recommendations

The recommendations will be divided into administrative and legal recommendations, visual recommendations, site- and access-specific recommendations, and recommendations for activities and play.

These recommendations came on four axes, which can make the place an attractive and comfortable place where interaction can be made, and they are as follows:

1- Comfort and image recommendations:

- Attention should be paid to the attractions of the place and the image of the place so that it is attractive and presents itself well. It is the most important thing in the place to give a good first impression to passers-by and users and also give them a varied and wonderful experience.

- Paying attention to the good lighting of the place and the availability of security points, because this makes the place safe and secure for use, and here we can say that it will attract more different groups, especially women, due to the availability of the safety and security factor.

- Attention must be paid to the multiple seating options, i.e. there must be a variety of different places to sit on the street and separated from the street and noise area, and they must be comfortable to use, and even care must be taken to be in shady places at noon and topped with trees or umbrellas that provide shade. It increases the level of survival and the influx of people without the need to worry or sit in other private places at any time.

Paying attention to the provision of places for garbage and managing it well. Paying attention to cleanliness improves the image of the place and gives a sense of care.

2- Recommendations for accessing links:

- Attention should be given to access between the site and its surroundings, making it safe, easy to access and easy to walk and cross to, so the first purpose of designing the squares is always the people and around the people.
- Paying attention to the communication between the sidewalks in order to facilitate access to different age groups and people with disabilities and to make the paved paths clear, safe and comfortable.
- Paying attention to bus stations and connecting them so that they can reach and park in a good way, as well as paying attention to the accessibility of various transport vehicles, whether private or service vehicles.

3- Recommendations for uses and activities

- Paying attention to the diversity of activities and separating them well and to be clear. Activities are the heart of the open squares. Their presence increases the rate of interaction and increases the number of people. Attention must be paid to the balance of these activities between men and women.

Taking into account the diversity of activities for different age groups and genders.

4- sociability recommendations

Creating a comfortable place for people through which they can easily interact with each other and with strangers easily. This enhances the feeling and sense of the place and makes it a place that increases opportunities for social bonding between people.

General recommendations:

- 1- Working with international standards and considerations and design principles for streets, to align users' needs, and to plan and provide spaces for various activities.
- 2- Reconsidering the prevailing principles and standards of planning in order to try to reach an idea that fulfills the requirements of the distinguished urban environment.
- 3- Involve stakeholders of all kinds (vendors, owners of kiosks, residents, etc.) in the design process and take their opinions and work with them in a flexible manner that makes them achieve their aesthetic and functional requirements to ensure its continuity.
- 4 - Laying down programs for current and future development and upgrading the streets to make them better places for people with the capabilities currently available.
- 6- Directing development trends towards the streets, because they are the arteries of cities, and they are the places through which cities begin to grow and develop.

7- Attention to services and management of development projects because it is considered the main driver of projects and is considered the first governor of the place to manage it well.

4.4 Summary of this chapter

This section discusses how to collect, embed and reflect data in different maps. It also discusses through snapshots taken from the site, how to evaluate the place according to the twelve criteria, and what questions were asked in the interviews.

A study of the condition of street users in terms of gender, age and number, taking into account the times used for this street and its impact on the lives of neighborhood residents in terms of social, economic, health and other environmental aspects. It also provides suggestions and perceptions that help make the street a place for people in terms of social, economic, health, environmental and other terms.

Conclusion and prediction

Conclusion:

Open spaces in Khartoum are essential to the local community from different directions. Studying streets is the backbone of cities and how streets can be places for people and how they can act as a catalyst for local communities. The research believes that these streets can be improved and upgraded better.

The research discussed the main problems from several angles and different tools, and how these aspects and tools can have a significant impact on the streets and squares and improve the lives of residents.

These steps, even if achieved gradually as part of a long-term plan, will improve the microclimate conditions in Khartoum, bring vitality to the streets, and can revitalize and stimulate social activities. And the city of Omdurman pays to be better in the future.

Prospect:

Recommendations, research ideas, and suggestions for improving the instrument and equipment, Unresolved problems, etc., can be shown in the conclusion or discussion.

References

- Stress and health: psychological, behavioral, and biological determinants neil schneiderman, gail ironson, and scott d. Siegel.
- Carmona, matthew, claudio de magalhães, and leo hammond. Public space. New york: routledge, 2013.
- Gehl, J. (2010). Cities for people. Washington: Island Press.
- Gehl, J. (2011). Life between buildings. Washington: Island Press.
- Gehl 2021. <https://gehlpeople.com/tools/twelve-quality-criteria/> [2021-05-14].
- Gehl, J. and Svarre, B. (2013). How to Study Public Life. Washington: Island Press.
- Carr, s. Et al., 1992. Public space (cambridge series in environment and behavior). Cambridge university.
- Jacobs, j. (1961). The death and life of great american cities.
- Danisworo (1989) konsep peremajaan kota, institut teknologi bandung
- Achmad delianur nasution and wahyuni zahrah / procedia - social and behavioral sciences 36 (2012).
- Whyte, W. H. (1985) the social life of small urban space. Washington dc: the conservation.
- Whyte, W. H. (1980). The social life of small urban space. Project for Public Spaces. New York
- Jacobs, A. (1963). Great streets. Cambridge: MIT Press.
- Jacobs, J. 1961. The Death and Life of Great American Cities. New York: Random House.
- Jayakody, R., Keraminiyage, K., Alston, M., Dias, M. (2018). Design factors for a successful shared space street.
- Mehta, V. (2013). The Street: A Quintessential Social Public Space. New York: Routledge.
- Mehta, V. (2014). Evaluating Public Space. Journal of Urban Design, 19(1), pp. 53-88. <http://dx.doi.org/10.1080/13574809.2013.854698>

- Mehta, V. (2018). Streets and social life in cities: a taxonomy of sociability. *Urban Design International*.
- <https://doi.org/10.1057/s41289-018-0069-9>
- (SSS) design. *International Journal of Strategic Property Management*, 22(4), p. 278–289. doi.org/10.3846/ijspm.2018.3685.
- Jones, P., Marshall, S., Boujenko, N. (2008). Creating more people-friendly urban streets through 'link and place'.
- street planning and design. IATSS Research,. [https://doi.org/10.1016/S0386-1112\(14\)60196-5](https://doi.org/10.1016/S0386-1112(14)60196-5).
- Jones, P., Roberts, M., Morris, L. (2007). Rediscovering mixed-use streets. [https://www.jrf.org.uk/sites/default/files/](https://www.jrf.org.uk/sites/default/files/jrf/migrated/files/2018-mixed-use-streets.pdf)
- [jrf/migrated/files/2018-mixed-use-streets.pdf](https://www.jrf.org.uk/sites/default/files/jrf/migrated/files/2018-mixed-use-streets.pdf)
- The future of public space: how to measure active public space in the digital era Haithem ahmed albeera 2019 "sudan population 2021 (live)"
- Nsw public spaces: department of planning, industry & environment (a nsw government website)
- The ecosystem and how it relates to sustainability (globalchange.umich.edu).
- Architecture: jan gehl masters of architecture from the school of architecture at the royal danish academy of fine arts (kadk) (dreamideamachine.com).
- The problem of crime (open.lib.umn.edu/socialproblems/chapter/8-1-the-problem-of-crime/).
- Important types of play as your child grows (verywellfamily.com/types-of-play-2764587).
- Evaluating spatial behavior in the urban public space of kadıköy square (hani razavi fard) hani razavi fard.
- Community based street design (www.pps.org/article/community-based-street-design).
- Physical activity – choosing the one for you (www.betterhealth.vic.gov.au/health/healthyliving/physical-activity-choosing-the-one-for-you).
- Appleyard, D. (1981). *Livable streets*. Berkeley and Los Angeles: University of California Press

- Allan jacobs(www.scribd.com/presentation/409033532/allan-jacobs).
- *"omar al-bashir fast facts"*. Cnn. 10 december 2012
- (wikimapia.org/sudan 2022)
- (ohnastudent.blogspot.com).
- Sudanembassy.nl/about-sudan/the-sudanese-family-life
- Source ernest alfred wallis budge (1906), "khartum", in cook's handbook for egypt and the sudan 2nd edition, london: t. Cook & son,
- Understanding Urban Public spaces and their social value.