



Urban Quality of Life in Nasr City: An assessment of the reformation project of the built environment

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Abstract

Large-scale urban renewal initiatives are undertaken by governments in cities under pressure to improve residents' quality of life (QoL) and mitigate economic and environmental issues. In 2019, as a part of the Egypt 2030 vision, the government initiated a road network reformation project to solve mobility issues in the districts linking the east and west of Cairo, including Nasr City District. To investigate if the built environment of Nasr City District still meets residents' satisfaction, this research is being undertaken to examine residents' satisfaction with the reformation project, which had an impact on their QoL.

Keywords: Urban Quality of Life, Reformation Project, Dimensions to Perceive Urban Spaces.

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1.0 Introduction

The recently announced Egypt Vision 2030 seeks to improve the quality of life (QoL) and welfare of all Egyptians, through an inclusive sustainable development strategy (SDS) based on social justice, environmental integrity, and diverse and knowledge-based economic systems (Arab Development Portal, n.d.). The Egyptian government announced a framework of developmental projects to enhance the QoL standards for the residents, such as the reformation project of the road network in the Greater Cairo Region (GCR), including Nasr City as one of the districts that link the new cities in the east and west of Cairo (Carmona, Heath, Oc, & Tiesdell, 2003).

This research aims to investigate and assess the impact of the reformation project in Nasr City on the residents' satisfaction level with their QoL, through two approaches: the descriptive approach, which involves defining terms and theories related to the perception of urban spaces, and how they relate to urban QoL, and primary data collection through surveys and interviews with the residents of Nasr City to assess their satisfaction levels before and after the reformation project and how it changed the standard of their daily lives.

2.0 Literature Review

2.1 Urban Quality of Life

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Despite being commonly used in various contexts, particularly as an objective of policies, academic research, reports, and national projects, the term QoL is accompanied by a general lack of uniformity in its definition, which results in a variety of approaches; regardless, QoL is used to describe the general well-being of societies and people (Psatha, Deffner, & Psycharis, 2011). Socioeconomic dynamics, politics, safety, the environment, mobility, population, relative built environment density, public space quality, land use patterns, and other development considerations are only a few of the many elements of place and society that are deeply connected. How efficiently people's needs are satisfied influences their behavior and perceptions, which impact their QoL (Alvarez & Muller-Eie, 2017). Seven fundamental dimensions of neighborhood life—physical, psychological, mobility, political, social, economic, and environmental—are used to determine QoL (Elsayed, 2021) as follows:

Table 1 Urban QoL dimensions & sub-dimensions

Dimensions	Physical	Psychological	Mobility	Political	Social	Economical	Environmental
Sub dimensions	<ul style="list-style-type: none"> • Land Use • Compact Neighborhood Urban Layout • Housing & Buildings Quality • Management & Maintenance 	<ul style="list-style-type: none"> • Community Identity • Pleasing Milieu 	<ul style="list-style-type: none"> • Accessibility • Walkability and Cyclability • Public Transportation • Traffic Load 	<ul style="list-style-type: none"> • Urban Strategies and Policies • Political and Civil Rights 	<ul style="list-style-type: none"> • Social Inclusion and Equality • Social Connectivity Behavior performance 	<ul style="list-style-type: none"> • Economic Development • Economic Standard of Living 	<ul style="list-style-type: none"> • Air Quality • Water Quality • Land Quality • Materials Quality • Local Environment • Energy Use • Waste Management & Recycling

Source: (Elsayed, 2021)

2.2 Perceiving Urban Spaces

The perception of urban spaces is a mental image of the built environment and its natural components. It also serves as a strategic link for way-finding in urban cities through immediate sensations and various memories of specific places from previous experiences. (Lynch, 1960). Lynch argued that the impacts of physical and perceptible objects (paths, edges, districts, nodes, and landmarks) in addition to some Non-Physical Dimensions are all necessary for a clear and detailed city image, as follows:

- The Physical Dimensions of Perceiving Urban Spaces

- Paths are fundamental in any urban planning as they provide the first impression of the area. It's the passage people use to travel, including roads, walkways, railroads, canals, and others.
- Edges are linear urban boundaries that split the continuity and harmony of the path, separating two different domains or functionalities. Edges are visible as water surfaces and property fences, over-headed as elevated trains and bridges, or fragmented as the corners of buildings.
- Districts are medium-sized to large areas of the city, each with unique characteristics from the inside and outside.
- Nodes are placed strategically in places where people gather and socialize, such as cafés, rest areas, and pedestrian crossings. The functionality of a node is always dependent on its location.
- Physical landmarks are visible from a wide range of perspectives and distances. They may represent a continuous path or serve to highlight a neighborhood's distinctive characteristics. A landmark can be human-made, such as a tower or a large structure, or it may be created by nature, such as mountains.

- The Non-Physical Dimensions of Perceiving Urban Spaces

- Livability focuses on enhancing social well-being through the built and natural environments. (Tennakoon & Kulatunga, 2019).
- Place attachment is referred to the affection of the links between people and places through pleasant social and physical interactions. (Brown, Altman, & Werner, 2012).
- Place identity is a substructure of a person's identity composed of cognitions about their surroundings, such as the ideas, feelings, attitudes, values, preferences, and experiences a person had with the outside world and other individuals. (O'Toole & Grey, 2020).

2.3 The Concept of Urban Renewal by Reformation

To enhance living conditions and withstand economic and social pressures, urban renewal policies reform or rehabilitate the urban structure of declining districts of a city. Reformation in urban renewal focuses on addressing structural and environmental problems that can no longer be ignored for a prolonged time; otherwise, removal and redevelopment will take place (Osgood & Zwerne, 1960). This concept uses several approaches; (Decisions made by public agencies and organizations that are subject to local law - Specific actions delegated to areas under the jurisdiction of government agencies - Coordination of initiatives from the public and private sectors following officially approved urban renewal plans) (Elsayed, 2021).

2.4 Nasr City District (Then and Now)

According to the contemporary theories in urban planning at the time, architect Sayed Karim designed Nasr City District in the 1960s to be a city inside a city, within an orthogonal plan that consists of residential superblocks within walking distance services, a variety of land uses, green areas, and many administrative facilities for ministries and other institutions. Given how chaotic and poorly managed Nasr City has been since then, a big part of the original plan no longer exists (Elshahed, 2020). During the 1980s, new cities emerged in Cairo's east and west, and the amount of traffic in the connecting districts increased, harming the infrastructure and transportation system, and decreasing the QoL in Nasr City (Elsayed, 2021). According to the most recent report from the Central Agency for Public

Mobilization and Statistics of Egypt, Nasr City's demography has 707,000 residents, predominantly middle class, split into three broad age groups;

- 34% are children and young adolescents (under 15 years old) almost 240,123 residents
- 64% is the working-age population (15-64 years) almost 449,295 residents
- 2% is the elderly population (65 years and older) almost 17,570 residents



Figure 1 Nasr City Satellite Image with green areas highlighted.

Source: Google Maps Edited by: Researcher

2.5 The Reformation of the Road Networks in "Nasr City"

To relieve the decades-long traffic congestion in Nasr City, in 2019, the government started to implement the reformation project of road networks in East Cairo (Ahram Online, 2020); also, the 6th of October and the New Administrative Capital Monorail Lane Project is planned to improve resident transportation and help reduce the use of private vehicles (The Arab Republic of Egypt Presidency, 2019). To date, these developments have reduced travel times by half and reduced fuel consumption by 20% for vehicles passing through. However, many problems occurred, such as a significant rise in vehicle accidents, and erosion in greenery led to an increase in air pollution, which led to the decline of Nasr City's environmental image among its residents. In Figure 3, reformation actions are carried out within the study area, which includes;

- Twelve bridges were built to replace the roundabouts and intersections on the main roads (Fig. 4 and 5).
- Widened main roads by removing the green median strip.
- Commercial facilities occupying partially or entirely public parks.
- Huge pillars form the basis for the Monorail lane.

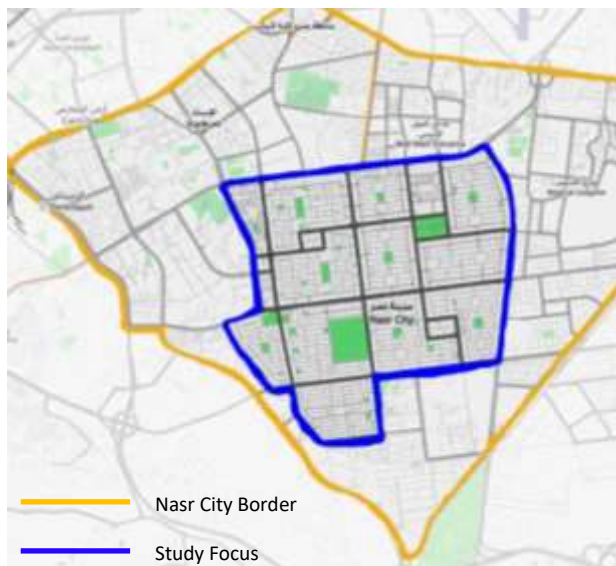


Figure 2 Nasr City Border & Study Area
Source: Openmaps.com - Edited by the Researcher

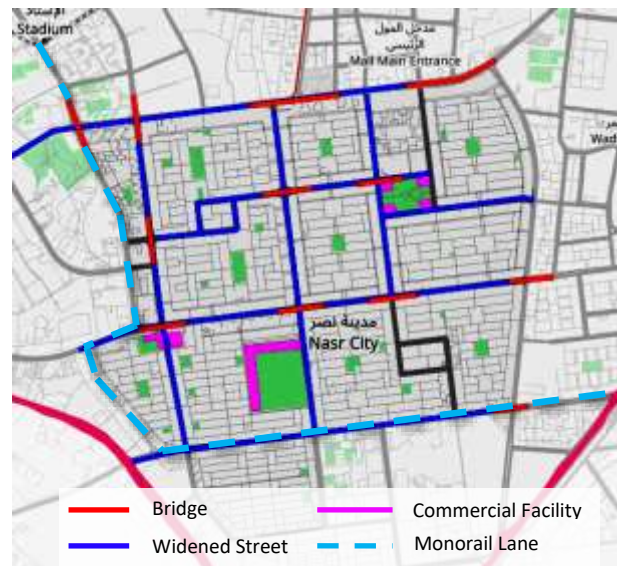


Figure 3 reformation actions within the study area
Source: Openmaps.com - Edited by the Researcher



Fig. 4. (a) The previous state of the main roads in Nasr City; (b) The Vehicle Bridge replaced the mid-green area.
(Source): Google Maps



Fig. 5. (a) Proposal by the government for the bridge construction; (b) The constructed building with a café beneath it.
(Source): Ahram Online, 2020

3.0 Methodology

The researcher has focused on a certain area of Nasr City to analyze; this part was most of the original master plan design for Nasr City's residential area (Fig. 2). The interviews and survey were conducted with the residents of the selected area to highlight the impact of the reformation project on their daily QoL.

3.1 The Relation between Dimensions of Perceiving Urban Spaces & Urban QoL

To assess how satisfied the residents are with the surrounding built environment, a description matrix is created to explain the relationship between the different impacts of both physical and nonphysical dimensions of perceiving urban spaces and the aspects of urban QoL (Table 2).

Table 2 The Relation between Physical & Non-Physical Dimensions of Perceiving Urban Spaces & Urban QoL

Urban QoL Dimensions		Physical	Psychological	Mobility	Political	Social	Economical	Environmental
Physical dimensions that perceive urban spaces	Pedestrians	✓	✓	✓	✗	✓	✓	✓
	Path	✓	✓	✓	✗	✗	✓	✓
	Vehicles	✓	✓	✓	✓	✓	✓	✓
	Transportation	✓	✓	✓	✓	✓	✓	✓
	Visible urban borders	✓	✓	✓	✓	✓	✗	✓
	Edges	✓	✓	✓	✗	✗	✗	✓
	Visible over headed boarders	✓	✓	✗	✗	✓	✓	✓
	Fragmentary	✓	✓	✓	✓	✓	✓	✓
	Districts	✗	✓	✓	✓	✗	✗	✓
	Nodes	✓	✓	✓	✓	✓	✓	✓
Non-Physical dimensions that perceive urban spaces	Landmarks	✓	✓	✗	✗	✓	✗	✓
	Natural	✓	✓	✓	✗	✓	✗	✗
	Man - Made	✓	✓	✓	✓	✓	✓	✓
	Access to public spaces, health & education facilities.	✓	✓	✗	✓	✓	✓	✗
	Liveability	✓	✓	✓	✓	✓	✗	✗
	Safety & Stability	✓	✓	✓	✓	✓	✓	✓
	Infrastructure; road network & public transportation	✓	✓	✗	✗	✓	✓	✓
	Environment; quality of Air and Water, greenery	✗	✓	✗	✗	✓	✗	✗
	Place Attachment	✗	✓	✗	✓	✓	✓	✗
	Place Identity	✗	✓	✗	✓	✓	✓	✗

Source: By Researcher

The conclusion reached after analyzing this matrix is as follows:

- a. Alterations to the physical environment have a direct impact on the dimensions of perceiving urban spaces, which directly affect the psychological side of urban QoL, either positively or negatively.
- b. Paths, edges, and nodes affect urban QoL the most, in addition to the Non-physical factors. Therefore, the study will focus on the mentioned elements to assess QoL in Nasr City.

3.2 Assessing the Impact of the Reformation Project on the Urban QoL (Residents Interview)

The level of satisfaction of Nasr City residents with their QoL needs to be assessed by discussing the characteristics of the physical and non-physical aspects of perceiving urban spaces before and after the reformation project. The study sample focuses on interviews with 17 middle-class Nasr City residents, of working age (15–64 years), who have lived there for more than a decade.

Table 3 The satisfaction rate of the residents before and after the reformation project

Table 6 The calculation rate of the residents before and after the reformulation project					
Dimension	Sub Dimension	Characteristics	Before	After	
Physical	Paths	Clear starts and ends	80%	20%	
		Various sizes & shapes according to vitality	60%	20%	
		Clear Directions	90%	40%	
		Unique design that implements different place experiences	60%	20%	
		Continuity, Harmony, arrangement in color, and contrast.	80%	20%	
	Edges	Clarity and Confirmation	60%	80%	
		The presence of highways	70%	90%	
		Unique landscape design	80%	20%	
	Nodes	Clarity and Continuity	60%	40%	
		Locating attractive objects	70%	60%	
		Access & Connection between nodes and paths	70%	40%	
		Clear Relation between nodes and paths	90%	30%	
	Non-physical	Accessibility	Accessibility to Parks and Open spaces for daily activities	90%	20%
Facilitate to enter or exit			60%	90%	
Accessibility to healthcare units and services			50%	50%	
Accessibility to Educational facilities and activities			50%	70%	
Safety and stability		Develop vehicle-oriented safe paths across the neighborhood	70%	20%	
		Safe pedestrian crossing and sidewalk	70%	10%	
Livability		Accessible Public transportation	90%	80%	
		Policies are more flexible, resilient, and responsive	90%	30%	
		Considering transportation planning in development plans	60%	80%	
		Walkability, Signage, public art, and green walls	80%	10%	
Environment		Priorities of environmental stewardship for the pollution produced	70%	20%	
Value Community		Funding for paths repair in parks, and other outdoor areas.	80%	40%	
		Using focal points, to create and improve place-making.	90%	10%	
Place attachment		Physical elements	Vehicle roads	70%	50%
			Walkways (pedestrians)	70%	10%
		Specific	Privacy Sense of the neighborhood paths	70%	20%
Place identity		Belonging	Physical environments (Paths, Edges & Nodes)	80%	30%

Source: By Researcher

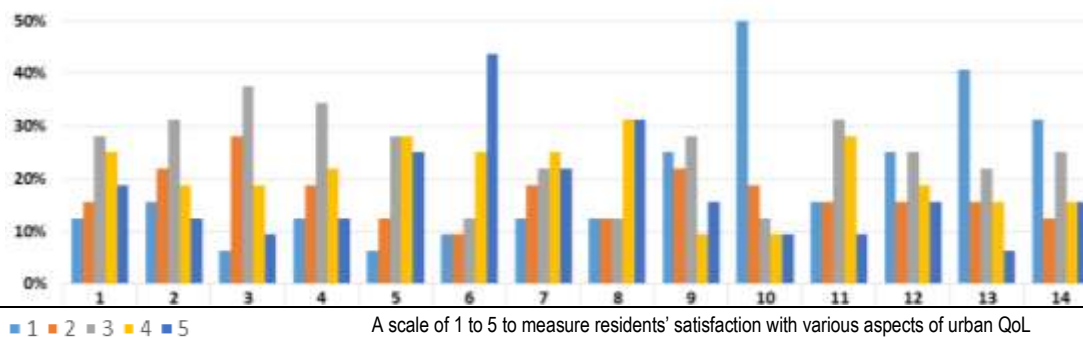
3.3 Assessing the Impact of the Reformation Project on the Urban QoL (Residents' Survey)

320 residents of the Nasr City district, who are within working age (15–64 years), took part in the survey, which consisted of two phases; the first phase, a Likert-scale of 1 to 5 was applied to measure residents' satisfaction with the dimensions of urban QoL after the reformation project, through 14 questions covering the aspects of urban QoL (Tables 4 and 5). The second phase used multiple choices to measure satisfaction with different aspects of urban QoL before and after the reformation project in Nasr City (Table 6).

Table 4 Residents' satisfaction with the role of developments in aspects of urban QoL

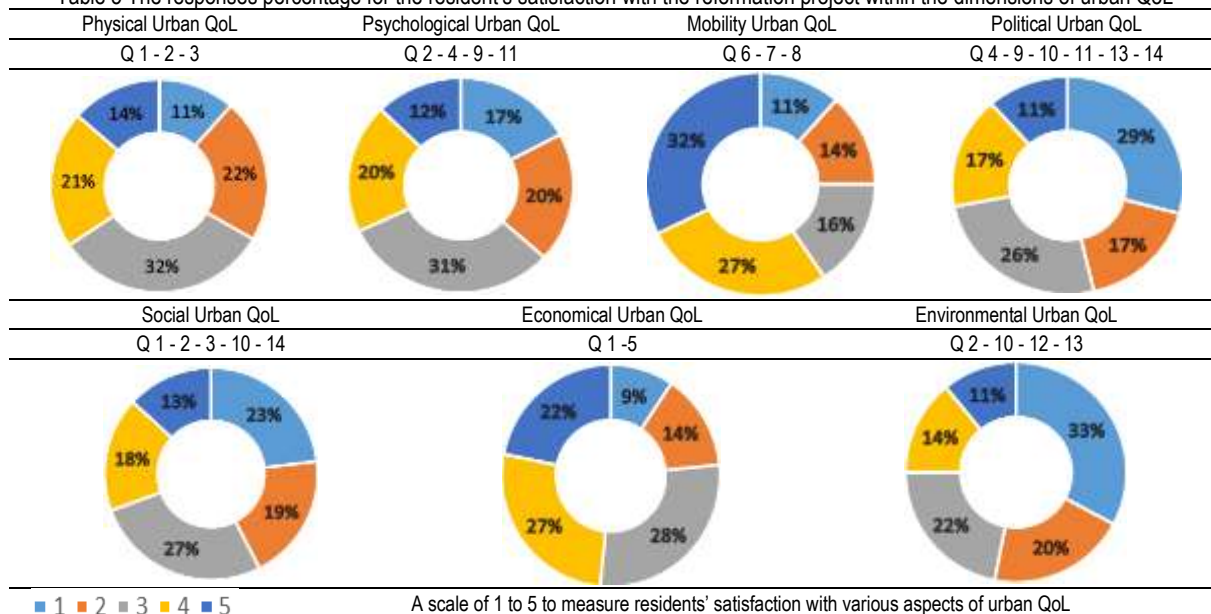
1	Promoting recreational activities	8	Facilitating the movement of traffic lanes
2	Promoting social activities	9	Enhancing a sense of security and safety

3	Improving the performance of daily activities	10	Maintaining parks and public places
4	Enhancing a sense of belonging	11	Resident satisfaction with development decisions
5	Raising the value of your property	12	An environmental improvement after development in residential areas
6	Improving the transportation network	13	Promote development in nature conservation after the development
7	Providing transportation stations	14	Promote development by conserving open areas in the residential areas



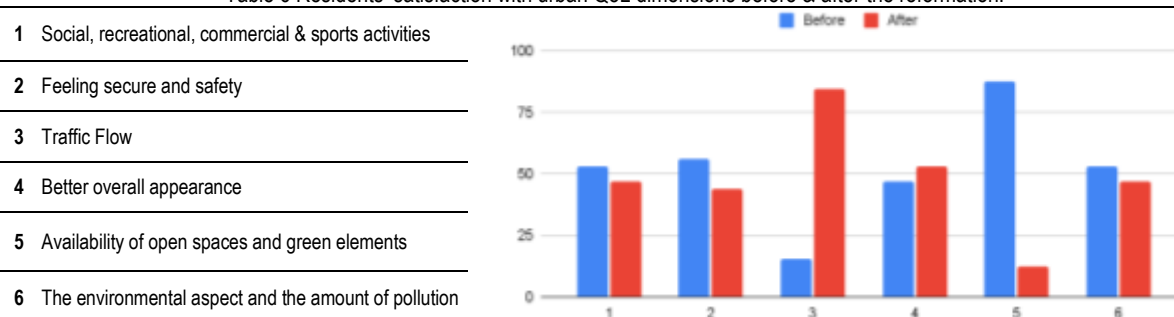
Source: By Researcher

Table 5 The responses percentage for the resident's satisfaction with the reformation project within the dimensions of urban QoL



Source: By Researcher

Table 6 Residents' satisfaction with urban QoL dimensions before & after the reformation.



Source: By Researcher

4.0 Discussions

Since the beginning of the reformation project, Nasr City's urban character has been modified due to:

- The addition of the monorail's lane uses huge pillars to connect the east and west of Cairo, but the pillars are built within the median strip on the main roads, leaving no space for greenery or walking.

- The addition of almost a dozen vehicle bridges, with beneath them private recreational units for rent and limited parking space, became new landmarks instead of the previous main roads intersections and squares, which were unique, artistic, and more clear than the new duplicate bridges, leading to confusion as there are no longer any definite beginnings or ends on the main roads.
- The subtraction of many green elements, such as the green median strip in the main roads and pedestrian paths with their greenery, to increase the number of lanes on the main roads
- The subtraction of public parks, partially or entirely, to be occupied by vehicle service facilities or private recreational buildings
- No compensation is offered for the lost greenery or any alternative solutions for the pedestrians who face difficulties moving around in Nasr City.
- The transportation network and traffic flow are more efficient now for those who pass through the district, at the cost of the resident's safety and the quality of the surrounding environment, as it is hard to rely on cycling or walking around to save energy and fuel consumption.

5.0 Conclusion

Indeed, the project succeeded in achieving its aim of easing the vehicle passage through Nasr City as a linking district between the east and west of Cairo, but unfortunately, the success of this aim didn't include or prioritized the objective of the Egypt 2030 vision, to enhance the QoL of the Egyptian people, in this case, the residents and pedestrians in Nasr City.

After conducting the interviews and surveys, it was clear how difficult it is for the residents to cycle or walk around in the district after the reformation project, altering the environmental image of Nasr City from a walking-friendly area to a vehicle-based district. It was concluded that this was done due to the following factors:

- No public involvement occurred in the decision-making process for the proposed reformation developments, as it only took vehicles into account, ignoring alternative modes of transportation like cycling and walking.
- The newly constructed vehicle bridges and the monorail's huge pillars act as overhead visual and physical barriers.
- The risk of pedestrians crossing the newly widened main roads increased, which led to fewer physical and social potential activities for the residents and a declining feeling of safety and security.
- The absence of clear landmarks such as the previous intersection squares and the new far-off U-turns leads to confusion for the drivers on the main roads of Nasr City and increases fuel consumption.
- The lack of properly defined bus stops and inconsistent transportation routes to avoid traffic congestion.
- The declining value of the properties that face the main roads is due to the newly built bridges or the risk of crossing the roads.

Therefore, it is clear that the reformation project failed to achieve its primary objective of relieving traffic jams while enhancing residents' QoL; it disturbed their regular physical and social activities as well as their psychological sense of safety and security. Additionally, the quality of the surrounding environment is affected by the reduced air quality and the erosion of green spaces, which in turn decreases property values in the areas where they were previously highest.

6.0 Recommendations

Due to the residents' un-satisfaction with the reformation project; the researcher recommends the government halt the project's progress and address concerns about the declining QoL in Nasr city. Based on the interviews and survey results, the following recommendations are addressed:

- Explore the safe solutions for pedestrians to cross the main roads and how to redesign the paths to be user-friendly.
- Encourage local authorities to substitute the facilities under the bridges with transportation terminals.
- Explore the potential horizontal and vertical surfaces in the built environment to compensate for the lost greenery.
- Seek to apply policies to conserve the rest of the public parks and green areas from further developments.
- Encourage local authorities on public engagement in the decision-making and policies for the development activities in the area.

Paper Contribution to Related Field of Study

The results of the interviews and survey described in this paper could serve as a warning for the local authorities and experts to seek and explore suitable ways to enhance the declining QoL of the residents in the reformed built environment of Nasr City and other districts. And it also contributes to the knowledge of the experts by highlighting the impact of the perception of physical and nonphysical dimensions in urban spaces on the QoL of the residents of the district.

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