Abstract

The growth of the world’s cities gives rise to new forms of urban mobility for their inhabitants. In Mexico City, unchecked urban growth in the city’s central areas has created new needs for transportation systems. The solution to this demand was the implementation of two cable car (Cablebus) lines in the city’s most densely populated precincts.

The transportation mode called “Cablebus” is a system of gondolas suspended in the air, which transports passengers over short distances from station to station. The rugged topography found in the Gustavo A. Madero and Iztapalapa precincts, located in the north and east of the city, respectively, was the reason behind the decision to implement this mode of urban mobility.

The aim of this article is to illustrate the process of active participation among residents, government agencies, and non-profit organizations in Iztapalapa Precinct that unfolded with the implementation of programs like Iztapalapa Mural, in relation to the community’s perception of the urban environment in the context of the implementation of the Cablebus. By making changes in their environment, the community comes to identify with their cultural rights and builds positive expectations for the urban environment. Thus, with the collaboration and support of local homeowners, their efforts led to the creation of 927 artistic murals, enlivening rooftops, perimeter walls, and façades. Local residents express part of their cultural identity in the murals and share it with a wider public along the route of Cablebus Line 2. The perception among residents changes positively with regard to the safety of their living space and urban image. It opened new opportunities to improve and rescue public spaces that have been repurposed to achieve better interaction and communication in the community and create urban-architectural symbols that give the area a unique meaning and promote the integration of urban mobility by incorporating artistic expressions that reflect the local culture.

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Keywords
Citizen participation; Citizen intervention; Urban mobility; Cablebus; Urban Landscape.

1. Introduction

Citizen participation is a key component in the integral functioning of a city, and considering the perception and integration of the community in the functions of urban mobility is part of their identity. The Economic Commission for Latin America (Spanish acronym CEPAL) is an institution that marks the importance of processes of social construction in such citizen participation. Globally, cities have strived to find solutions to problems of urban mobility.
This article aims to show that community participation in urban projects in the city is key in the process of improving the urban environment.

The implementation of the public transportation service Cablebus Line 2 spurred local residents to appropriate the public space and make it their own by means of a Comprehensive Urban Improvement Plan, centered on the implementation of safe walkways, improvements to public lighting, intervention in posts, and designs for multicolored mosaics covering walls, façades, and rooftops of homes.

The use of color in the urban environment is visually attractive, changing the perception of the place for residents and visitors who use the public transportation system.

The work presented is divided into four parts. First, we describe the location and historical-urban context of Iztapalapa, Mexico City; second, we examine the subject of programs implemented in the context of urban mobility with Cablebus Line 2; third, we discuss the importance of citizen participation in projects of urban mobility; and we conclude with comments on Iztapalapa’s communal identity.

The identity of its landscapes and the enhanced mobility the system offers has made residents feel identified with it, giving them an identity and increased visibility across the urban landscape, with urban art emerging at the same time as one of the primary forces shaping the local identity, with a concept so special that it defines a cultural identity that stands out in Mexico City, as an important feature to idealize and enhance the urban profile of Iztapalapa precinct.

2. Problem Statement

The voices of the residents who populate the metropolis should be heard, to know their ideas and help meet immediate needs that concern a majority of the city’s inhabitants; such contributions can help to improve the urban landscape and build a sense of belonging in residents’ physical space, as it is constructed with their ideas, complementing their customs and day-to-day practices and reinforcing their sense of a shared identity.

For the most part, residents of the higher altitude areas of Mexico City and the metropolitan area have lived in close-knit neighborhoods or townships and adopted and adapted different customs and an identity that characterizes them, forming strong ties to their place of origin.

3. Study Aim

The primary aim of this article is to acknowledge the importance of citizen participation programs in encouraging city dwellers to recreate an urban space in which they feel identified in the context of the implementation of the Cablebus as a mode of urban mobility. In the case study presented, residents have formed a participative community that impacts their urban context through creative expression in murals covering walls, rooftops, and façades, which are visible in their broader setting from the Cablebus’ gondolas.

4. Literature Review

4.1. Historical-Urban Context of the Implementation of Overhead Cable Car Type Urban Mobility in Mexico City

Due to the accelerated growth of both Mexico City and the greater metropolitan area in the adjoining State of Mexico, systems of urban mobility have been created to meet residents’ needs for longer trips. The areas where this mode of transport has been implemented often lack running water and electricity and access is often complicated by their rugged topography and unsafe conditions.

Access to mass transport to connect these areas to the city’s public transport network was difficult; however, getting local residents involved in such projects is an integral part of their success.

In Mexico City and the metropolitan area of the State of Mexico, to date, four overhead transportation system projects have been implemented and are operational. (As shown in Table 1)
This type of public transportation system is novel for city dwellers, given that the first use of cable cars in Mexico was exclusively as a tourist attraction, used to provide visitors scenic views of colonial sites and natural marvels, as in the case of the Cerro de la Bufa mountain in Zacatecas; the historic district of Taxco, Guerrero; the Copper Canyons in Chihuahua; the historic district of the state capital of Durango; and downtown Puebla city. However, in 2016 Mexico City implemented a cable car transport system to meet the needs of residents in the city’s higher altitude areas Ciudad, addressing part of the shortage of urban mobility.

Today, the model of urban mobility by cable car in Mexico City and the State of Mexico has become part of the broader mass transit system, which residents have incorporated into their everyday life, and now forms part of the urban landscape.

The incorporation of programs designed to improve the urban environment by implementing the cable car overhead transport system was a catalyst for complementary communal participation by the population at large.

Due to Mexico City’s urban growth and the rugged terrain of some parts of the city, there were limitations on access for public transportation to reach higher altitude areas; however, cable car overhead transport systems have offered a solution for residents of such areas.

Below, in the section on urban mobility, we describe each of the lines that are currently in service and have benefited from community participation as an integral component in improving everyday life in the areas they serve.

### 4.1.2. Urban Mobility

#### 4.1.2.1. Line 1. Mexicable Red Line, Santa Clara-La Cañada

The first line of the cable car public transport system in Mexico was inaugurated on October 4, 2006, in the State of Mexico, with the aim of connecting hard-to-reach areas between the State of Mexico and Mexico City and improving mobility for lower-income residents on the city’s periphery.

According to the Mexicable official website, one of its goals is to provide mobility for areas of high population density and limited access to public transportation like the municipalities of Ecatepec and Tlalnepantla, in the State of Mexico. It was focused on reducing inhabitants’ trip times to improve and facilitate mobility in the area and provide safer conditions for users. (Mexicable, 2023)

Participation and acceptance of the public transit system are constructed with local residents, through programs designed to improve the perception of people living in the areas where the Cablebus overhead transportation system is implemented. (Figure 1)
4.1.2.2. Line 2. Mexicable Green Line, Indios Verdes-Hank González II

This is the second cable car line implemented in the State of Mexico with the aim of extending Mexicable Line 1 and connecting residents with Mexico City. It was inaugurated recently, in March 2023, with murals incorporating urban elements that portray part of the identity of the area’s inhabitants.

Citizen participation and eagerness to embrace the project is manifest in the confidence shown in placing murals on façades, walls, and rooftops of private homes, residential buildings, and stations along the Mexicable’s route.

Murals were commissioned with 30 urban artists of national and international renown like Farid Rueda, David Ortiz, Alec Monopoly, Guido Van Helten, and Jonh Pugh, who incorporate art and color to enhance the perception of the surroundings.

The social project implemented by the government was La calle es tuya (The street is yours), conceived as an initiative to recover homes, neighborhoods, and public spaces in the areas served by the cable car’s 6 stations, comprising some 50 murals in total, with varied messages on themes including women’s issues, nature, the importance of reading, nature, wildlife, the identity of Ecatepec’s people, hop, pre-Hispanic culture, respect, and Frida Kahlo in Ecatepec, all with the aim of fomenting art and culture among those who inhabit and visit the area.

The murals in turn have become part of the backdrop to everyday life for the residents of these areas, and start to form part of their identity, and the views one sees from the gondolas offer an urban x-ray of day-to-day life in the area.

Local inhabitants participated in the creative process, helping to paint the murals. (MXCity, 2023) (Fernández, 2016)

Line 1. Cablebus Indios Verdes-Cuautepec

The first line of the cable car transport system in Mexico City was inaugurated on July 11, 2021, spanning 9.2 kilometers from Cuautepec to Indios Verdes. With three stations and three terminals, it aims to serve areas with high population density and limited access, absorbing the demand for accessible and rapid public transport and urban mobility for their inhabitants. (México, 2023)

This Cablebus line incorporated the program Pintando tu fachada (Painting your façade), applying color to the façades and walls of homes. Along the line, we see colorful landscapes that enhance the urban image seen from the Cablebus. The majority of the route runs along large avenues, to avoid invading the privacy of nearby homes. Citizen participation was expressed in a total of 1341 homes and 14 housing projects. (Alcaldía, 2021)

In the year 2017, Gustavo A. Madero Precinct had its first experience with a large-scale mural, where more than 20,000 homes were painted to form a mural, which, as reported in the daily Milenio, promoted a sense of identity and belonging in the local community. Also, a program called PonGAMos Color (Adding color) was implemented, as part of a broader effort to restore the social fabric. Today, the lively, colorful mural is visible from the gondolas of Cablebus Line 1. (Milenio, 2017)

Citizen participation is key to implementing interventions with the aim of beautifying and introducing art in the urban environment.

Below, we present information for Cablebus Line 2, which implemented social programs and improvements to thoroughfares used most heavily by local inhabitants, improving public safety in some areas.

Line 2. Cablebus Santa Marta-Constitución de 1917

Several factors were considered to meet the demand for urban mobility in east Mexico City, among them the topographical conditions of the area, urban growth, and the inhabitants, who are fundamental in achieving acceptance and appropriation of necessary development projects for the city.

Iztapalapa is one of Mexico City’s most populous precincts, with 1,835,486 inhabitants, 51.63% women and 48.36% men; it is a precinct in need of urban mobility. In the year 2021, it inaugurated Line 2, a cable car overhead public transport system with gondolas for 10 passengers, which transports some 108 thousand riders daily.
Iztapalapa has public transport systems like Subway Line 8, which connects with the station Constitución de 1917; an electric light train system with service on Line A, which connects to the Pantitlán subway station; Cablebus Line 2; and an elevated trolley bus line connecting to Santa Marta station and Subway Line 8 at Constitución de 1917.

The inhabitants of east Iztapalapa occupy land at 2300 to 2400 meters above sea level, a factor that complicates rapid access to the public transit system and led the city government to pursue the implementation of a public overhead transport system to meet the area’s needs for mobility and connect areas of high marginalization and population density. The solution implemented is the electric transportation service Cablebus Line 2. (CDMX, CABLEBÚS L2, 2023). (As shown in Figure 1)

Figure 1: Geographic location of Cablebus Line 2 Santa Marta-Constitución de 1917.

Source: Prepared by the authors based on data from (INEGI, Mapa digital de México, 2023) (CDMX, Gobierno de la Ciudad de México, 2023)

Cablebus Line 2 is 10.6 km long, with 7 stations, and connects the east side of Mexico City with the city center. It moves 108 thousand people a day on average.

Information posted to the Mexico City website states that with the implementation of Cablebus Line 2, local residents saw improvements to urban services and infrastructure in neighborhoods near its seven stations, among them the construction of the Quetzalcóatl market, creation and renovation of public sports facilities, parks, and spaces for training like Pilares.

According to the Mexico City Department of Works, a comprehensive urban improvement plan was developed to address the needs for urban mobility of local inhabitants, including the implementation of safe walkways, improved public lighting, surveillance cameras connected to C5 (a system operated by the Mexico City Center for emergency response and citizen protection), intervention in posts with multicolored mosaics, and improvement of green areas. (CDMX, Constitución de 1917-Santa Marta, 2023)

In their dissertation, Morales & Romero affirm that this new mode of transport has improved the perception of safety among local inhabitants, mainly because they feel safe in the gondolas, avoiding robberies and sexual harassment, in addition to shorter travel times and greater efficiency in transportation.

It bears noting that the authors cited document how users are drawn to the views the cable car provides, mentioning that:

“….the landscape stands out because the subject’s experience of mobility in its socio-spatial dimension is different from what other modes of transport can offer because the landscapes visible from the gondolas offer a unique vantage, from which riders can see not only the streets or avenues that form the routes of buses, collectives, or taxis, nor is their view limited to the dark tunnels the subway runs through; instead, the user’s field of vision is expanded, which enriches their experience and manner of inhabiting the city through the senses, because “from the heights,” as users call it, most of the homes below the cable car’s route are adorned with murals with social themes, and they can observe the composition of their neighborhood, district, and city.” (Morales Castro & Romero Hernández, 2022, page. 28)
However, Jennifer Turrubiartes mentions that the local residents’ perception regarding the use of the Cablebus is complex since the occurrence of incidents like earthquakes, heavy rains, hailstorms, and gusts of wind, among others, has caused power outages that leave users stranded in the gondolas, and people living beneath the Cablebus feel vulnerable to the possible consequences of such eventualities. (Turrubiartes, 2022)

With this project, active citizen participation has been observed, which is reflected in eagerness to embrace social projects, in particular the creation of murals on both the interior and the exterior of homes, as seen in the colorful mosaics applied to homes. (As shown in Figure 2)

4.2. Urban growth

In reference to the collection of data for the last census taken by the National Institute of Statistics and Geography (Spanish acronym INEGI), the Iztapalapa precinct accounts for between 18 and 20 % of Mexico City’s total population.

The report emphasizes that, in recent years, the population density has increased, and in Table 6 we see that between 1990 and 2000 the population grew by 2.5%, equivalent to 282,844 inhabitants; however, from 2015 to 2020 it grew only 0.56%, equivalent to 7,618 inhabitants. (See Table 01).

Table 1: Demography of Iztapalapa Precinct, Mexico City. 1990-2020

<table>
<thead>
<tr>
<th>Territorial Unit</th>
<th>1990</th>
<th>2000</th>
<th>2010</th>
<th>2015</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexico City</td>
<td>8,235,744</td>
<td>8,605,239</td>
<td>8,873,017</td>
<td>8,918,653</td>
<td>9,209,944</td>
</tr>
<tr>
<td>Iztapalapa</td>
<td>1,490,499</td>
<td>1,773,343</td>
<td>1,815,596</td>
<td>1,827,868</td>
<td>1,835,486</td>
</tr>
</tbody>
</table>

In the year 1990, the INEGI reported a count of 1,490,499 inhabitants, equal to 18.09% of the city’s total population; in 2000 the precinct saw an increase in the census numbers with 1,773,343 inhabitants, who made up 20.60%; for 2010 the count was 1,815,596 or 20.46%; in 2015 the census reported 1,825,868 inhabitants, equal to 20.49%; and in 2020 the last census taken found 1,835,486 inhabitants, equal to 19.93%.

4.3. Citizen participation programs implemented in the context of urban mobility with Cablebus Line 2

With the growth of cities, population density, modernization, and new technologies, society began to demand transportation with greater efficiency, and that it be accessible and affordable for all; the creation of new routes and roads to facilitate connection between central public transport systems and expand the new peripheries that man himself has constructed over time.

In the year 2005, Mexico City implemented one of the public transport systems (Metrobús) which had a great impact, mainly because it is efficient and environmentally friendly, with the intention of offering traffic solutions, modifying organizational schemes, and helping users adapt to the city’s urban renewal, for example, double-decker buses to transport greater numbers of passengers, fixed stops, exclusive lanes, and reconfiguration of pedestrian traffic signals (Foro de la Movilidad, 2021).

In the year 2019, a new project was proposed for the east side of Mexico City with the aim of improving the quality of life of inhabitants and urban mobility in the Iztapalapa precinct; in 2021 it was implemented due to the physical characteristics of the environment for which it was planned to meet the needs of the population.

The arrival of the Cablebus marked the start of the development of new alternatives with the ideology of a far-reaching transformation to integrate the city for future generations; Iztapalapa Precinct has created various citizen participation programs to enhance its urban image and affirm the identity of its inhabitants to promote culture.

Below, we describe the programs that have been implemented in Iztapalapa Precinct as part of the incorporation of community participation of inhabitants at the urban level. (See Table 2)
In the year 2016, Iztapalapa launched its first citizen participation program, called *Programa Arcoíris*, to improve and change the urban landscape; façades of homes were painted in various colors creating the vision of an urban mural visible from miles away, transforming the neighborhood’s appearance and dignifying the space with a model that could be replicated in other precincts of the city.

One of this program’s core objectives was to enhance and revindicate the urban image and citizen participation in the precinct, especially among children and youth; citizen participation took the form of residents’ assemblies with local government authorities, and residents chose their preferred color to paint their homes.

The program was implemented by three core groups, mainly by the mayor of Iztapalapa, with help and support from residents and neighbors with the support of Fundación Corazón Urbano AC, and was implemented primarily in 200 homes in 27 neighborhoods throughout Iztapalapa Precinct.

In the year 2018 Iztapalapa Mural was created with the aim of honoring and recovering spaces frequented by local residents that figure prominently in their everyday lives, with the primary objective of involving residents in the preservation and dignification of their living space, honoring and recovering spaces frequented by local residents using art through a communal intervention; this would not have been possible without the support of the Executive Directorate of Culture of the Iztapalapa Government, 145 artists with the support of residents’ assemblies in 300 neighborhoods, and Colectivo Tomate, whose members worked closely with residents to propose themes for the murals, imbuing them with meaning behind a story.

Another of the proposed projects is the implementation of *Sendero Seguro: Free and Safe Women’s Walkways*, which had as its primary objective to guarantee the safety of all pedestrians, especially women and girls. Thanks to urban artists, more than 188 murals were painted expressing social and cultural messages, along with the restoration of streets and public spaces, for example, the installation of surveillance cameras and light fixtures in public spaces, and walkways integrated into the landscape with pedestrian signaling.

With the support and participation of important government bodies like the Office of Women and the Mexico City Department of Works and Services and above all the participation of Iztapalapa Precinct.

### 4.4. Citizen Participation in Urban Mobility Projects

For Iztapalapa Precinct the creation of projects involving muralism, urban art, and improvement of public spaces, which are representative of the whole world and whose objective is to project the people’s voice through art embodied...
in murals, is important. Full, uncompromising commitment to each project is fundamental to ensure its consistency; creation, collaboration, and formation are essential to optimize synergies among public management in the local government, the artists, and the hundreds of residents who represent society. The perception residents have of these projects is rooted in their acceptance of these kinds of programs, which have transformed their living space to reclaim their identity, building awareness of care and conservation (specify what kind of conservation) for future generations, recording thousands of stories on the walls and revalidating the urban landscape based on their own experiences and landmarks. Citizen participation programs have as their primary objective to contribute to the formation of a society in which young people are the true protagonists conscious of the integration and importance of their urban space.

4.4.1. Citizen Participation Program Iztapalapa Mural

Some 9,191 murals have been painted on rooftops, perimeter walls, façades, streets, and public spaces, thanks to artistic participation. However, it has also given rise to Iztapalapa Mural, a citizen participation program conceived in response to the implementation of the Cable bus line, which was created by the Iztapalapa precinct office of culture and consists of 927 murals (4,713.33 m²) painted mainly on rooftops, perimeter walls, and façades (Iztapalapa, 2021).

A consensus on themes for the murals was formed with the help of coordinators and project managers engaged in outreach with residents of each neighborhood and district to learn about their stories, anecdotes, and lifestyles and propose murals with which they could identify. Large format pieces are visible along the Cablebus route, and the murals and other artistic expressions contain local stories and traditions with symbols of identity for each inhabitant, following different themes of integration, for example, the re-initiation of women (feminism), cultural diversity, the pre-Hispanic past, and the plasma of history and cultural identity (As shown in Figures 2 and 3).

Citizen participation has transformed this project jointly with the collaboration of nuclei to share Iztapalapa’s culture with the world; local residents have had the opportunity to tell their life stories through the medium of urban art embedded in a landscape, conceptualizing a cultural identity along the route of the Cablebus.
Government agencies supported the reclamation of the urban landscape near the Cablebus stations, for example with lighting and resurfacing of streets known to be unsafe, and installed surveillance cameras in public spaces, enhancing security for inhabitants, especially women (Cuevas, 2021).

4.5. Communal identity of residents of Iztapalapa, Mexico City

4.5.1. Cultural and communal identity

Iztapalapa Mural is a clear example of how government agencies can create social programs and participative programs that involve their intended beneficiaries and improve their quality of life, without overlooking the meaning of a space and its urban image in a concept of identity for local residents.

It is a project that has found ways to give the precinct’s inhabitants the power to make decisions regarding their space and its identity, with the aim of reclaiming spaces and facilitating communication and citizen participation driven by a novel mode of public transportation that has benefited thousands of residents.

According to Montero, communal identity derives from the relationship formed between subjects and actions taken to transform the territory they inhabit. (Andrade Mamian, Gómez Calvache, Palacios Cuero, Vargas Díaz, & Burbano García, 2021) (Montero, 2004) The residents of Iztapalapa appropriate the identity of their territory, care for it, and make it their own; the dynamic they establish in caring for their surroundings is reflected in community participation.

The overhead transportation Cablebus Line 2 provides has been integral in the process of rediscovering and reinforcing the communal identity of local residents, which is achieved through the formal act of agreeing to incorporate murals in their homes, painting their dwellings, and undertaking to care for them as part of a process of belonging.

The residents who live below and close to the Cablebus line are part of the expression of Iztapalapa’s identity and are part of a system of urban communication, where the perceptions and feelings of inhabitants are transmitted, not only of those whose homes are directly below the Cablebus but also of observers traveling in the gondolas above them, from which they can observe the ebb and flow of the urban space.

The importance of knowing what the population identifies with is part of accepting what is implanted in their urban environment and is a process of embracing it as part of the community.

Recognition of similar ideas among inhabitants strengthens the bonds of appropriation and preservation of the environment. Strong acceptance of the incorporation of projects necessary for the community boosts community involvement and strengthens social relationships among them.

5. Conclusion

The demand for new, modern, and functional public transport systems creates incentives for the creation of citizen participation programs that encourage the inclusion and perception of members of the community to ennable and define their true essence in the crucible of the urban space, forming a conceptualization that expresses a way of life based on their beliefs, ideology, and culture.

Iztapalapa residents seek to honor the cultural identity that characterizes them, represented by a memory, a lifestyle, a culture, a belief, an entire life painted in a single image. The route of Cablebus Line 2 across Mexico City has given urban artists the opportunity to exercise their talent and portray the life of an entire community.

It is vitally important to acknowledge the structure of citizen participation programs in which city dwellers are allowed to contribute in ways that directly shape a project’s impact and fulfillment of its objective; the space is cohesive and will be imbued with cultural identity as the community adapts to processes and media.

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**Conflict of interest:**

The authors declare that there is no competing interest.

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