

Human Perception: A Community-Based Perceptual Map for Sustainable Mobility Through User Experience*

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Abstract

An individual's overall state of well-being is closely connected with everything around him or her, starting with the feeling of safety in frequenting areas of one's city during both daytime and nighttime hours, being able to breathe clean air, observing nature around him or her, and having social time with other individuals. Therefore, it is essential to gather direct feedback about the perceived safety of the areas most frequented by individuals who live and inhabit those areas.

The goal of this work is to create a *Perceptual Community Map on sustainable mobility*. To create this Perceptual Community Map with the help of "The Place Diagram," a "Human Perception" web app was designed and implemented, which can be populated directly by users based on their personal experiences. The platform makes it possible to collect information concerning four key macro-areas of "The Place Diagram": **Sociability**, **Uses & Activities**, **Access & Linkages**, and **Comfort & Image**. It was found useful to perform a preliminary study by assessing the degree of usability of the web app, through the SUS Questionnaire, involving 15 individuals of varying ages, to observe the perceived usability of people of different generations and daily lives (youth and adults). The results are promising, with a score of 93, demonstrating the appreciation and potential of the web app.

Keywords

Human Perception; Cyber Social Security; Community Mapping; Sustainable Mobility; User Experience.

1. Introduction

Each individual observes the world in a different way than others, through a subjective filter and experiential factors, modulating his or her own beliefs that are unique and unrepeatable; hence, there is absolutely no correct world map [1], [2].

From this awareness stems the first contextualization of this research work, namely, to determine, through the eyes of the individual (ordinary person), a personal map that, however, could translate into a community tool if placed in terms of the "frequency" of the recorded episode. The experience gained, if shared by other individuals, would become a possible interpretation of current reality that is more concrete. This concept can also be channeled in the context of the individual's mobility within the urban areas of one's city or country; in fact, the areas frequented or traveled by the person are strongly influenced by several interrelated factors, ranging from road safety (real or perceived) to the characteristics of the surrounding environment, to the accessibility of routes. All of these variables significantly influence the choices that each individual makes every day, in home-to-work, home-to-school, or leisure time, which can affect quality of life. In addition, the high level of traffic in large cities is also closely related to the state of stress and well-being, to the point that it strongly affects one's individual mobility choices.

Such choices are often influenced by a crucial, often underestimated factor, namely each

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individual's *personal perception* of urban spaces, which is directly influenced by personal and family/friendly prior experiences, the individual's age, and travel habits accrued over time, as well as by news stories heard or read. A student who uses public transportation to get to school will, undoubtedly, have a different experience than a casual user or than an elderly person who might prefer a pedestrian commute in the areas surrounding the main residence. The same elderly person who can rely on a more reduced mobility will feel the need to have a more varied commercial structure in the areas surrounding his or her home, and the same merchant will be able to maintain his or her neighborhood store thanks to their presence [3].

The concept of “*Human Perception*” of the territory is built through several determinants, such as *urban mobility* on personal needs, the perception of safety of the surrounding environment, and the level of interaction between subjects and forms of aggregations in the territory [3]. Through the implementation of the platform called “*Human Perception*”, the present study aims to achieve a threefold goal:

1. To present a collective map to show concretely and realistically the perception of the territory by those who live it, regardless of the view that may be derived from journalistic information;
2. To provide a tool to support the local population that allows them to collect direct feedback (resident reporting) about the perception of safety of certain places frequented in their area, to enhance some of them, and bring out issues that are difficult for residents to communicate.
3. Create a platform that is usable for the user, to make it attractive and able to incentivize its reuse by users, enhancing its effectiveness.

This study is structured as follows: Section 2 presents related work, focusing on urban mobility in the research setting. Section 3 describes the design and functionality of the Human Perception web application. Section 4 presents the results of usability tests conducted using the System Usability Scale (SUS) method. Section 5 concludes and outlines future developments.

2. Related Works

Urban mobility is constantly evolving with the introduction of new means of transportation, such as electric scooters, which have been an efficient solution for covering short distances in areas not served by public services. Therefore, the *urban mobility* scenario appears to be not only in strong transition due to the introduction of these new vehicles, but also due to the acquisition of new work patterns, such as smart working, significantly reducing the number of workers who must travel to their place of work. Related to this, some studies present interesting statistics on the mobility of Italians. A study by Isfort (Istituto Superiore di Formazione e Ricerca per i Trasporti – Italy’s Higher Institute for Transportation Training and Research), as part of the “Audimob” observatory on the mobility of Italians [4] shows the main reasons why, on average, Italians move, with time coverage from 2019 through the first half of 2024. As can be seen from Figure 1, it is denoted that most travel is done for three important reasons: work, family management, and leisure, much less for study purposes.

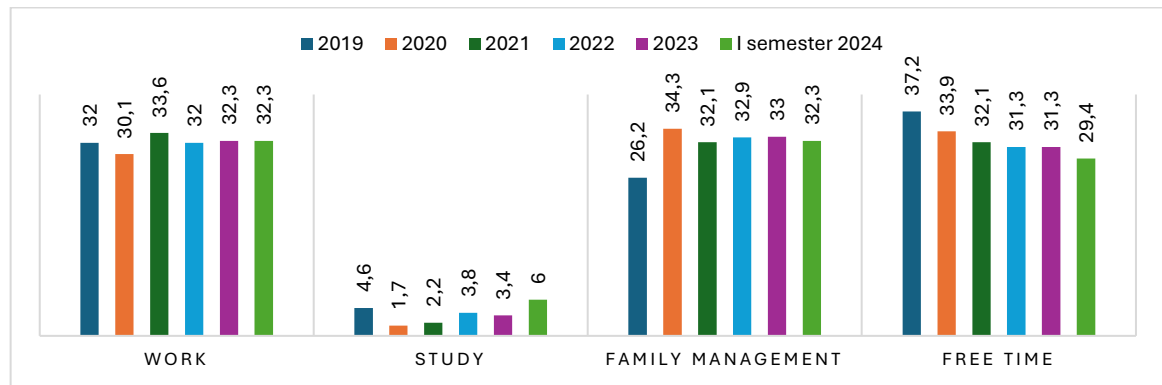


Figure 1: Distribution of travel in Italy from 2019 to I semester 2024, divided by motivation

On the other hand, Table 1 shows the reasons for not moving in the years 2022 and 2023; it can be seen that the main reason for not moving is mainly found in lack of need to move (66,3% in 2022 and 69,7% in 2023 of respondents). Lack of need is followed by health problems [5], with 20%.

Table 1

Reasons for non-movement in Italy in the years 2022 and 2023 (% values)

Reason	2022	2023
I didn't have any need	66,3	69,7
Personal/familiar/health problems	21,9	20,1
Weather	6,4	6,7
Lack of means	1,4	1,8
Smart working	2,2	1,6
Fear of infection	1,8	0,1
Total	100,0	100,0

Urban mobility, however, can be influenced by an individual's **perception of security**, and this can be measured in the context of **Cyber Social Security (CSS)**, which combines different aspects of security, from urban to social to cyber. CSS assumes that the modern world can be conceived of as a union of two major layers such as the *physical layer*, which represents how the individual moves physically in a space defined in physical and urban terms, and the *digital layer*, formed by the digital world, social networks, mass media, etc., implying, once again, that the perception of the world around us is influenced by factors of different.

Attention to this topic is particularly keenly felt, as in Italy, between 2022 and 2023, the Istat (Istituto Nazionale di Statistica – Italy's National Institute of Statistics) conducted a survey [5] regarding perceptions of security among a sample of 29.317 individuals aged 14 years and older, interviewed both by telephone and in person, it was found that there has been a significant improvement in both home and street environments. Looking at the results of this survey in detail, it appears that the share of citizens who are very/quite concerned of experiencing a home burglary has decreased (from 60,7% in 2022 to 44% in 2022-2023, Table 2); as has the share of those who feel little/not at all safe on the street alone in the dark in their area (from 27,6% in 2022 to 12% in 2022-2023, Table 2).

Table 2

Key indicators of lack of security (Anni 2002; 2008-2009; 2015-2016; 2022-2023)

Indicators	2022	2008-2009	2015-2016	2022-2023
People are very/quite concerned about being pickpocketed	44,2	48,1	41,9	45,0
People are very/quite concerned about experiencing a robbery or assault	43,0	47,6	40,5	41,0
People are very/quite concerned about experiencing residential theft	60,7	59,3	60,2	44,0
People are very much/quite concerned about experiencing automobile theft	46,2	43,6	37,0	38,6
People are very/quite concerned about experiencing sexual	36,3	42,7	28,7	35,8

assault				
People who report living in an area that is very or fairly at risk of crime	21,0	22,0	33,9	20,3
People who feel little/not at all safe on the street alone in the dark in their area	27,6	28,9	27,6	12,0
People who have been afraid of experiencing a crime in the past 3 months	-	5,5	6,4	2,9
People who keep away from certain streets or places for safety reasons	38,1	35,3	28,0	19,8

The perception of lack of security is, however, not only related to the objective crime risk of an area but is often conditioned by personal characteristics such as gender, age and education level. This perception is significantly higher for women than men, who are also the most affected by fear of crime (28,8% compared to 19% for men). The perception of unsafety also increases with increasing age, since there are more adults under 75 who, due to health problems or loss of social interaction, never leave their homes is higher for the adult age groups. It is also significant to note that people with higher levels of education feel safer, with 28,7% of college graduates compared to 11% of those with elementary degrees, and consider themselves less affected by crime. Of course, those who have experienced crime, such as mugging or robbery, perceive fear to a greater extent and are more insecure (34% of victims of these crimes) [6].

It was precisely the experiential and perceptual role of the individual, which also appears to be pre-eminent in the perception of safety, that prompted the introduction of the concept of Community Maps in the 1980s, thanks to the intuition of Common Ground, which decided to work on the understanding and enhancement of local heritage through the active and creative involvement of all those who turned out to be the assiduous frequenters of the area. These Parish Maps are the places that are represented through the perceptions of those who inhabit and habitually frequent them, and who represent the greatest experts, able to grasp all the nuances of each element present [6]. Through this procedure, the territory becomes a representation mediated by the eyes and direct experience of the inhabitant. Moreover, this ambition further supports the idea that urban spaces do not just represent physical places with purely aesthetic or functional characteristics, but the way they are designed and organized promotes a better quality of urban life, greater inclusiveness, active participation, and increased social interactions [7].

The community map disseminates an approach that aims to give attention to the local dimension, harnessing individual capacities that can describe the relationships and interdependencies between people and places. In this way, the territory is enriched with elements beyond the objects, the preeminent buildings, but becomes a reservoir of knowledge and a point of knowledge associated with the sensibility of the inhabitants.

Various are the tools focusing on providing insights into urban environments and communities. Some examples are: *Social Explorer*, which offers data visualization and mapping tools for demographic information, allowing users to analyze spatial and temporal changes in population, economy, housing, education, and other social indicators, mostly for U.S. cities; *Urban Observatory* focuses on the comparison of the major cities across standardized indicators (it does not have Italian cities); *Walk Score*, unlike the previous ones, rates walkability, transit, and bike-friendliness (it does not have data on Italian cities); *Maptionnaire* offers map-based questionnaires which collect geolocated user feedback. With an emphasis on Italian territory, the domain lacks tools that are as powerful or complete as those listed, let alone tools that specialize on Bari, a Southern Italian city, focus of the study.

With that said, given the previous experiments concerning community maps and the lack of tools specialized on Italian and Bari data, the goal of this research work is to create the **Place Diagram (Project for Public Spaces)** [8, 9] for the city of Bari, i.e., a graphical representation of the qualities of a good public place that revolves around 4 main elements: **Access & Connections, Comfort & Image, Uses & Activities, Sociability** [8]. From the Place Diagram, “*Intangible Values*” will also be tapped, discussed in more detail below. Community maps can **feed into each dimension of the Place Diagram** by offering:

- **Experiential and qualitative** data, gathered from people's experience;
- **Affective and symbolic** elements, which often elude technical planning;
- Cues for **participatory planning**, helping to define priorities and critical issues from the perspective of inhabitants.

From the awareness of this great potential of **concept maps** and **Place Diagram** comes the idea of this research work, namely, to reconstruct spatial maps through the eyes and experiences of the Bari citizen who, as an integral part of the territory, can merge knowledge with experience and tradition. All this determines the *Human perception*.

3. Design of “Human Perception” web app

Human Perception is the way through which people perceive and understand their surroundings, beyond mere data quantifying the number of adverse, hazardous events and environmental and landscape elements. Through the use of *Human Perception*, territories are enriched with elements that are not necessarily objective, but take the form of subjective definitions strongly linked to personal experience, level of education, gender, age, and other socio-demographic factors. Citizens' opinions, for example, about the safety of particular streets or areas, become shared truths of the community that can show a more complete picture of urban reality.

Undoubtedly, many elements influence the perception of urban mobility areas, such as safety, environment, and accessibility in some places, and these elements strongly affect the mobility choices of citizens and the world in which they experience their cities. For an individual to have a good appreciation of his or her surroundings and to be able to create a satisfactory place for himself or herself, it must be easily accessible with the presence of commercial, recreational, and cultural activities; in addition, the space must be comfortable and have a good visual impact giving, as well, the possibility for individuals to meet and be able to have moments of conviviality and exchange.

The 4 areas of interest of the Place Diagram, such as **Sociability**, **Uses & Activities**, **Access & Connections**, **Comfort & Image**, were used in the methodological approach proposed in this paper:

1. **Sociability:** This category highlights the importance of social interactions and community in a public place.
2. **Uses & Activities:** It refers to the variety of activities and the ability of the space to be used creatively and functionally.
3. **Access & Connections:** It focuses on ease of access and quality of physical and visual connections.
4. **Comfort & Image:** It focuses on aesthetics, safety, and mental and physical well-being.

For each of the four areas of interest (Key Elements of **The Place Diagram** [8]), different “*Intangible Values*” were also extracted. When it comes to the *Intangible Values* associated with the four areas of the Place Diagram, these values refer to **observable, measurable, or physically experienceable characteristics** that contribute to the quality of a place. They are what can be touched, seen, and used, and what makes a space functional, accessible, welcoming, and social. To each of the four areas of interest, concerning the semantics of the specific area, *objective elements* have been given on which each inhabitant can make his or her assessment.

In the “**Sociability**” area, the *Intangible Values* are: The **Community** that fosters relationships among people; The Level of Perception of Place that makes it **Friendly** by assessing the welcoming and inclusive atmosphere of existing places and facilities; The **Interactivity** that stimulates active community participation; The **Ability of Place to be Welcoming**, inviting people to stay and socialize; the ability of the place to **Diversify** by ensuring the possibility of being in an environment rich in experiences and perspectives; the **Care of Place** that measures attention to detail and maintenance; the perception of the **Shared** place by maturing an awareness of a space that belongs

to all; and the **Boastfulness** that fills those who live in it with pride and enhances the individual's sense of belonging to the area. This category focuses, in particular, on the spaces and facilities that foster encounters, interaction, and a sense of community among users of public space, the stimulating elements of which are indicated in Table 3.

Table 3

Objective elements of the **Sociability** area

Traffic signal and control systems <ul style="list-style-type: none"> ▪ Broken traffic light ▪ Half-functioning traffic light ▪ Missing signage ▪ Damaged signage 	Pedestrian and bicycle infrastructure <ul style="list-style-type: none"> ▪ Lack of sidewalks ▪ Sidewalks in poor condition ▪ Pedestrian bridge ▪ Bike lane beginning ▪ Bike lane end 	Access and entrances <ul style="list-style-type: none"> ▪ Secondary entrance ▪ Tertiary entrance ▪ Car/school bus entrance ▪ Pedestrian entrance
Hot spots and road safety <ul style="list-style-type: none"> ▪ Dangerous zone ▪ Dangerous zone for pedestrians ▪ Dangerous intersection ▪ Specific hazard ▪ Point of weakness 	Mobility services and parking <ul style="list-style-type: none"> ▪ Parking space ▪ Parking lots ▪ Bus/school bus stop ▪ Unsafe bus stops 	Traffic management and specific spaces <ul style="list-style-type: none"> ▪ Double-parked cars ▪ Sylos Square

For the “**Uses & Activities**” area, the *Intangible Values* are: the extent of the Fun place that encourages leisure and relaxation; with always **Active** characteristics, encouraging movement and vitality, through the perception of a **Vital** place i.e. dynamic and always animated, but which is at the same time **Special**, unique and distinctive and **Authentic** reflecting the social identity, always maintaining the **Useful**, functional and practical aspect; **Original** i.e. rooted in the culture of the place; **Sustainable**, as it is environmentally and resource conscious and **Commemorative**, enhancing the memory and history of the place. This area highlights the variety of functions and activities that characterize the public space, including sports, cultural, recreational, and commercial service facilities, the elements of which are measured in Table 4.

Table 4

Objective elements of the **Uses & Activities** area

Green and environmental spaces <ul style="list-style-type: none"> ▪ Orchard ▪ Municipal Villa ▪ Municipal park ▪ Green area ▪ Mini forest ▪ Botanical garden for educational activities ▪ Flowerbeds ▪ Street trees ▪ School garden ▪ Grove to be reclaimed ▪ Yoga park ▪ Dense forest 	Architectural and urban maintenance elements <ul style="list-style-type: none"> ▪ Exterior facade maintenance ▪ Bridge (intended as an attractive architectural element) ▪ Reclamation activities Spaces and interventions that enhance the urban environment <ul style="list-style-type: none"> ▪ Square (intended as a well-designed and maintained space) ▪ Parkour (area designated for dynamic and creative activities) 	Urban wellness services <ul style="list-style-type: none"> ▪ Water dispenser ▪ Area with tools ▪ School square Security and risk <ul style="list-style-type: none"> ▪ Crimes ▪ Homicide ▪ Thefts ▪ Robberies ▪ Assaults ▪ Fires ▪ Drug crimes ▪ Shootings
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In the “**Access & Connections**” category, the *Intangible Values* are: **Continuity** that is expressed in spaces that are well connected; **Proximity** that makes places easily accessible; **Linkages** to public and private transportation; **Legibility** of clear and well-marked routes; **Walkability** that encourages and stimulates movement on foot; **Convenience** and simplicity with which to use the elements in the area; and finally, **Accessibility** that makes a place inclusive for all possible users, without barriers to entry. This category focuses on the infrastructure, Linkages, and elements that ensure, or threaten, the safety and functionality of transit spaces and access, the estimating elements of which are shown in Table 5.

Table 5

Objective elements of the **Access & Linkages** area

Sports and recreational activities <ul style="list-style-type: none"> Indoor gymnasium Outdoor gymnasium Soccer field Sports Center Tennis Club Beach Volleyball Motocross track Go Kart Track 	Cultural and artistic activities <ul style="list-style-type: none"> Park of the Arts Museum Theater House of Music 	Functional spaces and meeting points <ul style="list-style-type: none"> Courtyard Meeting point Pic-Nic area Yoga area Nature trail
Services, commercial activities and support points <ul style="list-style-type: none"> Parking (with a complementary function to mobility) Bus stop (as an access point to services) Bookstore Stationery store and newsstand Penny supermarket Weekly market Pharmacy Butcher Pizzeria Barber Shop Flower Shop Medical Guard H24 dispensers Post Office Bakery 	Buildings of worship and historical significance <ul style="list-style-type: none"> Church Co-cathedral 	Other facilities and spaces of interest <ul style="list-style-type: none"> Former Bank Villa

Finally, for the “**Comfort & Image**” category, the *Intangible Values* are: the **Safe**, protected environment free of hazards; **Clean**, well-cared for and maintained; the space if it is **Greenery** with the presence of natural spaces; the **Walkable** area, suitable for walking; the **Rest Spaces**, available to places to sit and relax; the **Spiritual** aspect which is measured by the ability to evoke emotions and reflections; the **Pleasant and attractive** place as it is aesthetically pleasing and finally, the **Historical** dimension which enhances the cultural heritage. This category emphasizes all elements that enhance the aesthetic appearance, environmental well-being, and perceived quality of public space, the evaluation elements of which are given in Table 6.

Table 6
Objective elements of the **Comfort & Image** area

Gathering and meeting places <ul style="list-style-type: none"> Bar (understood as a social meeting point) Bookstore (when valued as a community space) Library McDonald's Square (as an informal gathering space) Schoolyard Youth meeting space 	Sports and recreational facilities for socialization purposes <ul style="list-style-type: none"> Tennis (activity that stimulates socialization) Field (space for group activities) Swimming pool Gymnasium (intended as a meeting place as well as a place for physical activity) Skating rink Roundabouts Game room 	Spaces and street furniture for interaction <ul style="list-style-type: none"> Sidewalks (passing spaces that facilitate informal encounters) Semicircular benches Red bench to remember victims of violence Terraces Garden (when designed as a convivial area) Area (open space intended for gatherings) Stops (stopping areas that encourage interaction)
Street equipment and games: <ul style="list-style-type: none"> Equipment (playground) Swings Game table Archery (intended as a collective play activity) Playing hopscotch Public restrooms (as supporting infrastructure for events and extended stay) 	Places of worship as centers of gathering <ul style="list-style-type: none"> Church (when it also functions as a meeting space and community) 	

In addition to these macro classes, the ability for the individual to be able to track his or her home-school and home-work route has also been added, so that the route he or she travels can be monitored and evaluated in terms of safety.

Each of the above-mentioned aspects has been integrated into the web app to provide a community map, serve as a useful tool for connecting citizens, who can either confirm their experiences or share new ones. Each map can also be compiled as a group, not just by a single user.

Figure 2 shows an example of the front-end produced by the web app, in which it is possible to see how all the individual theoretical dictates explicated earlier have been incorporated together; for each “category” and each “intangible value,” the user has the option of rating from 1 to 5 stars in the rating.

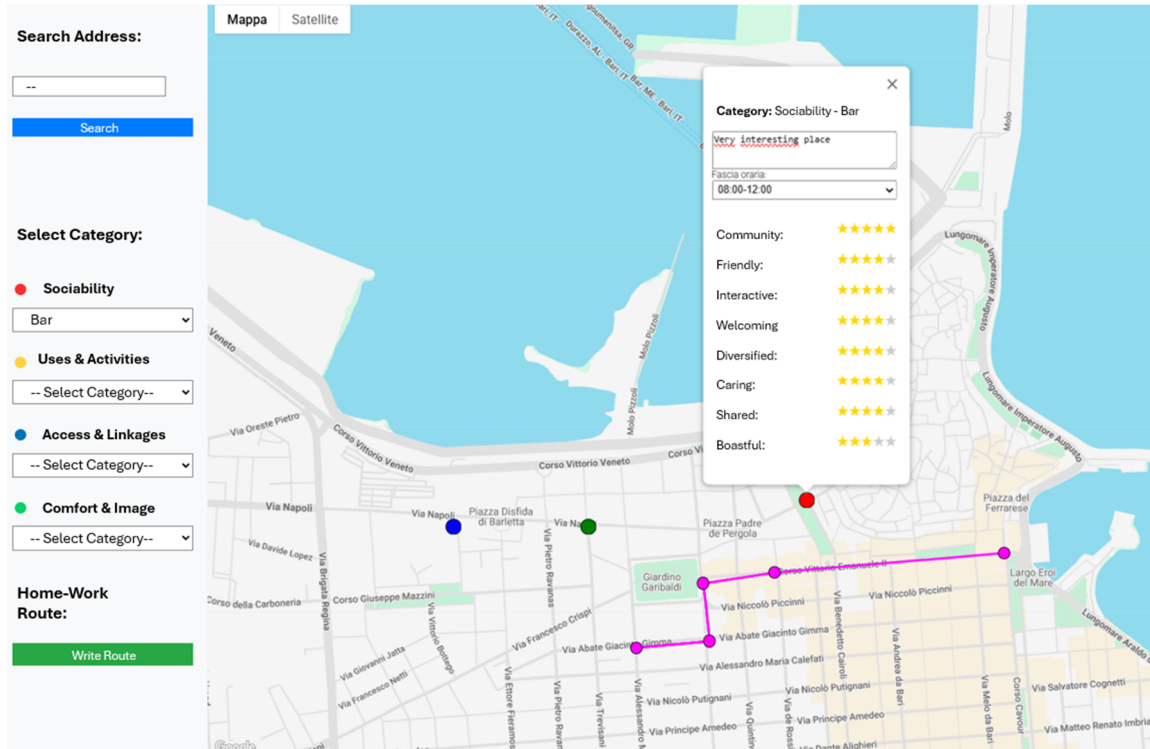


Figure 2: Example of the “Human Perception” web app for the Sociability category of the objective element “Bar”

4. Experiment

The testing of the web app, at present, concerns only its usability with the participation of a limited number of users, with the sole purpose of carrying out a pilot test to assess the web app potentialities. Specifically, a usability investigation was carried out through the System Usability Scale (SUS). Developed by John Brooke in 1996 [9], [10]. It is a standardized tool for quickly and reliably assessing the perceived usability of a system, product, or user interface. For this purpose, 15 users were involved, resulting in 8 female users (53.3%) and 7 male users (46.7%); in reference to female subjects, 5 users were between 20 and 40 years old, and 3 users were between 40 and 60 years old; concerning the male subjects, 3 users were between 20 and 40 years old, and 4 users were between 40 and 60 years old. Each user answered the 10 questions via a Likert scale, scoring from 1 (strongly disagree) to 5 (strongly agree):

- Q1. *I think that I would like to use this system frequently.*
- Q2. *I found the system unnecessarily complex.*
- Q3. *I thought the system was easy to use.*

- Q4. *I think that I would need the support of a technical person to be able to use this system.*
 Q5. *I found the various functions in this system were well integrated.*
 Q6. *I thought there was too much inconsistency in this system.*
 Q7. *I would imagine that most people would learn to use this system very quickly.*
 Q8. *I found the system very cumbersome to use.*
 Q9. *I felt very confident using the system.*
 Q10. *I needed to learn a lot of things before I could get going with this system.*

The results are presented in Table 7. For better understanding, the calculation of the SUS score is given below:

- For odd-numbered questions: subtract 1 from the user response;
- For even-numbered questions: subtract the user responses from 5;
- To convert the range from 0-40 to 0-100, the sum of the various scores is multiplied by 2,5.

Table 7
SUS questionnaire results

User	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	SUS score
U1	5	1	5	1	5	1	5	2	5	1	97,5
U2	4	1	5	1	5	2	4	1	5	1	92,5
U3	5	2	4	2	5	1	5	2	5	1	90,0
U4	5	1	5	1	4	1	4	1	4	2	90,0
U5	4	1	5	2	5	2	4	1	5	2	87,0
U6	5	1	5	1	5	1	5	1	5	1	100,0
U7	4	2	4	2	4	2	4	2	4	2	75,0
U8	5	1	5	1	5	1	5	1	5	1	100,0
U9	5	1	4	1	5	2	4	2	5	2	87,5
U10	5	1	5	1	5	1	5	1	5	1	100,0
U11	4	1	5	1	5	1	5	1	5	1	97,5
U12	5	2	5	2	4	1	5	1	5	1	92,5
U13	4	1	5	1	5	2	5	2	5	1	92,5
U14	5	1	5	1	5	1	5	1	5	1	100,0
U15	4	1	4	1	5	1	5	1	5	2	92,5

Given the score of each user, the simple arithmetic mean is applied as shown below

$$\mu = \frac{\sum_{i=1}^n x_i}{n} \quad (1)$$

where x_i represents the scores (SUS score) obtained by each of the 15 individuals and n represents the number of subjects observed.

Applying the formula $((97,5 + 92,5 + 90,0 + 90,0 + 87,5 + 100,0 + 75,0 + 100,0 + 87,5 + 100,0 + 97,5 + 92,5 + 92,5 + 100,0 + 92,5) / 15 = 93)$ yields a score of 93 greater than the range 85 defining an excellent result, and this result translates into very high perceived usability by users.

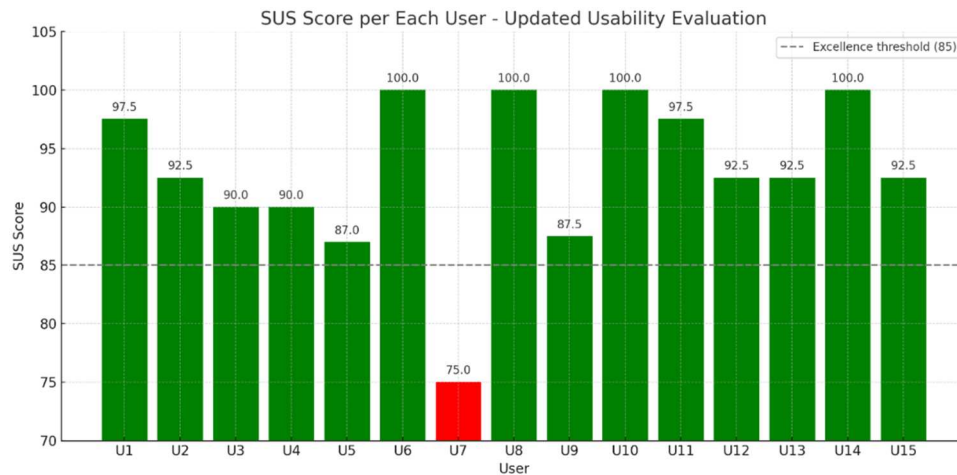


Figure 3: Results of the SUS questionnaire for each user, about the threshold

Looking at Figure 3, user U7 did not give extreme scores, but always moderate ratings (4 or 2). This implies an overall good, but not exceptional perception. Since the SUS emphasizes high ratings (5 for positive and 1 for negative questions), even lowering them by one point can greatly affect the final score. User U7's ratings are significantly lower than the average and other individuals' scores, although if the SUS score = 75, it is not negative. U7 probably rated the platform good, although improvable, because of minor uncertainties or elements that are not immediately intuitive.

5. Conclusions

The Human Perception project demonstrated the effectiveness and relevance of the participatory approach in the construction of community perceptual maps focused on sustainable mobility and urban quality of life. Through the integration of technology, subjective perception and data collected directly from users, it was possible to shape an innovative tool that returns a dynamic and shared representation of urban space. The web app created proved not only functionally effective, but also highly appreciated by the users involved in the experimentation, as demonstrated by the excellent average usability score (SUS score 93), ranking well above the threshold of excellence.

The application's modular structure, based on the four thematic macro-areas of “The Place Diagram” (**Sociability; Uses & Activities; Access & Connections; Comfort & Image**), allows for the collection of diverse but interconnected information, offering a complex and multidimensional reading of the area. This approach fosters an understanding of local needs and daily travel habits while enhancing the collective memory and cultural and social specificities of the place [11].

Future developments of the project include enhancing the functionality of the platform through the integration of intelligent data analysis and visualization systems and the active involvement of students and school communities in compiling the map. Moreover, since only a small number of users participated in the testing and only a usability test was carried out as pilot test in order to evaluate the potentialities of the developed system, also a wider range of users will be involved in future tests, expanding the existing usability test and carrying out additional tests.

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Declaration on Generative AI

During the preparation of this work, the authors used DeepL in order to: Text Translation. Further, the authors used Grammarly in order to: Grammar and spelling check. Moreover, the authors used QuillBot in order to: Paraphrase and reword. After using these tools, the authors reviewed and edited the content as needed and take full responsibility for the publication's content.

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