Task 3.

D 3.1. Report on 15mC perceptions in each civic lab (M15)

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Executive Summary

This report presents key findings from the CONIFER project, conducted across six European Civic Labs: Brussels, Budapest, Cologne, Ghent/Kortrijk, Matosinhos, and Toruń. The study investigates how children and young people experience accessibility, mobility, and neighborhood quality in the context of proximity-based urban development.

Grounded in the 15-Minute City framework, the research challenges the assumption that proximity alone ensures accessibility. It demonstrates that lived accessibility is shaped by a broader ecosystem of factors, including safety, environmental quality, public space design, opportunities for social interaction, and the perceived attractiveness of local destinations.

Using a mixed-methods, participatory approach, the project captures children's and young people's lived spatial experiences through mapping, dialogue, place-based assessment, and creative expression. This enables a shift from "planned accessibility" to "experienced accessibility".

Across all Civic Labs, a consistent pattern emerges: young people prioritise safe, green, and socially vibrant environments that enable independent mobility. Active mobility infrastructure (walking and cycling), accessible schools and recreation spaces, and community-oriented public areas are central to their mobility choices and wellbeing.

However, significant barriers persist. High traffic exposure, unsafe crossings, fragmented cycling infrastructure, and unequal access to services continue to constrain everyday mobility. These findings highlight a structural gap between policy narratives of proximity and the lived realities of children and youth.

The project delivers a clear policy message: proximity is necessary but not sufficient. Effective implementation of the 15-Minute City requires integrated interventions combining spatial planning, mobility governance, safety improvements, and investment in high-quality public space.

Crucially, the research demonstrates the strategic value of child and youth participation in urban transformation processes. Their perspectives provide early indicators of spatial inequality, mobility barriers, and design failures, offering actionable intelligence for planners and decision-makers.

Overall, CONIFER advances a shift towards child-centred, experience-based urban accessibility, positioning young people not as passive users of cities but as key informants in the design of inclusive, resilient, and climate-ready urban environments.

Introduction

This deliverable presents the results of Task 3.1, *"Report on 15mC Perceptions in Each Civic Lab"*, developed within the CONIFER project. It synthesises evidence collected across six Civic Labs and examines how children and young people perceive accessibility, mobility, neighbourhood quality, and proximity-based living in diverse European urban contexts.

The 15-Minute City (15mC) has emerged as one of the most influential frameworks for promoting sustainable, inclusive, and liveable urban development. By emphasising proximity, accessibility, and the ability to meet everyday needs within a short walking or cycling distance, it aims to reduce car dependency, enhance quality of life, strengthen local communities, and support environmental sustainability.

Despite its growing relevance in policy and academic debates, the implementation of proximity-based urban models requires a deeper understanding of how accessibility is experienced in everyday life. In particular, the perspectives of children and young people remain underrepresented in urban planning discourse, even though their daily mobility practices and spatial experiences provide critical insights into the functioning of local environments.

This report focuses on perceptions of the 15-Minute City concept across six Civic Labs: Brussels, Budapest, Cologne, Ghent/Kortrijk, Matosinhos, and Toruń. The research was designed to explore how young residents perceive accessibility, mobility opportunities, neighbourhood quality, and everyday urban experiences within their local contexts.

The analysis integrates socio-demographic profiling of Civic Lab areas with findings from three complementary research strands: (i) collaborative assessments of 15-minute accessibility, (ii) analysis of the relationship between sense of place and proximity-based living, and (iii) participatory methods capturing everyday spatial experiences through creative and media-based tools.

By combining multiple methodological perspectives and diverse urban settings, the report advances a more nuanced understanding of the opportunities and challenges associated with proximity-based urban development. The findings provide evidence-based insights for policymakers, planners, educators, and local stakeholders aiming to develop more accessible, child-friendly, and inclusive neighbourhoods in line with the principles of the 15-Minute City.

1. Socio-demographic characteristics of the civic labs

Understanding the socio-demographic context of the Civic Labs is essential for interpreting how children and young people experience accessibility, mobility, and everyday life within their neighbourhoods. Perceptions of the 15-Minute City are shaped not only by the physical availability of services and infrastructure but also by broader demographic, social, and economic conditions that influence daily practices and opportunities.

The six Civic Labs included in the CONIFER project represent diverse urban contexts across Europe, differing in population structure, socio-economic characteristics, housing conditions, migration patterns, educational attainment, and levels of social vulnerability. These differences provide an important backdrop for understanding local experiences of proximity-based living and for identifying factors that may support or constrain the implementation of 15-Minute City principles.

This chapter presents an overview of the socio-demographic characteristics of each Civic Lab. Drawing on available statistical data and local contextual information, it outlines key demographic trends, household structures, socio-economic conditions, and selected indicators relevant to urban accessibility and quality of life. The analysis provides a common framework for comparing the Civic Labs and supports the interpretation of the research findings presented in subsequent chapters.

By situating the participatory research results within their broader socio-demographic context, the chapter contributes to a more comprehensive understanding of how local conditions influence children's perceptions of accessibility, mobility, neighbourhood quality, and sense of place.

1.1. Brussels (Belgium)

The study area extends across the municipalities of Molenbeek, Anderlecht, and the City of Brussels and includes the neighbourhoods of Machtens, Karreveld, Gare de l'Ouest, Duchesse, Industrie Birmingham, and Scheut.

Figure 1 Geographical location of the Gare de l'Ouest neighbourhood in Molenbeek, Brussels. Source: Google Earth.

Key landmarks and facilities

Gare de l'Ouest multimodal transport hub, Abattoir Market, Molenbeek Tram Depot, Parc Marie-José, Parc Forestier, Athénée Royal Deswaef, Stade Edmond Machtens, Parc des Muses, and Parc Ouest.

Urban morphology

The study area exhibits considerable morphological diversity across its neighbourhoods. In Gare de l'Ouest and Duchesse, the urban fabric is characterised by narrow streets lined with predominantly three- to four-storey terraced buildings constructed of exposed brick. These buildings were originally developed during the industrial period to accommodate

the working-class population. In contrast, neighbourhoods such as Machtens, Karreveld, and Scheut are dominated by post-war modernist housing estates consisting of six- to fifteen-storey apartment blocks. Their architecture reflects modernist planning principles, with functional façades, extensive use of reinforced concrete, wide streets, open green spaces between residential buildings, and infrastructure designed to accommodate motorised transport.

Historical background

The study area developed around Gare de l'Ouest, a railway station established in 1872 as a major freight hub serving the industrial areas of western Brussels. Originally dedicated to the handling and storage of industrial goods, the station became part of the Brussels metro network in 1982 with the opening of Line 1B. Since 2009, Gare de l'Ouest has served as an important multimodal interchange, connecting several metro lines with tram and bus services.

The railway infrastructure has had a lasting influence on the spatial structure of the area, creating a physical barrier that has historically separated neighbouring districts. Older working-class neighbourhoods are located to the east of the railway tracks, while post-war residential developments dominate the western side.

In response to this fragmentation and the presence of underused railway land, the Brussels-Capital Region has launched redevelopment initiatives aimed at improving spatial integration. The proposed master plan includes the development of new housing, public spaces, and service facilities while promoting employment opportunities. A key objective is to reconnect the surrounding neighbourhoods through the creation of a mixed-use, pedestrian- and bicycle-friendly urban environment.

Data sources

Statistical data were primarily obtained from the Brussels Neighbourhood Monitoring database (Wijkmonitoring/Monitoring des Quartiers), complemented by data from Statbel, the Brussels Institute for Statistics and Analysis (IBSA), and the Brussels Environment Agency where appropriate. The analyses are based on the most recent data available for each indicator; therefore, the reference years vary depending on the data source.

Population

Neighborhood	Number of inhabitants - 2024	Population density – 2024 (hab/km2)

Average Brussels	*1.249.597*	*7.693,51*
Machtens	25.610	18.248,80
Karreveld	14.657	18.616,32
Gare de L'ouest	10.103	19.548,39
Duchesse	5.410	14.552,79
Industrie Birmingham	356	1.404,01
Scheut	13.921	14.758,55

The study area is characterised by high population density, with all neighbourhoods exceeding the Brussels regional average of **7,694 inhabitants per km²**. Gare de l'Ouest records the highest population density (19,548 inhabitants per km²), followed by Karreveld and Machtens. In contrast, Industrie Birmingham has a very small residential population due to its predominantly industrial land use. Overall, the findings indicate that the study area represents one of the most densely populated urban environments in the Brussels-Capital Region.

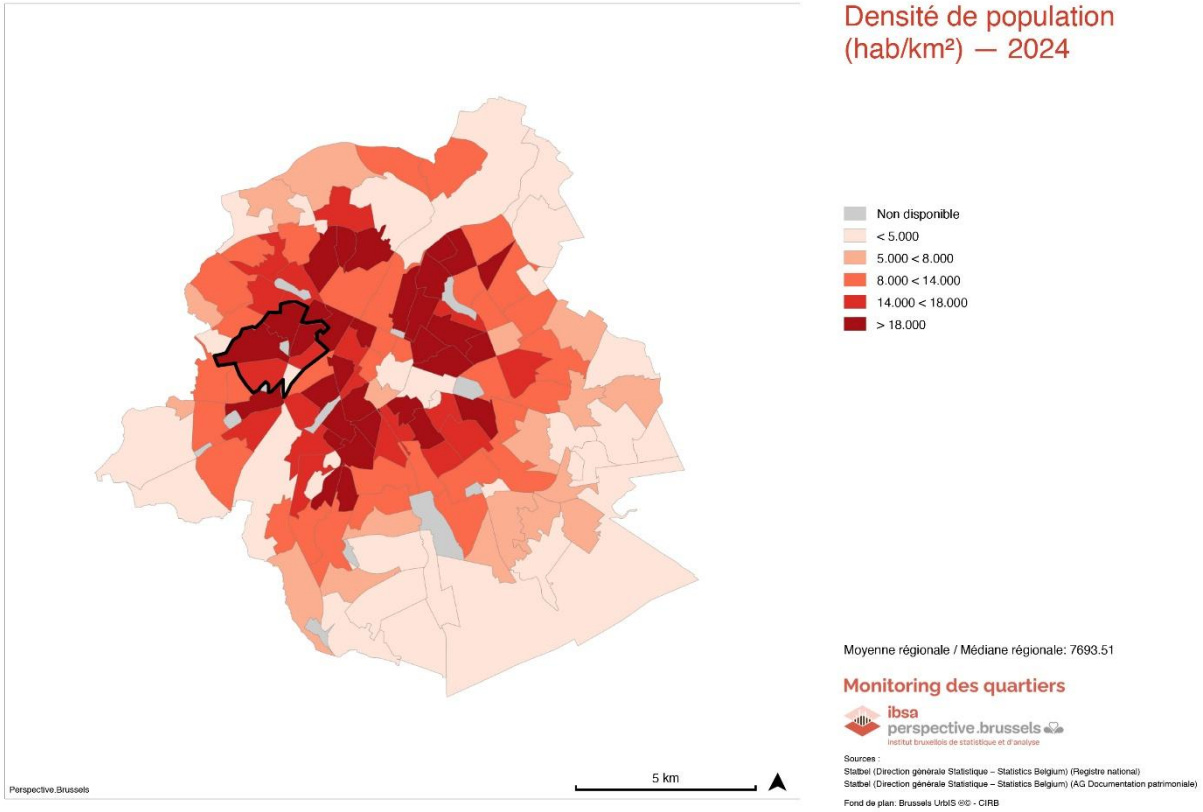


Figure 2 Population Density in Brussels in 2024

Age structure

Neighborhood	Average annual population growth rate (2019-2024)	Average age - 2024	Share of youth aged 12–17 in total population (%) – 2024
Average Brussels	*0,67*	*37,91*	*7,26*
Machtens	1,61	37,78	7,98
Karreveld	0,12	35,55	10,42
Gare de L'ouest	0,71	33,27	10,05
Duchesse	-0,18	32,70	9,98
Industrie Birmingham	-	30,94	-
Scheut	0,6	36,05	8,49

The growth of population in the study area continued increasing during the last five years, as in the whole region, just the neighborhood of Duchesse decreased in population. In terms of age structure, the area is characterized by a relatively young population. All neighborhoods in the study area have a median age below the Brussels average (37.91 years). Furthermore, the presence of youth aged 12–17 is notably high: while the regional average is 7.26% of the total population per neighborhood, all neighborhoods in the study area exceed this percentage. These figures confirm that **the area can be considered a predominantly young environment.**

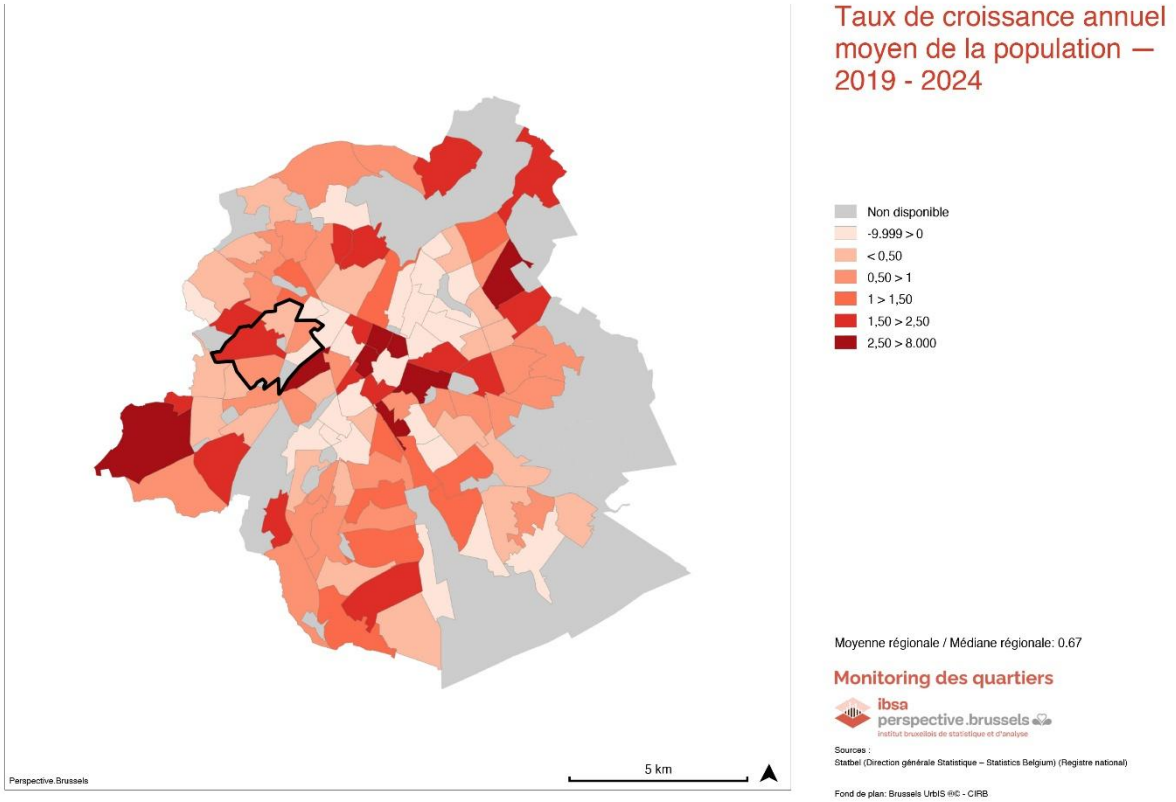


Figure 3 Average Annual Population Growth Rate in Brussels, 2019–2024

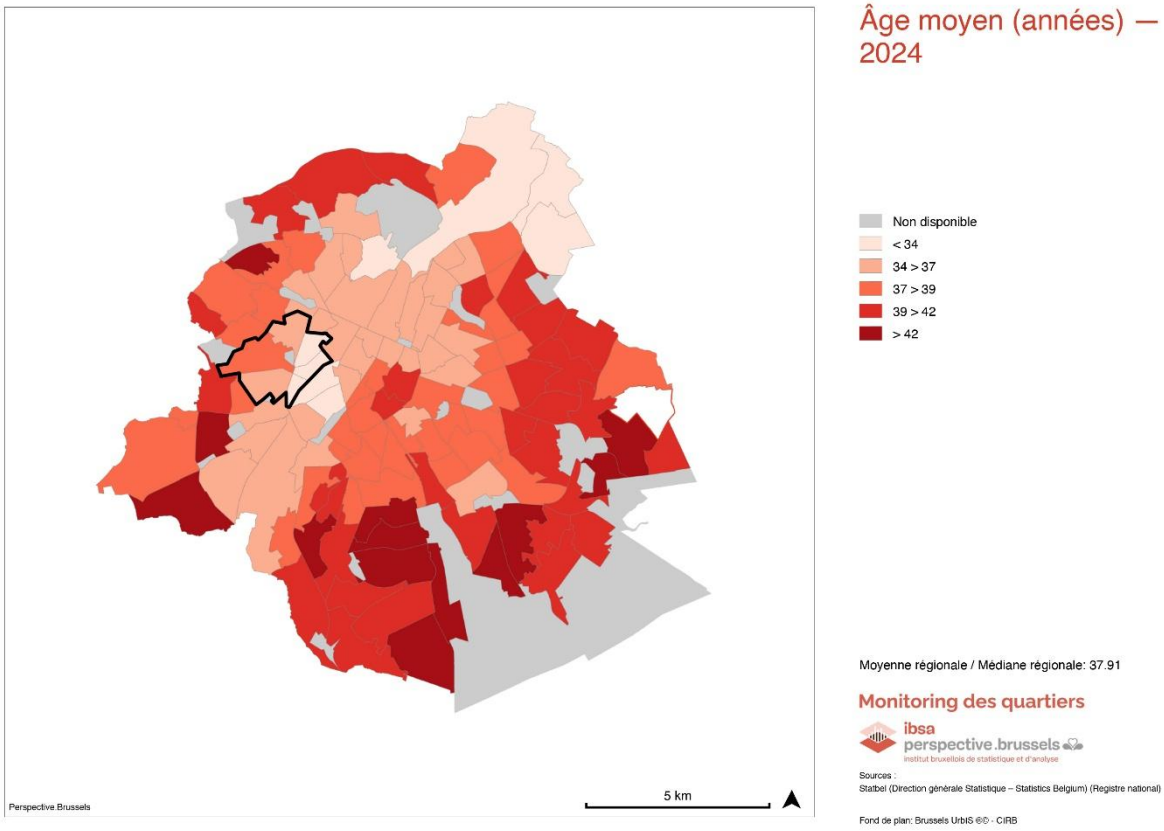


Figure 4 Spatial Distribution of the Average Age of the Population in Brussels, 2024

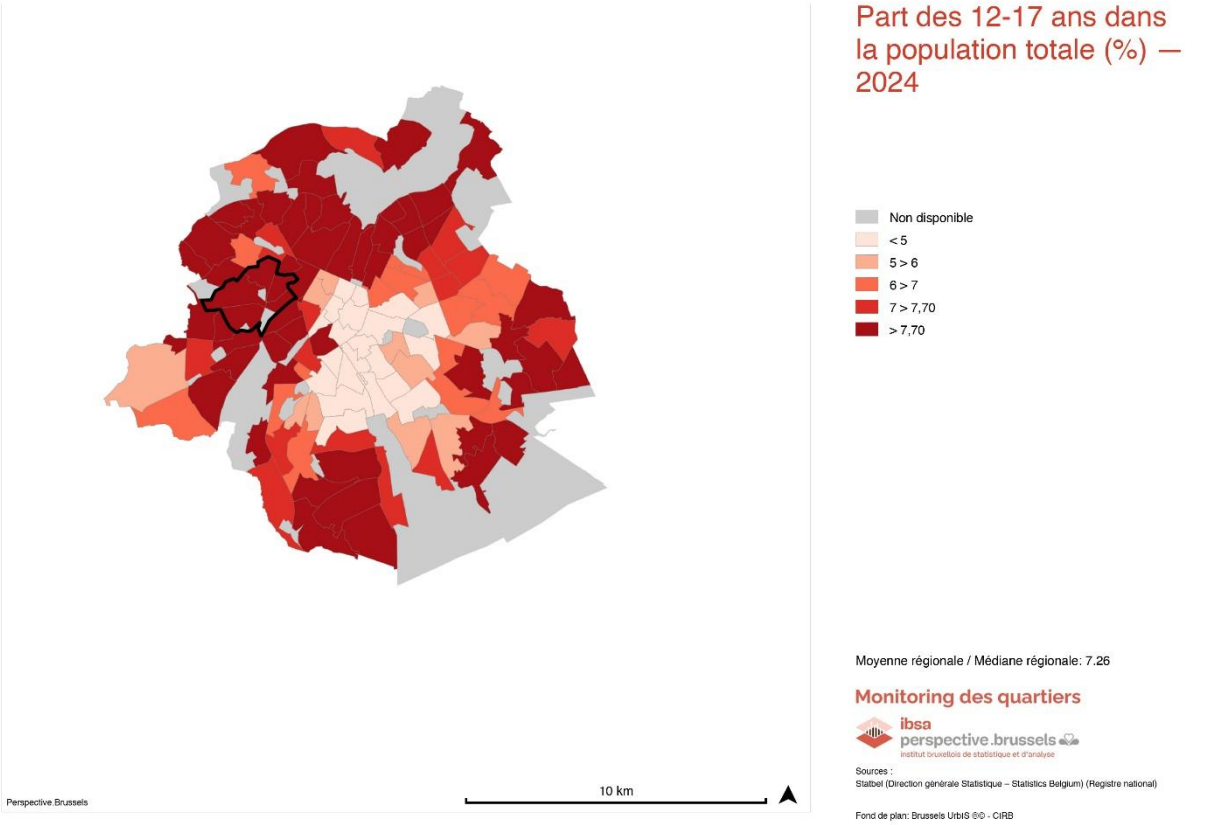


Figure 5 Share of youth aged 12–17 in total population (%)

Households

Neighborhood	Private household density (households per km²)	Average size of private household	Share of couples with children in private households (%)
Average Brussels	*3.564,05*	*2,14*	*22,86*
Machtens	7.622,31	2,38	28,75
Karreveld	7.406,14	2,50	30,06
Gare de L'ouest	7.722,22	2,52	29,27
Duchesse	5.466,04	2,66	27,87
Industrie Birmingham	-	-	-
Scheut	5.778,96	2,52	33,13

Within this category, it is observed that the study area exhibits a **high housing density**, with values significantly above the Brussels average of 3,564.05 households per km². Additionally, the **average household size is also elevated**, as all neighborhoods analyzed exceed the regional average of 2.14 persons per household. Another relevant data point is the proportion of households with children. The indicator used refers to couples with children, although it is important to note that other family configurations exist, such as single mothers or fathers with children, which are not captured by this measure. Nevertheless, the neighborhoods in the study area present values above the regional average of 22.86%. Together, these data indicate that the study area is a **densely populated urban environment**, characterized by relatively large households and a significant **presence of families with children.**

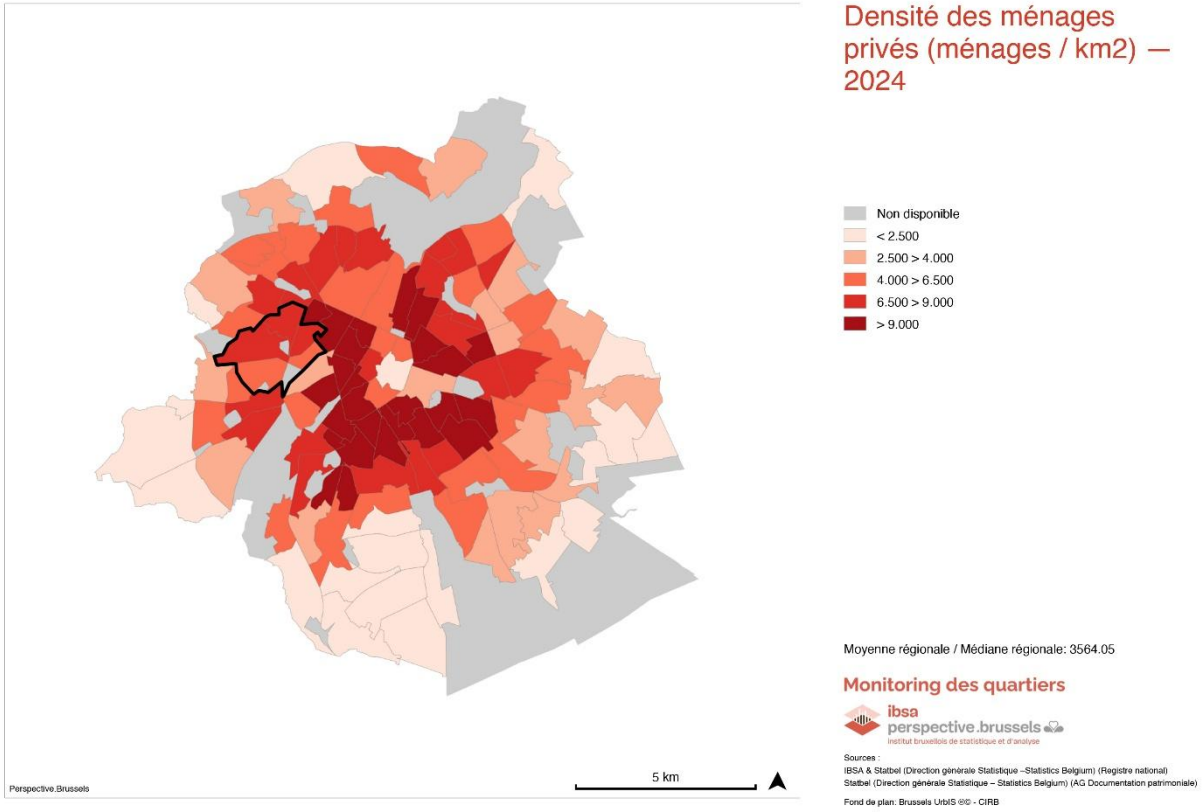


Figure 6 Share of couples with children in private households

Multiculturalism and Diversity

Neighborhood	North Africa share (%)	Sub-Saharan Africa share (%)	New EU members share (%)

Average Brussels	*3,22*	*2,19*	*7,21*
Machtens	3,89	2,09	5,51
Karreveld	5,89	2,14	6,12
Gare de L'ouest	9,48	2,42	4,04
Duchesse	8,23	3,6	3,42
Industrie Birmingham	-	-	-
Scheut	8,72	2,12	8,72

Brussels is well known for the diversity of nationalities that make up its population. However, there are areas of the city where certain foreign groups are more strongly concentrated. In the study area, the most prominent group consists of individuals from North Africa (Algeria, Libya, Tunisia, Morocco, and Egypt), with all neighborhoods in the sector exceeding the regional average. There is also a significant presence of residents from Sub-Saharan Africa, with values across the neighborhoods either close to or above the Brussels average. Additionally, a notable number of inhabitants come from countries that joined the European Union since 2004, particularly in the neighborhood of Scheut. Overall, these data reflect **the ethnic and cultural diversity of the study area**, with a particularly **strong representation of individuals from the African continent**.

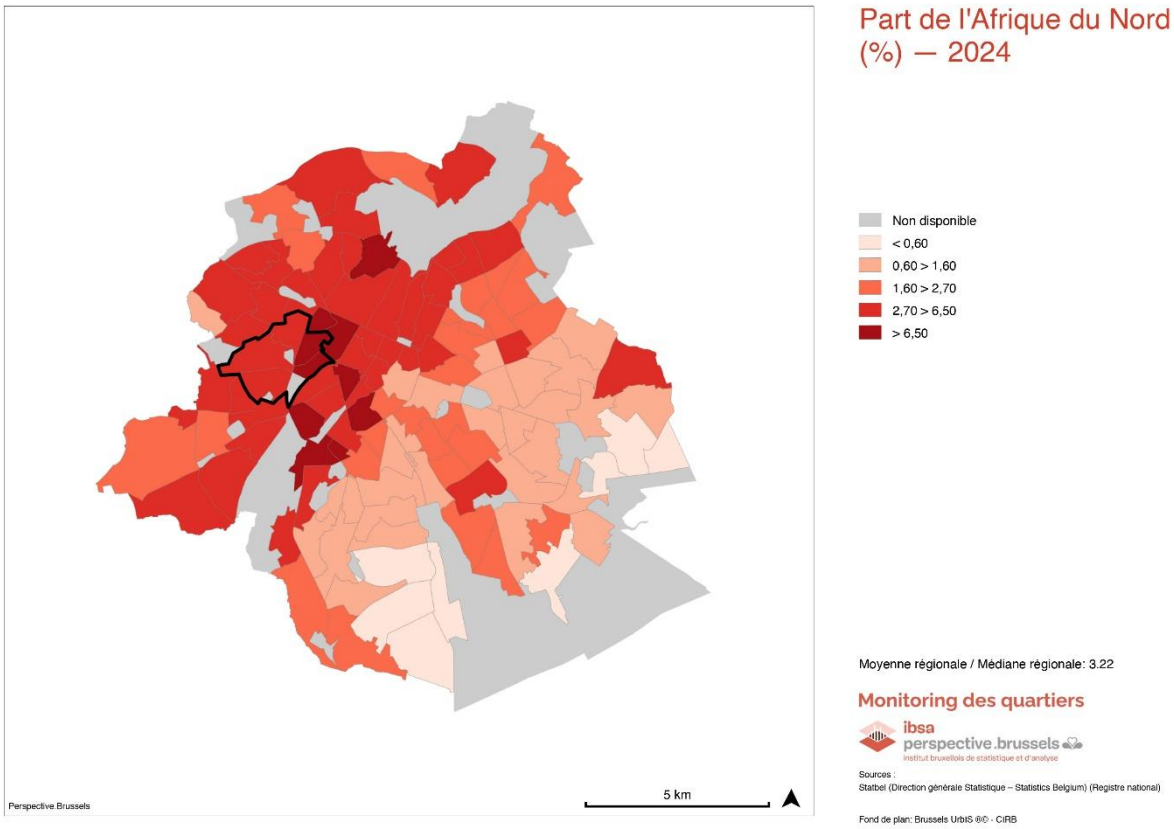


Figure 7 Spatial Distribution of the Population of North African Origin in Brussels, 2024 (%)

Socio-Economics

Neighborhood	Median equivalent income of residents after tax - 2022	Unemployment rate (%)	Share of beneficiaries of the increased intervention for health care (BIM) in the total population (%)
Average Brussels	*17.924*	*17,28*	*26,53*
Machtens	17.944,30	15,48	27,2
Karreveld	15.426,98	20,95	43,66
Gare de L'ouest	12.989,71	31,71	54,74
Duchesse	13.882,83	26,40	48,65
Industrie Birmingham	-	24,67	-

Scheut	16.929,63	17,58	32,64

In this analysis, the study area is identified as part of the neighborhoods with the lowest income levels in the entire Brussels-Capital Region (BCR). All the neighborhoods within the area have residents earning below the regional average, with places like Gare de l'Ouest and Duchesse showing particularly low figures. These low-income levels are correlated with high unemployment rates and the amount of people that are beneficiaries of the increase intervention for health care (BIM), most of which are above the Brussels average. Therefore, one of the main characteristics of the area is that it is inhabited by **residents who face significant economic hardship.**

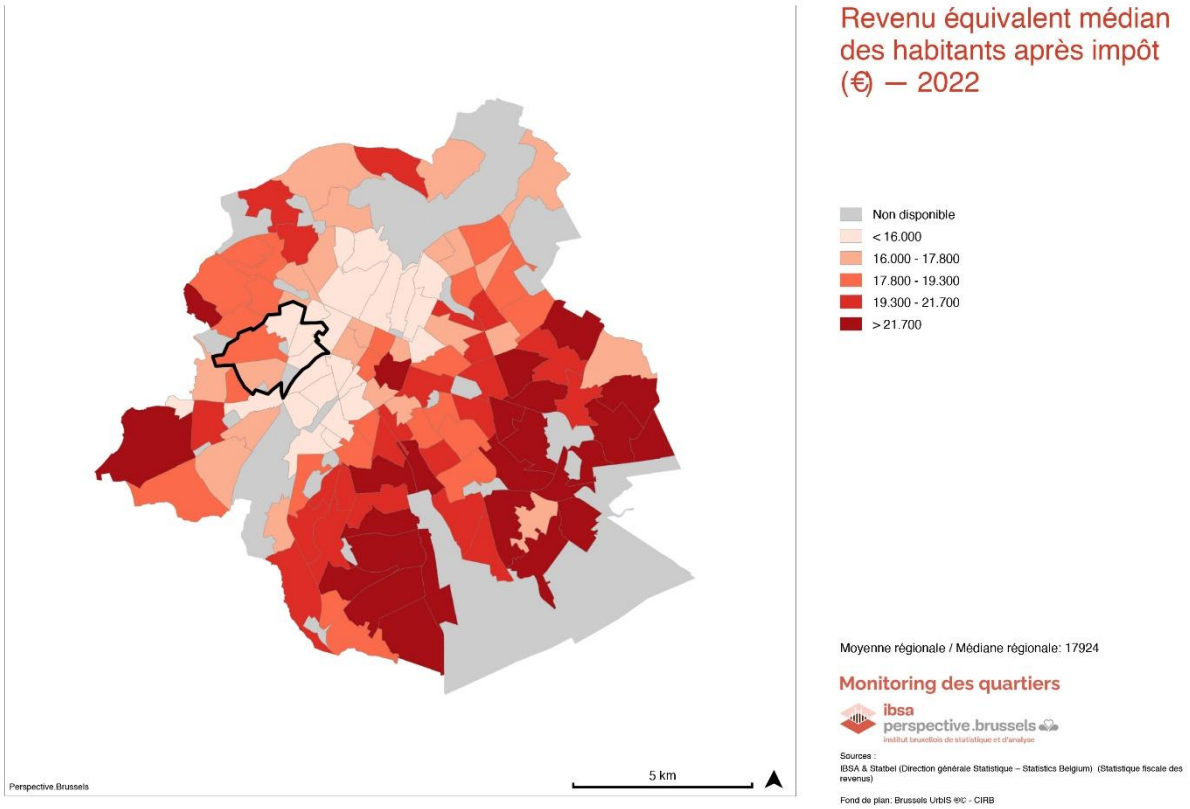


Figure 8 Spatial Distribution of Median Equivalised Disposable Income in Brussels, 2022 (€)

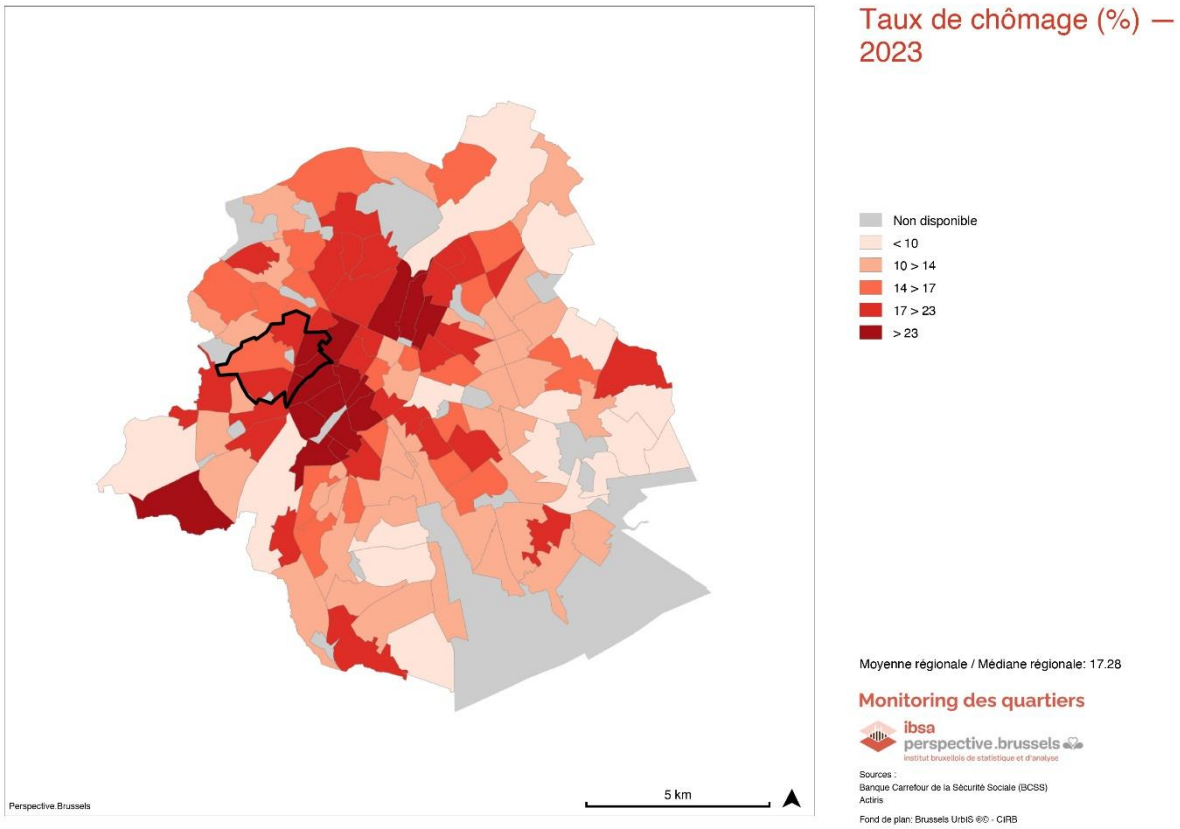


Figure 9 Spatial Distribution of the Unemployment Rate in Brussels, 2023 (%)

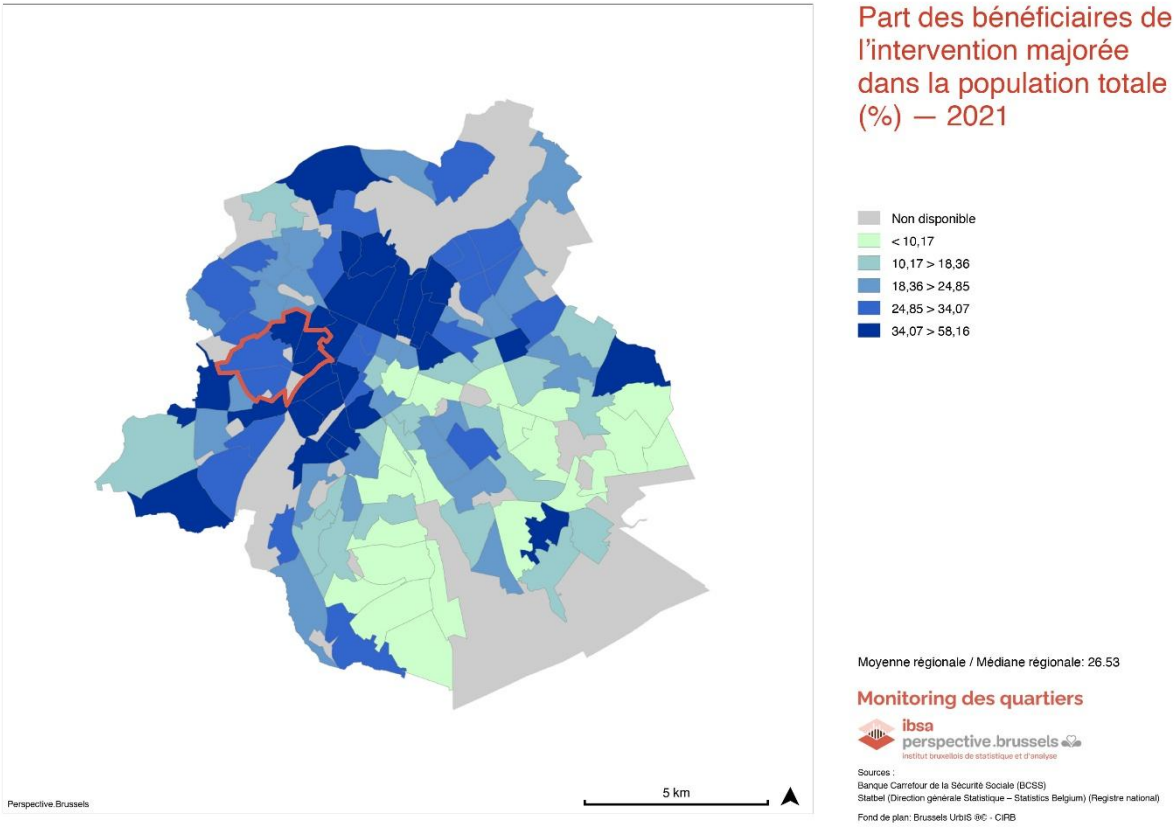


Figure 10 Increased intervention for health care

Housing

Neighborhood	Number of social housing units per 100 households - 2023
Average Brussels	*7,08*
Machtens	3,15
Karreveld	22,51
Gare de L'ouest	9,64
Duchesse	0
Industrie Birmingham	-
Scheut	4,03

The amount of **social housing in the area differs between neighborhoods,** where some of them are below the average of Brussels but two are above it, especially Karreveld has an important amount of social housing units in the area.

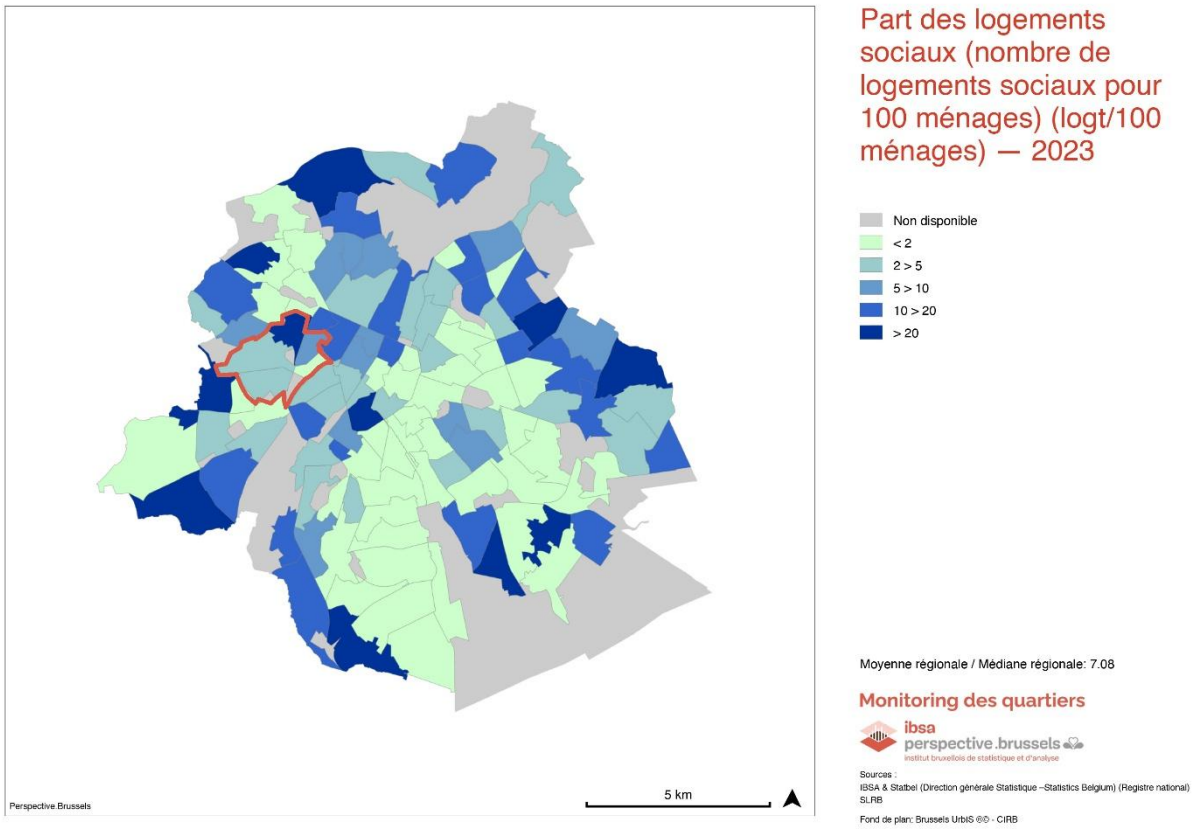


Figure 11 Number of social housing units per 100 households

ENVIRONMENT

Neighborhood	Share of population near to a green public space – 2012 (%)	Share of impermeable surfaces (%) - 2022	Average annual concentrations of nitrogen dioxide (NO2) - 2023
Average Brussels	*81,75*	*53,20*	*14,58*
Machtens	86,8	63,99	16,69
Karreveld	94,23	79,95	17,02
Gare de L'ouest	19,27	90,94	18,92
Duchesse	40,15	97,97	21,69
Industrie Birmingham	3,56	84,23	19,39
Scheut	94,34	82,62	17,17

The area is characterized as one of **Brussels' most mineralized zones,** where the proportion of impermeable surfaces consistently exceeds the regional average. Although some parts of the neighborhood do have access to public green spaces, these are generally small in size. This lack of permeability is also associated with elevated levels of NO_2, indicating a significant presence of air pollution in the area, also related to the presence of industries in the area. Taken together, these indicators suggest that **residents face limited access to green spaces and suffer from poor air quality.**

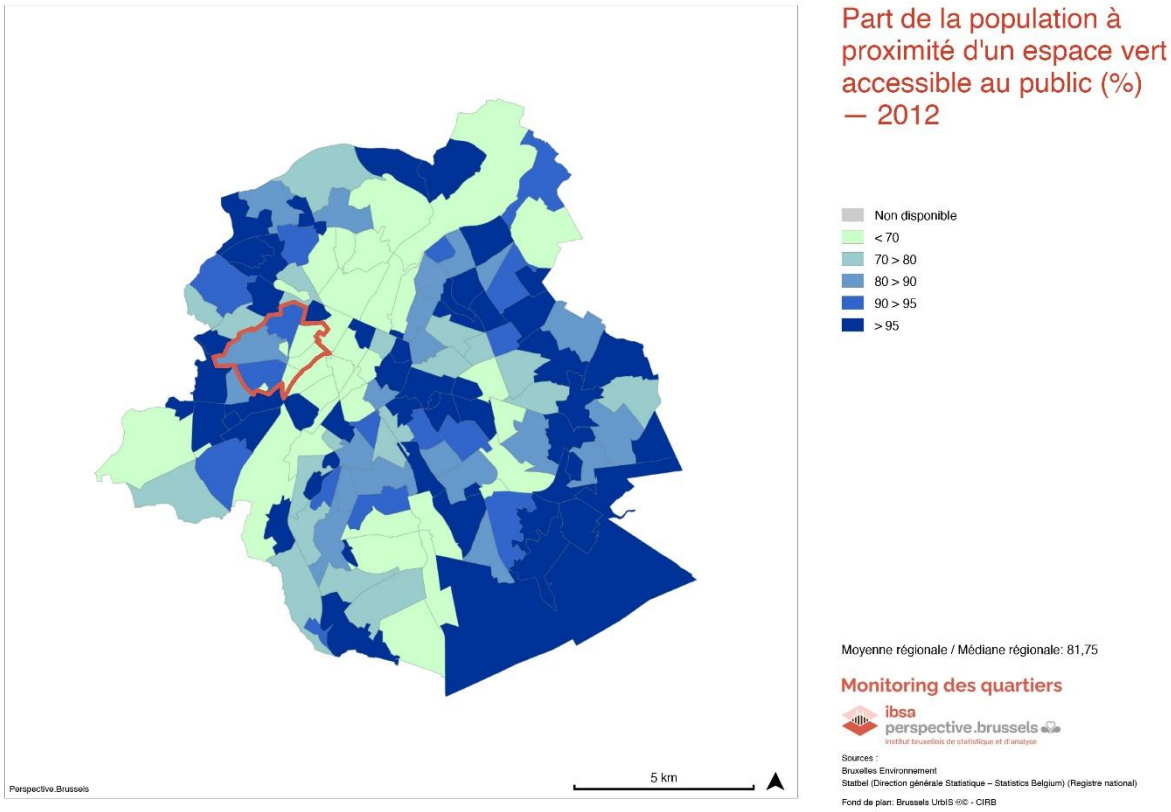


Figure 12 Population near to a green public

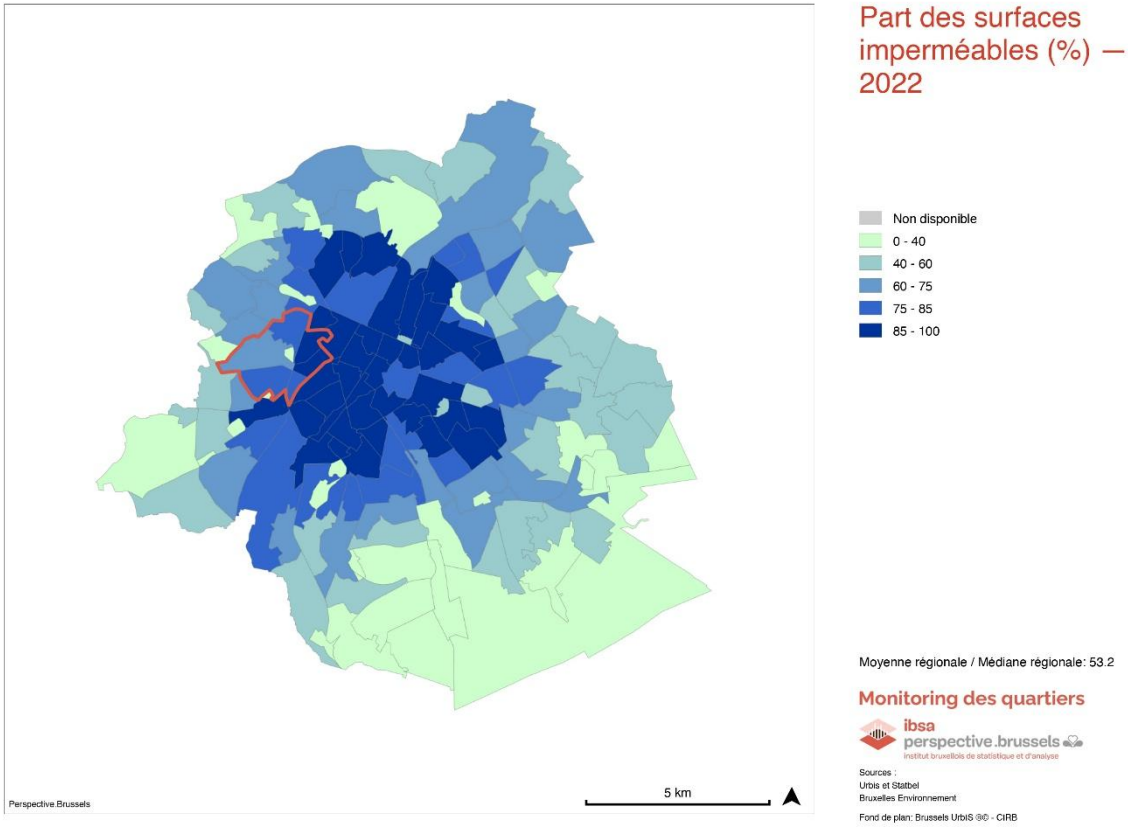


Figure 13 Share of impermeable surfaces

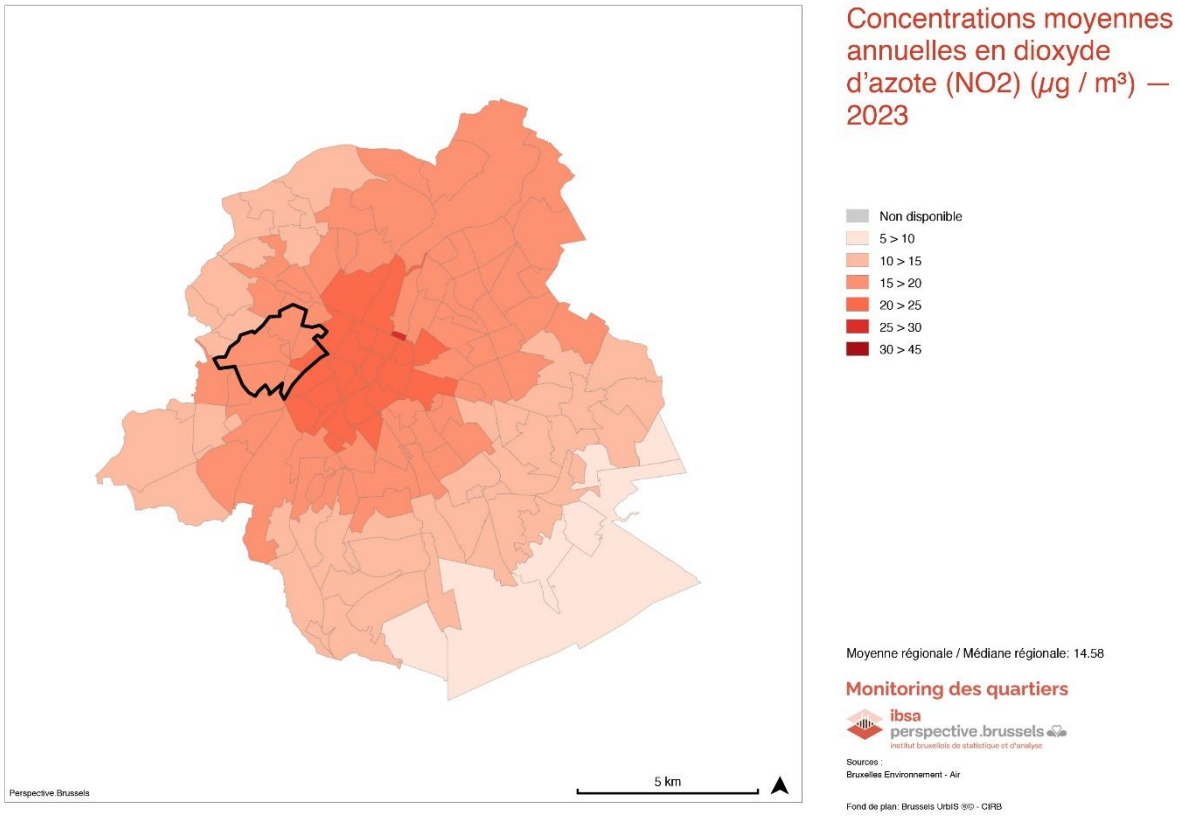


Figure 14 Concentrations of nitrogen dioxide (NO2)

Urban diversity

Neighborhood	Average distance of access to the 4 basic goods - 2023	Rate of ground floor occupied by commerce (%) – 2023
Average Brussels	*187*	*ND*
Machtens	204,52	8,7
Karreveld	159,71	9,4
Gare de L'ouest	122,38	11,48
Duchesse	116,66	14,78
Industrie Birmingham	192,80	30,58
Scheut	180,75	4,84

In general terms, **the neighborhoods within this sector have good proximity to basic services**, although there are variations between them. Despite being a densely populated

area as shown by the previously analyzed data, this category also reveals a certain diversity of land uses, with the presence of shops and other services that meet the daily needs of the inhabitants.

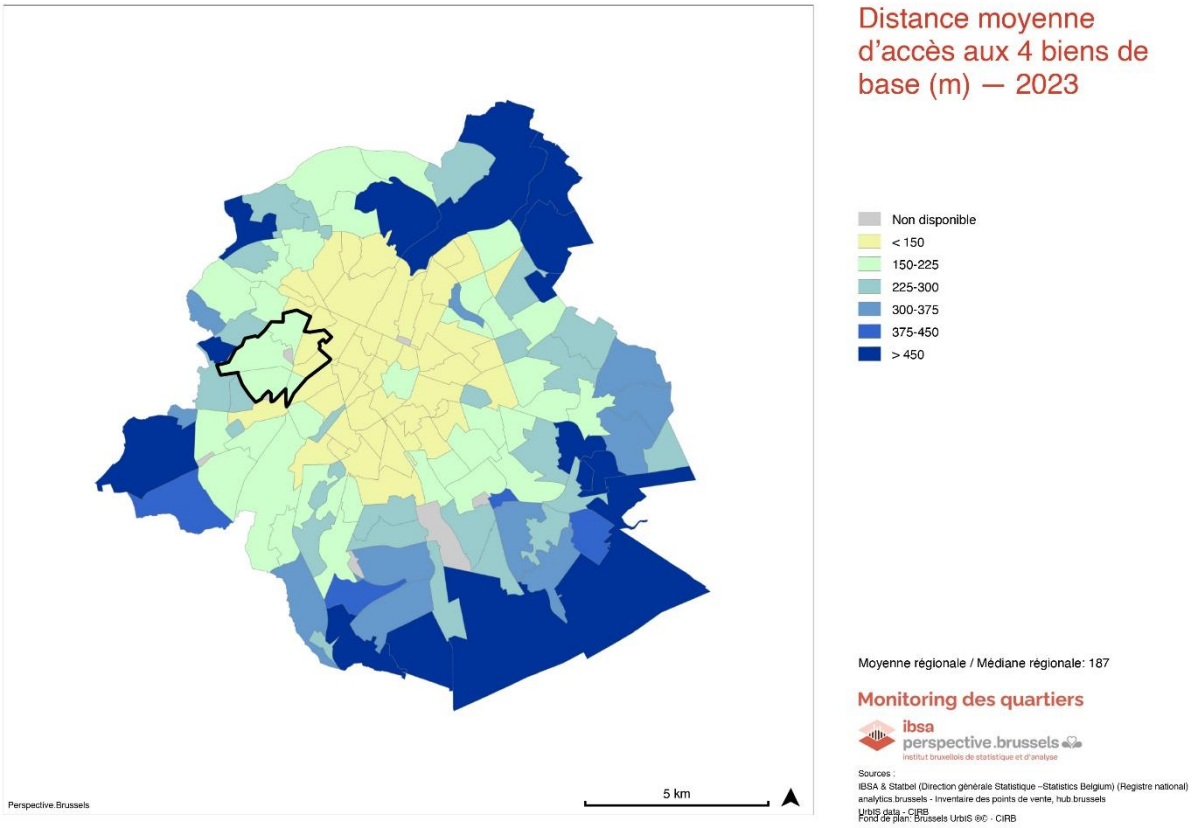


Figure 15 Distance of access to the 4 basic goods

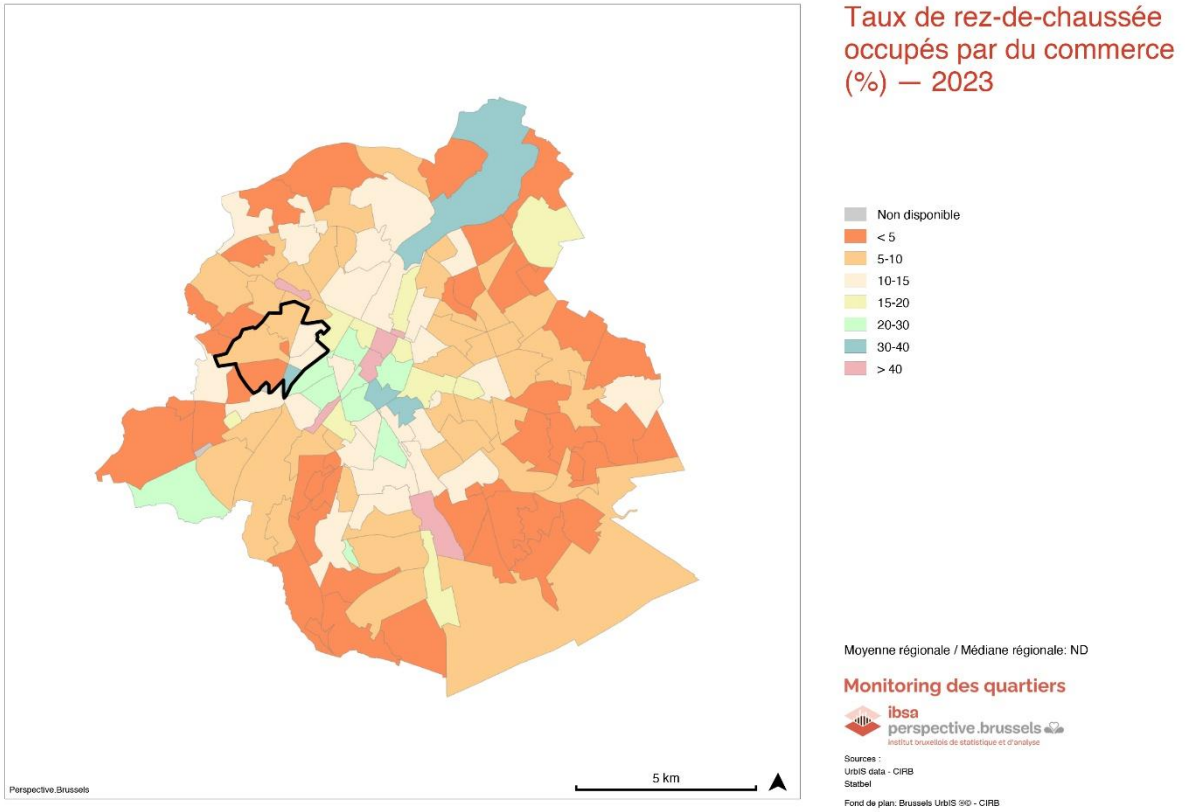


Figure 16 Ground floor occupied by commerce

Neighborhood	Number of cars per household – 2023 (cars/household)	Road occupancy rate between 8 a.m. and 9 a.m. - 2011 (%)	Road occupancy rate between 5 p.m. and 6 p.m. - 2011 (%)
Average Brussels	*0,55*	*42,62*	*45,45*
Machtens	0,64	49,11	52,58
Karreveld	0,51	45,84	48,55
Gare de L'ouest	0,38	36,72	43,24
Duchesse	0,48	42,13	46,57
Industrie Birmingham	-	62,24	63,86
Scheut	0,61	48,18	53,22

In terms of car use, most neighborhoods within the study area are around the regional averages, although there are **variations depending on the specific neighborhood.** For example, Gare de l'Ouest has a low proportion of households with private vehicles, and its streets do not experience high levels of congestion during peak hours. In contrast, neighborhoods such as Machtens or Scheut exceed the regional average in both vehicle ownership and traffic congestion, particularly at certain times of the day.

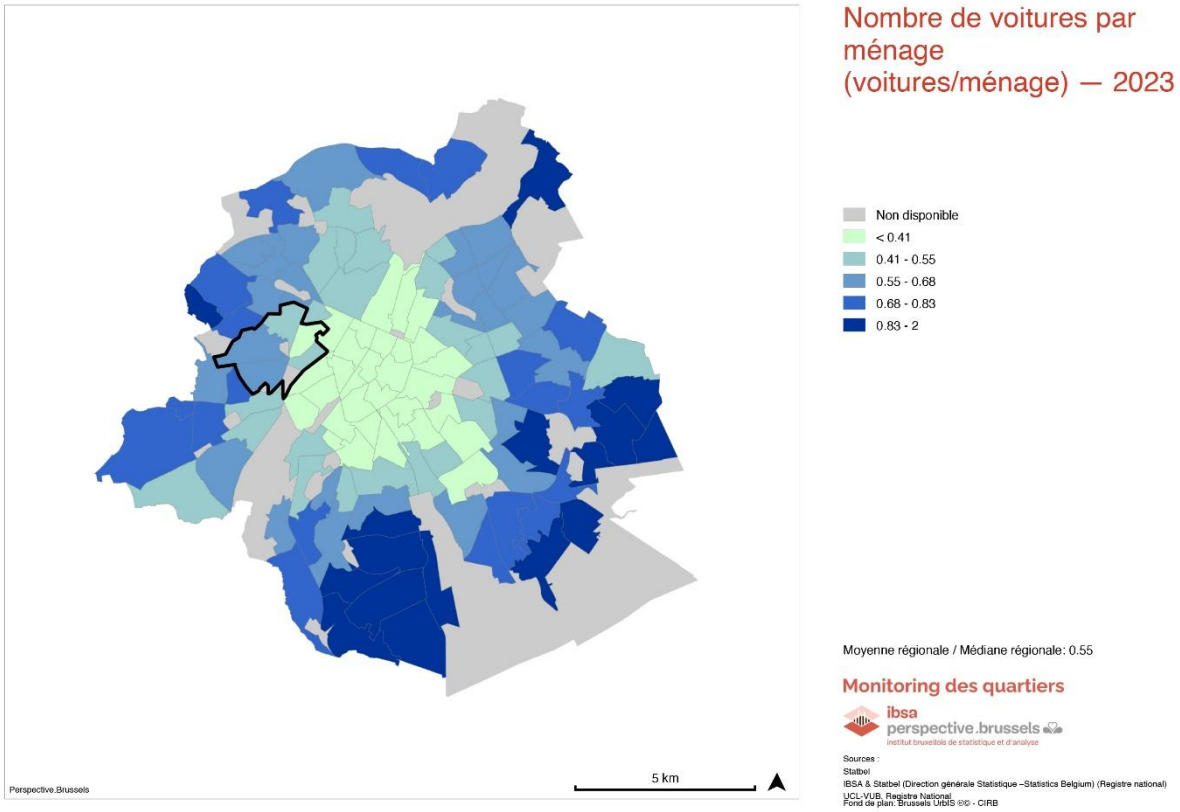


Figure 17 Number of cars per household – 2023

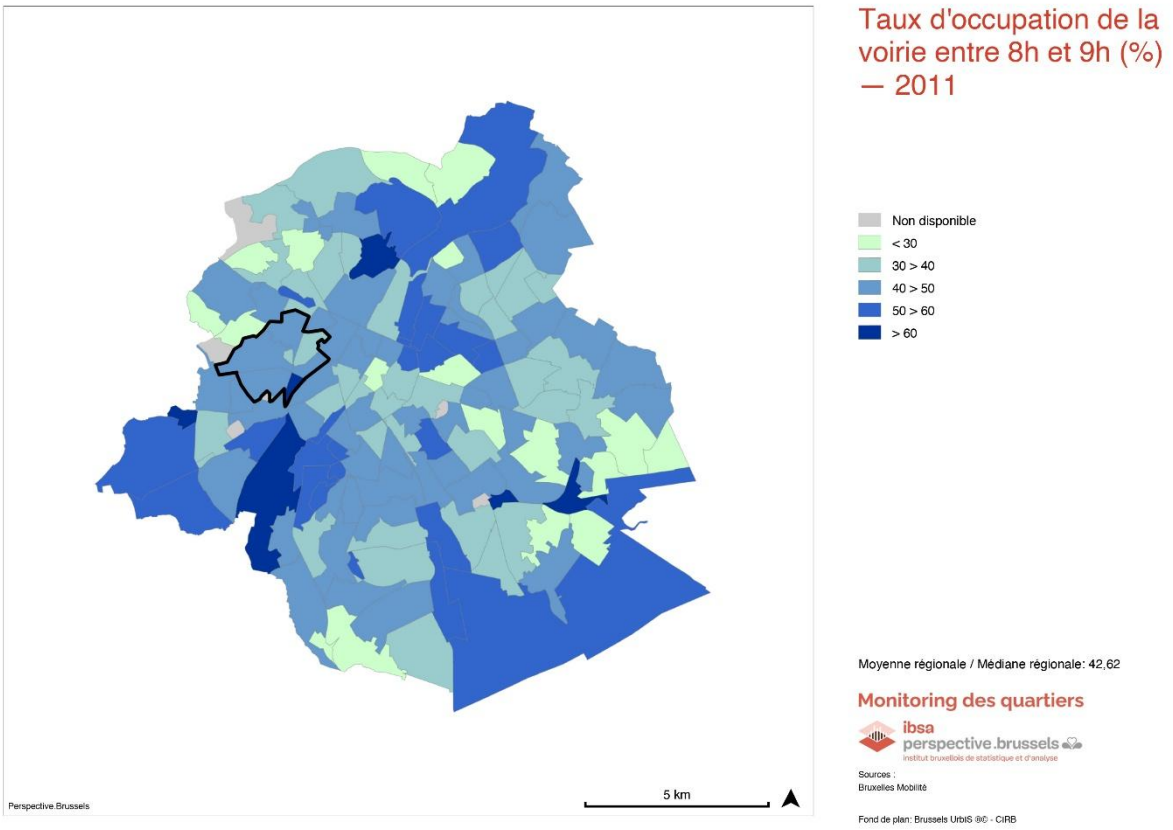


Figure 18 Road occupancy rate between 8 a.m. and 9 a.m.

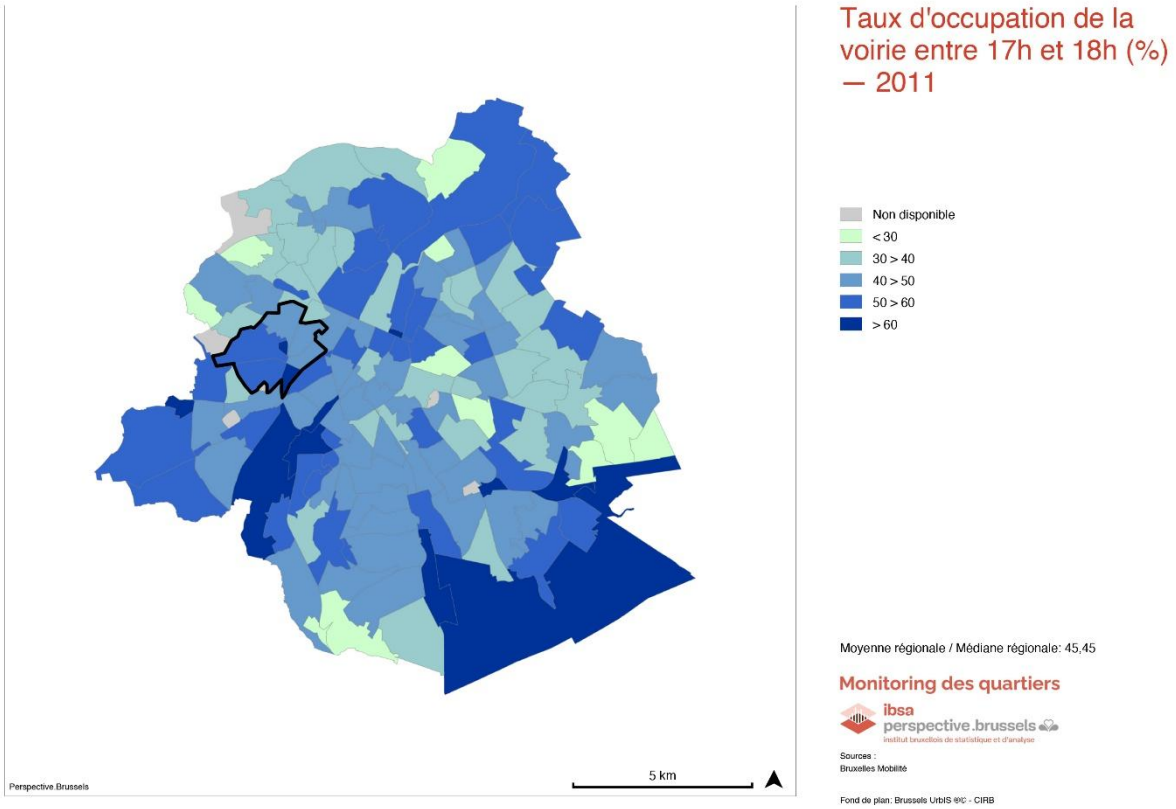


Figure 19 Road occupancy rate between 5 p.m. and 6 p.m.

Public transport and walking

Neighborhood	Share of the population near a public transport stop (3 modes combined) (%) - 2018	Part of the road dedicated to the sidewalk (%) - 2014
Average Brussels	*94,62*	*37,02*
Machtens	83,62	34,51
Karreveld	100	40,81
Gare de L'ouest	100	42,61
Duchesse	100	39,57
Industrie Birmingham	100	38,04
Scheut	82,10	40,83

In terms of public transport, **the area is well connected to various bus, tram, and metro lines.** However, the neighborhoods of Scheut and especially Machtens have lower coverage compared to the regional average. Machtens also show a lower percentage of street space allocated to sidewalks, which may hinder the use of alternative modes of mobility such as walking or cycling. This limitation aligns with previously observed data on the high use of private vehicles in the area, where a significant number of cars and notable congestion are recorded during certain hours of the day.

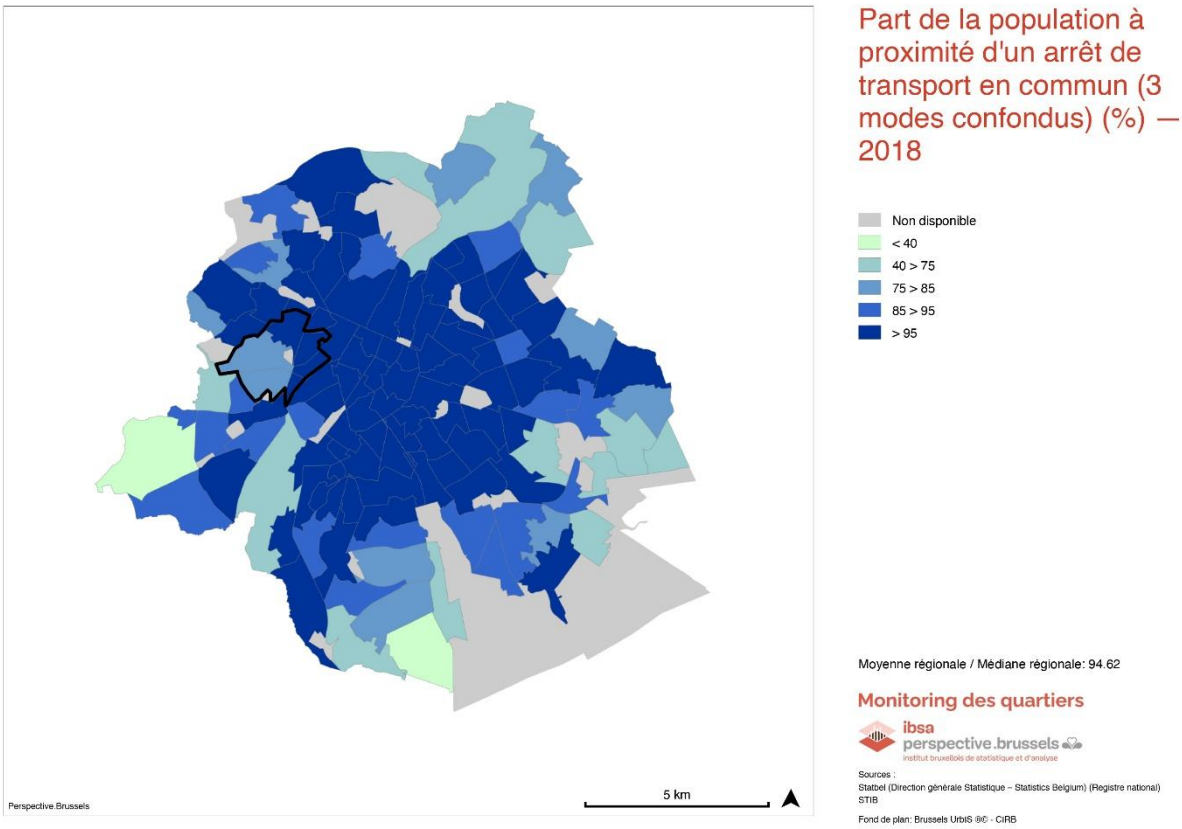


Figure 20 Share of the population near a public transport stop (3 modes combined)

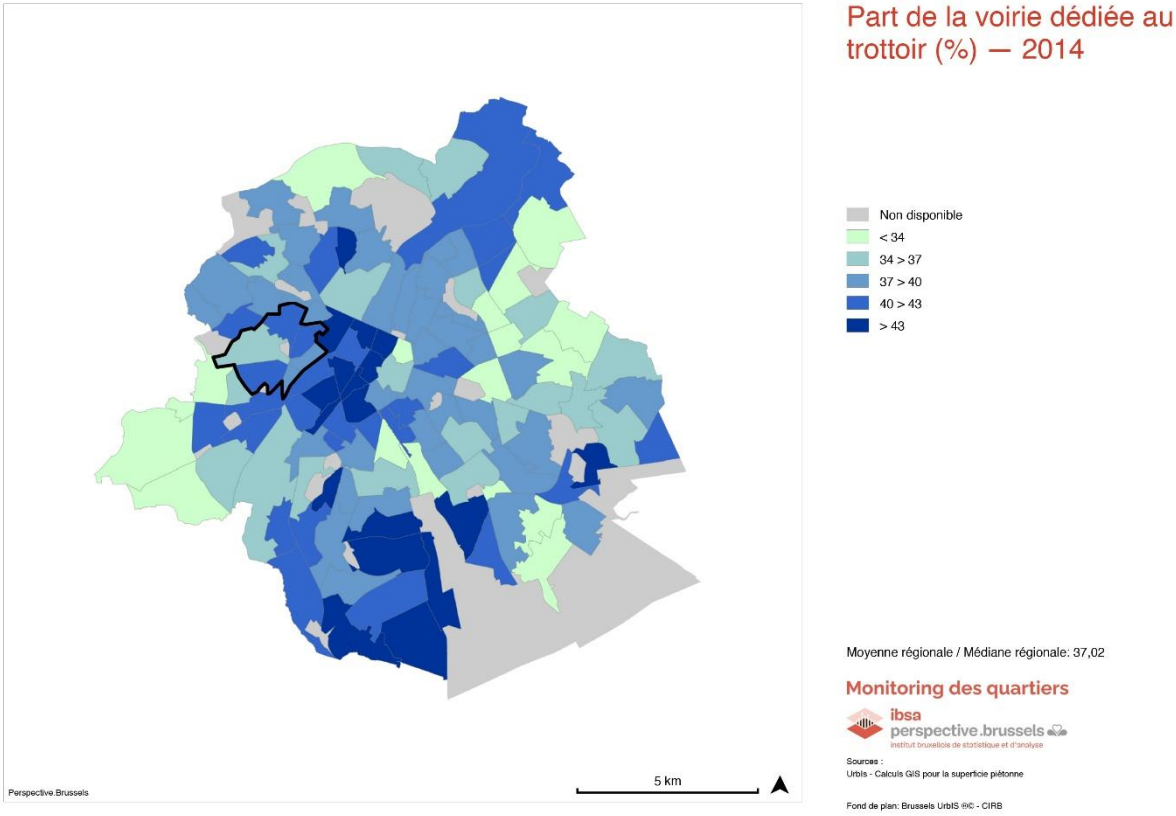


Figure 21 Part of the road dedicated to the sidewalk

Summary of neighborhoods

Machtens: *Dense residential neighborhood, with high population growth and high car dependence - (Gemeentelijke school).*

Figure 22 Urban landscape of the Machtens neighbourhood, Brussels

Machtens is a densely populated neighborhood, composed mainly of flat blocks, with high population growth and a diverse population. It has marked residential characteristics: good relative environmental quality within the study area, 86.8% of its population lives near a green public space, a medium socio-economic profile with low unemployment and low proportion of social housing. However, it has high vehicle congestion, a high rate of motorization, with 0.64 cars per household (Brussels average 0.55), and less accessibility to basic services and public transport compared to the other neighborhoods and the region average, which reinforces its dependence on the car.

Within this neighborhood, information is available on five schools, with data collected in different years between 2014 and 2022. On average, more than half of the students (53.21%) travel on foot. Secondly, almost a third use private vehicles (28.74%), while 16.56% use public transport. These results show a clear contradiction with the general

trends in the neighborhood, which are characterized as car oriented. Despite this, a significant proportion of the school population opts for more sustainable modes of transport, such as walking or public transport.

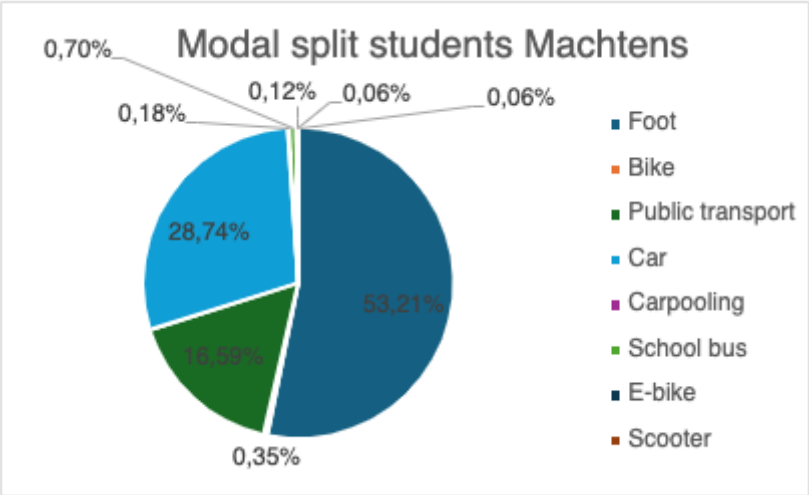


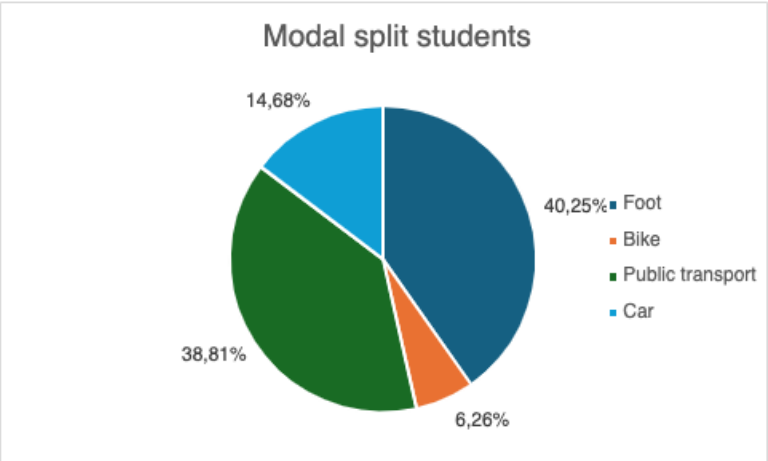
Figure 23 Modal Split of Students in the Machtens Neighbourhood, Brussels

Karreveld**:** *Dense, family-friendly neighborhood, with high social housing and good public connectivity.*

Figure 24 Urban landscape of the Karreveld neighbourhood, Brussels

Karreveld is a dense residential neighborhood, with a strong presence of young people and families with children, and a diverse population with no predominant nationality. Although its population growth is low, it is characterized by sensitive social indicators: below average income, high unemployment rate (21%) and high proportion of social housing (22.5%). It has good access to green spaces and basic services, as well as good public transport connections. However, it faces some traffic congestion and high levels of pollution. It functions as a transition zone between more affluent and more vulnerable neighborhoods in the study area.

Data is available on the mobility of students from two schools in the neighborhood: Institut Saint-Charles and Institut des Ursulines. In this area, most students travel primarily on foot (40.25%) or by public transport (38.81%). These mobility patterns can be linked to the characteristics of the environment: approximately 40.81% of the streets' area is allocated to sidewalks, and 100% of residents have access to nearby public transport stops. On the other hand, only 14.68% of students use cars, which could be explained by the fact that the average number of vehicles per household in this neighborhood is lower than the average for Brussels.



Gare de l'Ouest**:** *Densely populated and young, with high socio-economic vulnerability.*

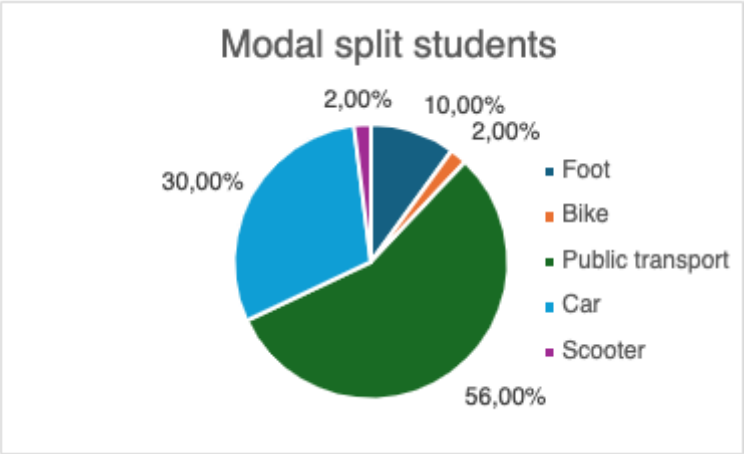
Figure 25 Urban landscape of the Gare de l'Ouest neighbourhood, Brussels

Gare de l'Ouest is the densest neighborhood in the study area, with a high concentration of population and households per square kilometer. It has a young population with a strong presence of migrants, especially from North Africa. It has the most vulnerable socio-economic conditions in the area: the lowest average income, the highest unemployment rate (31%) and more than half of its inhabitants receive health care (BIM). It has very limited access to green space (only 19%) and a high proportion of impermeable surfaces, which is associated with high levels of pollution. Despite this, it is notable for its good accessibility: proximity to services, high proportion of ground floor retail and strong connection to public transport. The low vehicle occupancy rate of the roads also contributes to being the neighborhood with the lowest traffic congestion and can be related to the low number of households owning a car.

Within this neighborhood, information is available at the Athénée Royal du Sippelberg school. More than half of the students (56%) use public transport, which may be related to the good connections and access to the network in the area. The second most common mode of transport is the car (30%). This figure is striking in a neighborhood where the average number of cars per household is 0.38, below the Brussels average (0.55).

Finally, only 10% of students walk to school. This figure contrasts with the fact that the neighborhood has the highest percentage of road surface area dedicated to sidewalks

(42.61%) in the entire area. Added to this is the predominance of impermeable surfaces and the scarcity of green spaces in the area that can influence the decision to walk to school.

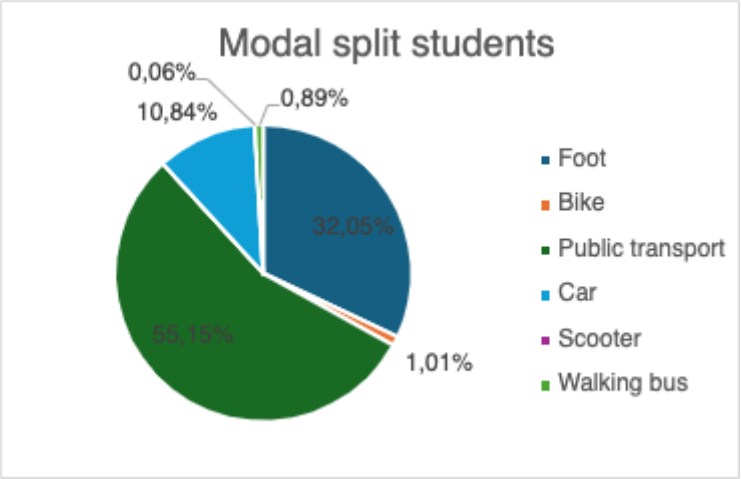


Duchesse**:** *Young and compact neighborhood, with high vulnerability and environmental deficit.*

Figure 26 Urban landscape of the Duchesse neighbourhood, Brussels

Duchesse is a densely populated neighborhood, although with a slight loss of inhabitants in recent years. It has the youngest population in the study area and a strong presence of families with children. Its migratory composition is diverse, with a strong presence of people from the North and sub-Saharan Africa. Socio-economically, it is one of the most vulnerable neighborhoods, with low income, high unemployment and 49% of the population receiving health care (BIM), although there is no registered social housing. The neighborhood has the worst environmental conditions: minimal coverage of green spaces, the most impermeable surface, and the highest levels of pollution (NO_2). However, it stands out for its proximity to basic services, low motorization, and good connectivity to public transportation.

In this neighborhood, information is available for five schools, with data covering different periods between 2008 and 2022, which should be considered in the analysis. On average, 55.15% of students at these schools use public transport, reflecting the good connectivity of the area. The second most common mode of transport is walking, used by 32.05% of students, while 10.84% travel by car. Other modes, such as bicycles or scooters, are also present, although with very low percentages (less than 1%).



Industrie Birmingham**:** *Industrial area with low population and high traffic congestion*

Figure 27 Urban landscape of the Industrie Birmingham neighbourhood, Brussels

Industrie Birmingham is a predominantly industrial neighborhood with a very low population density (356 inhabitants). It has high levels of NO_2 pollution, being the second most polluted area in the study area. It also suffers the highest traffic congestion during peak hours in the whole area, reflecting its character as an industrial hub with heavy traffic.

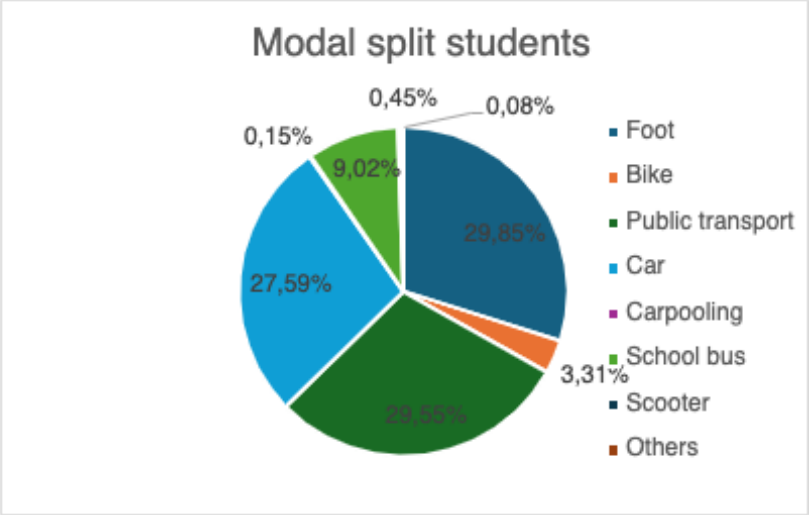
No schools in the area.

Scheut: *Diverse, medium-density neighbourhood, with high motorisation and high pollution levels*

Scheut has a moderate density within the study area and almost no population growth. Its population is relatively young and diverse, with a strong presence of migrants from North Africa and European countries that joined the EU after 2004. Income is somewhat lower than the Brussels average, with an average unemployment rate and little social housing. It has good access to green spaces and basic services, although it faces higher

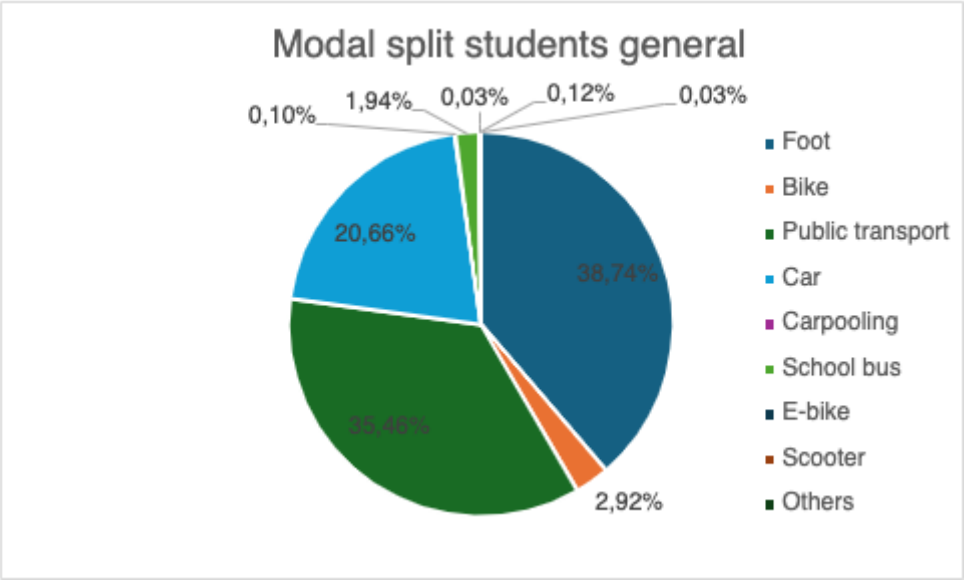
levels of pollution than the regional average. It is one of the neighborhoods with the highest number of vehicles per household and high levels of traffic congestion. Public transport connectivity and pedestrian infrastructure are adequate.

In this neighborhood, data is available for six schools, with records covering different years between 2016 and 2022. The modal split is distributed among three main modes of transportation: walking (29.85%), public transport (29.55%), and car (27.59%). There is also a significant share of school bus use (9.02%), as well as cycling (3.31%). These figures highlight a relatively balanced use of walking, cars, and public transport, with school buses and bicycles playing a smaller yet notable role. The distribution suggests that despite the high levels of car ownership, alternatives such as walking and public transport remain actively used in school-related mobility.



General Numbers

The general data for all schools within the study area shows that the main means of transport for students is walking, at 38.74%. This is followed by public transport, used by 35.46% of students, while 20.66% travel by car. It is worth noting the low use of bicycles, which barely reaches 2.92% of students. The school bus is also used, though only in a few schools, and other options such as e-bikes, carpooling, and scooters are each below 1%.



MAPS

Figure 28 City 30

Blue lines: Road 30
Orange lines: Road 50

Figure 29 Pedestrian network

Blue lines: Basic routes (Communal, Regional)
Green lines: Connecting routes (Communal, Regional)
Orange lines: Main routes (Communal, Regional)

Figure 30 Bike slope

Pink lines: >2.5%
Red lines: >5%

Figure 31 Cycling facilities

Blue lines: Cycling and pedestrian development
Orange lines: Marked cycle path
Red lines: One and two-way cycle path

Figure 32 Public transport stops

Red dots: STIB stops (Bus, Noctis, Tram, Metro)
Yellow dots: De Lijn stops
Purple dots: Train stations

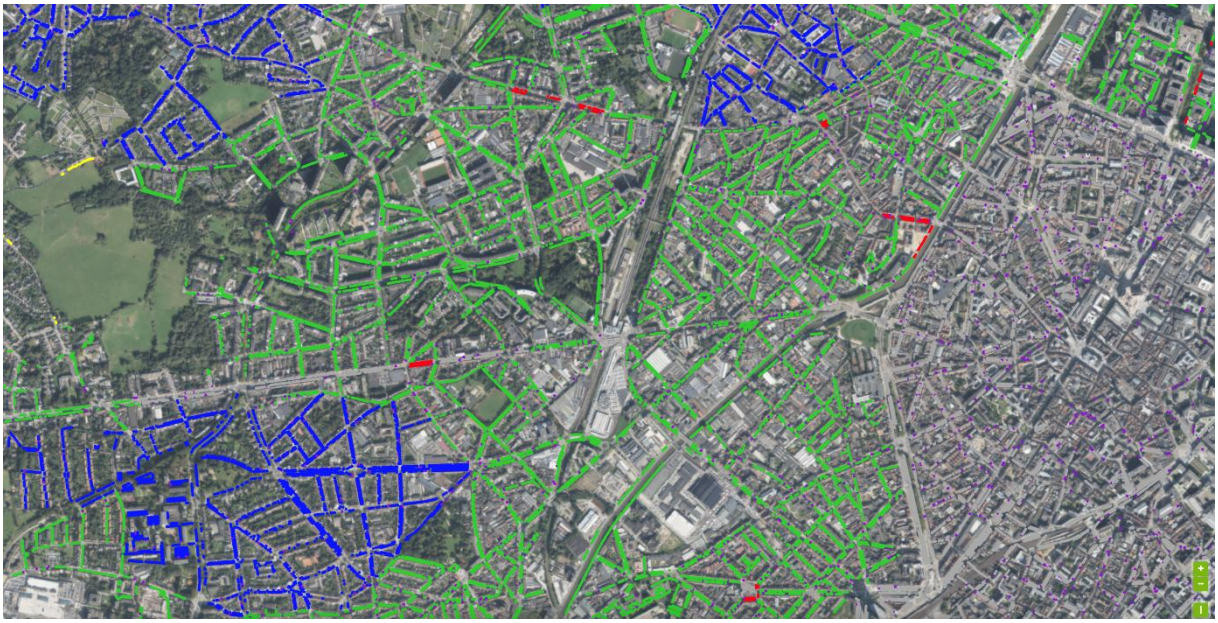


Figure 33 On-street parking space

Red line: red zones
Green line: Green zone
Blue line: Blue zone
Purple line: Reserved

1.2. Budapest (Hungary)

1.2.1. AKG Kiscelli Street Civic Lab (Budapest, Hungary)

Overview

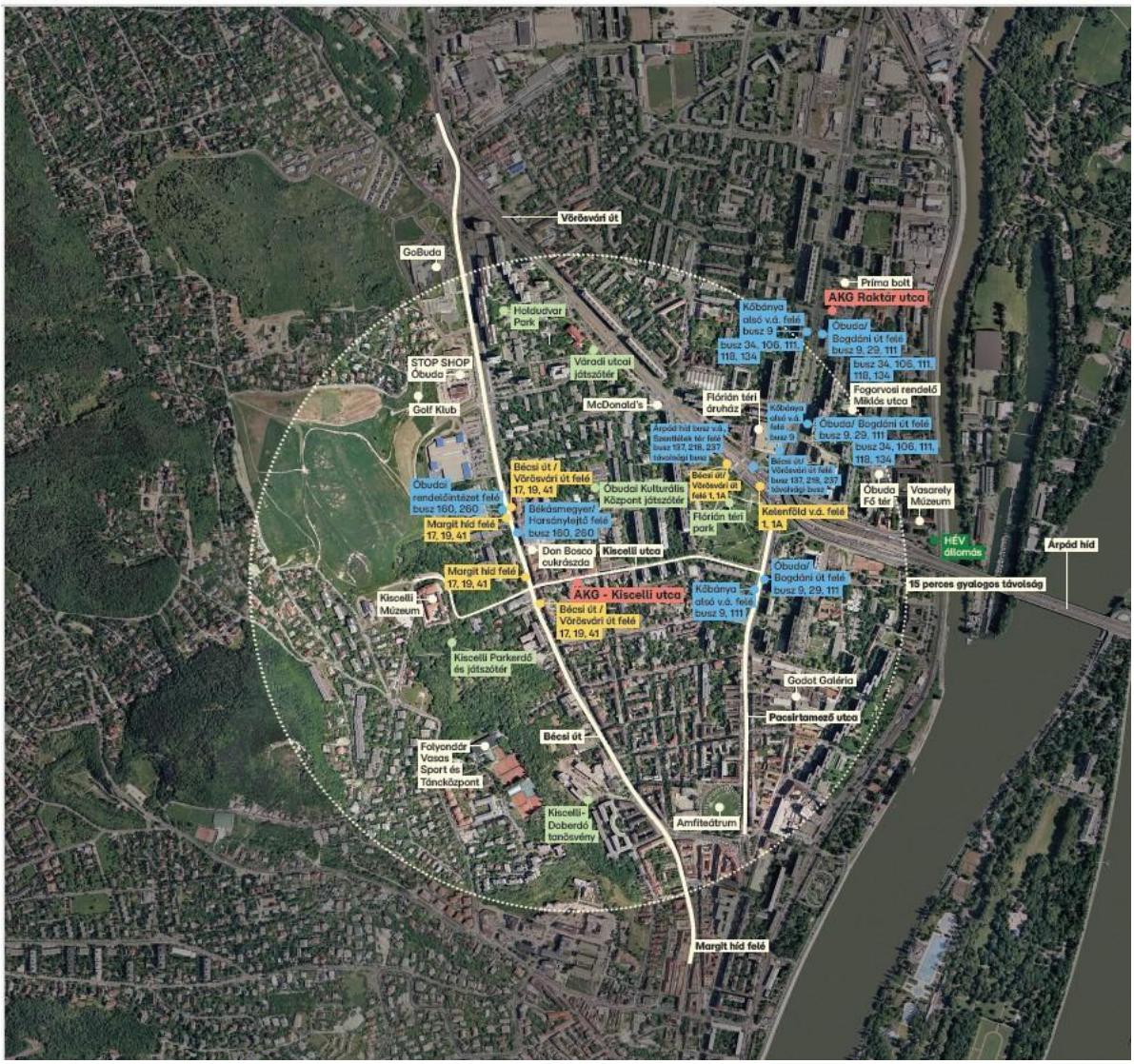


Figure 34 Geographical location of the AKG Kiscelli Street Civic Lab (Budapest, Hungary). Source: Ortophoto & graphical elements

Study area

The AKG Kiscelli Civic Lab is located along Kiscelli Street in Budapest's 3rd District (Óbuda). While the Civic Lab is centred on Kiscelli Street, the study area extends beyond the street

itself to include the surrounding neighbourhood that can be reached within an approximately 15-minute walking distance.

The boundaries of the study area are defined by major transport corridors, including **Bécsi út** and **Szépvölgyi út**, changes in land use between residential, institutional, and cultural functions, the transition from the built-up urban fabric to the green and wooded slopes of the Óbuda Hills, and the local street network connecting residential streets with collector roads.

The study area is predominantly residential and includes educational and cultural institutions, green spaces, public transport hubs, local services, and commercial facilities, all located within a convenient walking distance. At the broader urban scale, it forms part of the Óbuda-Békásmegyer district on the Buda side of the Danube. The district combines dense residential neighbourhoods with extensive green areas and benefits from good connectivity provided by major roads, tram and bus services, and the suburban HÉV railway. Historically, the area reflects successive phases of Roman, medieval, and modern urban development and today functions as an important residential, cultural, and recreational part of Budapest.

Key landmarks and facilities

The study area includes several important cultural, educational, commercial, and transport facilities. Key landmarks include the **Kiscelli Museum**, a museum and cultural complex with historic buildings and parkland, and the **Aquincum Museum**, an archaeological museum and open-air heritage site of district-wide significance. The area also contains several religious buildings reflecting its historical development, public parks and recreational areas providing access to the **Óbuda Hills**, commercial facilities including **EuroCenter Óbuda**, supermarkets and local retail outlets, as well as restaurants and other everyday services. Accessibility is supported by tram and bus routes along **Bécsi út** and **Szépvölgyi út**, together with nearby **HÉV** suburban railway stations.

Urban morphology

The study area is situated at the transition between the flat Óbuda Basin and the sloping terrain of the Buda Hills, resulting in varied topography, irregular street alignments, and an urban fabric that adapts to the natural landscape. The built environment comprises a mix of multi-storey apartment buildings, detached and semi-detached houses, and institutional facilities located on larger plots. The street network combines low-traffic residential streets with wider collector roads along the neighbourhood boundaries, while pedestrian infrastructure is provided throughout the area.

Population change

Historical census data indicate that the population of Budapest's 3rd District (Óbuda) has remained relatively stable since the early 2000s, with only minor fluctuations over time. However, detailed information on annual population change, including migration balance and natural increase, is not publicly available at the neighbourhood or street level in open-access datasets provided by the Hungarian Central Statistical Office (KSH) (https://qarat.hu)

Age groups

According to data from the Hungarian Central Statistical Office (KSH STADAT), Budapest has a relatively mature age structure, with **12.3%** of the population aged **0–14 years**, **67.1%** belonging to the working-age population (**15–64 years**), and **20.8%** aged **65 years and over**. These figures are available only at the city level, as publicly accessible KSH datasets do not provide age-specific population statistics for districts, neighbourhoods, or individual streets, including the Kiscelli Civic Lab area.

Household size

Publicly available data from the Hungarian Central Statistical Office (KSH STADAT) indicate that the average household size in Hungary and at the broader regional level ranges between approximately **2.0 and 2.3 persons per household**. However, no publicly accessible datasets provide household-size statistics at the level of Budapest's 3rd District or the immediate surroundings of the AKG Kiscelli Civic Lab (https://www.ksh.hu/stadat...; https://nepszamlalas...).

Access to green space

In the vicinity of Kiscelli utca, municipal and geographic descriptions document the presence of extensive green and forested areas, directly connected to the Óbuda Hills, with large continuous woodland zones suitable for walking and hiking. In addition to the forested areas, there are public parks and playgrounds in the area, providing accessible green open spaces for everyday outdoor use and recreation.

Public transport and walking

Public transport routes serving Budapest III District (Óbuda), including bus, tram and HÉV lines, are documented by BKK and municipal sources. The AKG Kiscelli utca site is located within short walking distance of bus and tram services operating along nearby main roads such as Bécsi út and Szépvölgyi út, which provide connections to district- and city-level public transport networks (https://bkk.hu, https://budapest.hu).

Data availability limitations (socio-demographic and socio-economic indicators)

With regard to household composition, nationalities and ethnicities, income levels, employment and unemployment, car ownership, and housing tenure, no precise neighbourhood- or street-level data is publicly available for Budapest III District based on open-access sources. Publicly accessible datasets of the Hungarian Central Statistical Office (KSH) provide information primarily at national, regional, and in some cases district level, but do not offer sufficiently detailed breakdowns to support conclusive statements at the scale of a specific street or immediate neighbourhood (e.g. Kiscelli utca).

Data sources

The analysis is based primarily on data published by the **Hungarian Central Statistical Office (KSH)**, including regional statistics and the 2022 Population Census. Additional information was obtained from publicly available administrative and municipal sources where relevant. Owing to data availability, most socio-demographic indicators are available only at the city or district level, while detailed statistics for the immediate surroundings of the Civic Lab are generally not publicly accessible.

1.2.2. GYERMEKEK HÁZA, BUDAPEST, HUNGARY

Overview

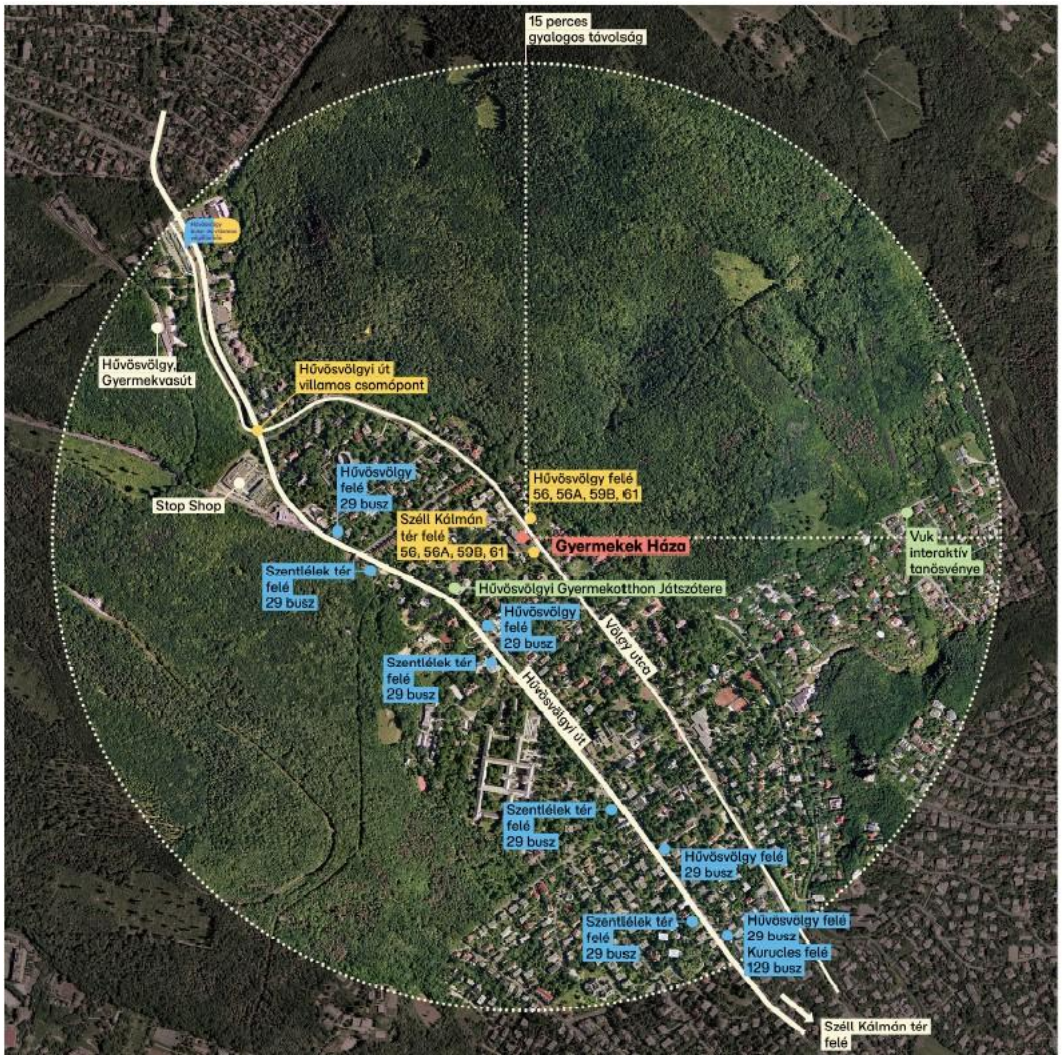


Figure 35 Geographical location of the GYERMEKEK HÁZA, BUDAPEST, HUNGARY. Source: Ortophoto & graphical elements

Study area

The Gyermekek Háza Civic Lab is located on Völgy Street in the Hűvösvölgy neighbourhood of Budapest's 2nd District. Although the Civic Lab is centred on a single residential street, the study area extends to the surrounding neighbourhood within an approximately 15-minute walking distance.

The study area is bounded by Völgy Street and the surrounding residential streets, educational facilities, and green spaces. Its boundaries are further defined by the transition between the built-up residential fabric and the wooded landscapes of the Buda Hills, together with the local transport network and public transport corridors. At the micro scale, the study area includes the school premises, adjacent residential buildings, and nearby public spaces directly accessible to pedestrians.

The immediate surroundings of the Civic Lab are predominantly residential and benefit from direct access to a tram line, providing good connectivity despite the quiet, neighbourhood-scale character of the area. The site is located on steeply sloping terrain, which strongly influences accessibility and travel patterns. As a result, the area is most conveniently accessed on foot, by car, or by public transport, while cycling is constrained by the topography.

The Civic Lab is situated within the Hűvösvölgy neighbourhood, a green and family-oriented part of Budapest's 2nd District characterised by educational institutions, extensive green spaces, and a predominantly residential environment. The area combines a suburban character with good access to public transport and local services.

At the broader urban scale, the study area forms part of the Buda side of Budapest, which is characterised by hilly terrain, extensive green spaces, and lower urban density than the Pest side. District II plays an important residential and educational role within the city while maintaining a strong connection to the surrounding natural landscape.

Key landmarks and facilities

- Public transport hubs and infrastructure
- Tram and bus corridors along surrounding main roads
- Commercial and service concentrations
- Supermarkets, pharmacies, and everyday retail units
- Road infrastructure: Collector and arterial roads connecting the area to Buda and Pest
- No highways within the immediate neighbourhood
- Green and recreational areas are available
- Local parks and playgrounds available
- Access routes toward larger hillside green areas of Buda
- Civic and institutional uses
- Municipal services and local administrative functions
- Religious buildings (churches) embedded in the residential fabric

Széll Kálmán tér, Mammut Shopping Centre, several restaurants, shops and the Moholy-Nagy University of Art and Design (MOME) are **not located within the 15-minute walking catchment** of the area, but are **accessible in approximately 20 minutes by public transport**, functioning as major transport, commercial, and educational destinations at city level.

Urban morphology

The neighborhood has an irregular urban structure shaped primarily by hilly topography rather than a rigid street grid. Streets and plots follow terrain conditions, resulting in varied orientations, steep gradients, and a non-uniform spatial layout that strongly influences movement, accessibility, and visibility.

The area is predominantly residential, characterized by low- to medium-density housing, including detached houses and small apartment buildings set within green plots. Streets function mainly as local access roads, generally narrow and adapted to slope conditions, with limited public space and a strong presence of private and semi-private green areas. Educational uses, such as Gyermekek Háza Iskola, are embedded within this residential fabric rather than forming distinct institutional zones.

Historical background

The area around Gyermekek Háza Iskola is part of Budapest's Buda side, whose development has historically been shaped by its hilly terrain and proximity to natural landscapes. Until the late 19th century, the area functioned largely as a rural hinterland, characterized by vineyards, orchards, forests, and scattered agricultural uses. The expansion of public transport connections in the late 19th and early 20th centuries, particularly toward Hűvösvölgy, initiated gradual suburbanization and residential development. During this period, the area became attractive for villa-type housing and later permanent middle-class residences, while maintaining a strong green character. In the socialist era, development remained relatively moderate compared to flatter parts of the city, with limited large-scale restructuring. This allowed the neighborhood to retain its low-density residential fabric and irregular street pattern. Since the 1990s, the area has continued to evolve as a predominantly residential district, integrating educational and community functions while preserving its suburban, family-oriented identity and close connection to nature.

Population density

Available district-level descriptions indicate that population density within Budapest II District varies by neighbourhood. Built-up residential areas such as Víziváros, Pasarét and Újlak are described as having higher population concentrations, while areas characterised by hilly terrain and larger green or forested zones (e.g. Hűvösvölgy) are less densely populated.
No publicly accessible KSH data is available at block or street level that would allow a quantitative comparison of population concentration within the district (https://qarat.hu/blog).

Budapest's 2nd District has a population of approximately **89,000 inhabitants** and a population density of around **2,400 inhabitants per km²**. These figures describe the district as a relatively low-density residential area compared with the more intensively

urbanised parts of Budapest, reflecting its hilly topography, extensive green spaces, and predominance of low-density housing.

Population change

Based on local summaries referencing historical census data, the population of Budapest II District has shown slight decline or relative stabilisation since the early 2000s. Detailed annual population change broken down by migration and natural change is not publicly available at neighbourhood or street level via open KSH datasets (https://qarat.hu/blog).

Age groups

According to data from the Hungarian Central Statistical Office (KSH STADAT), Budapest has a relatively mature age structure, with **12.3%** of the population aged **0–14 years**, **67.1%** belonging to the working-age population (**15–64 years**), and **20.8%** aged **65 years and over**. These data are available only at the city level, as publicly accessible KSH datasets do not provide age-specific population statistics for districts, neighbourhoods, or individual streets, including the Hűvösvölgy Civic Lab area (https://qarat.hu/blog).

Household size

Publicly available KSH STADAT data show average household sizes at national and broader regional levels (around 2.0–2.3 persons per household). However, no publicly accessible KSH dataset provides average household size figures specifically for Budapest II District or for the immediate area around the Gyermekek Háza site (https://www.ksh.hu...; https://nepszamlalas).

District-level descriptions indicate a mixed housing stock, including older urban buildings, detached family houses and newer apartment developments. However, no comprehensive, publicly accessible KSH dataset provides housing quality indicators (e.g. condition, renovation status) at neighbourhood or street level (https://www.ksh.hu/stadat).

Access to green space

The presence of large green and forested areas in Budapest II District is documented in municipal and geographic descriptions. However, no quantitative KSH indicator is available that measures individual residents' access to green public space at neighbourhood or street level (https://qarat.hu/blog)..

Public transport and walking:

Public transport routes serving Budapest II District, including bus, tram and HÉV connections, are documented by BKK and municipal sources. The Gyermekek Háza school on Völgy utca is located within short walking distance of multiple bus and tram lines operating along nearby main roads, providing access to district- and city-level public

transport networks. However, no publicly accessible KSH dataset quantifies the share of the population living within a specific distance of public transport stops at neighbourhood or street level. Information on sidewalks and cycling infrastructure is primarily available through municipal planning documents rather than KSH statistics (https://bkk.hu, https://budapest.hu)

Data availability limitations (socio-demographic and socio-economic indicators)

With regard to household composition, nationalities and ethnicities, income levels, employment and unemployment, Car ownership and housing tenure, no precise, neighbourhood- or street-level data is publicly available for Budapest II District based on open-access sources. Publicly accessible datasets of the Hungarian Central Statistical Office (KSH) provide information primarily at national, regional, and in some cases district level, but do not offer sufficiently detailed breakdowns to support conclusive statements at the scale of a specific street or immediate neighbourhood (e.g. Völgy utca).

Data sources

The analysis is based primarily on data published by the Hungarian Central Statistical Office (KSH), including regional statistics and the 2022 Population Census. Additional information was obtained from publicly available administrative and municipal sources. Due to data availability constraints, most socio-demographic indicators are available only at the city or district level, while detailed statistics for the immediate surroundings of the Civic Lab are generally unavailable.

1.3. Cologne (Germany)

Overview

The district is located in the urban area on the right bank of the Rhine and belongs to the borough of Mülheim. In statistics, the district of Buchheim is often grouped together with the neighbouring district of Holweide to the east as a single social area.

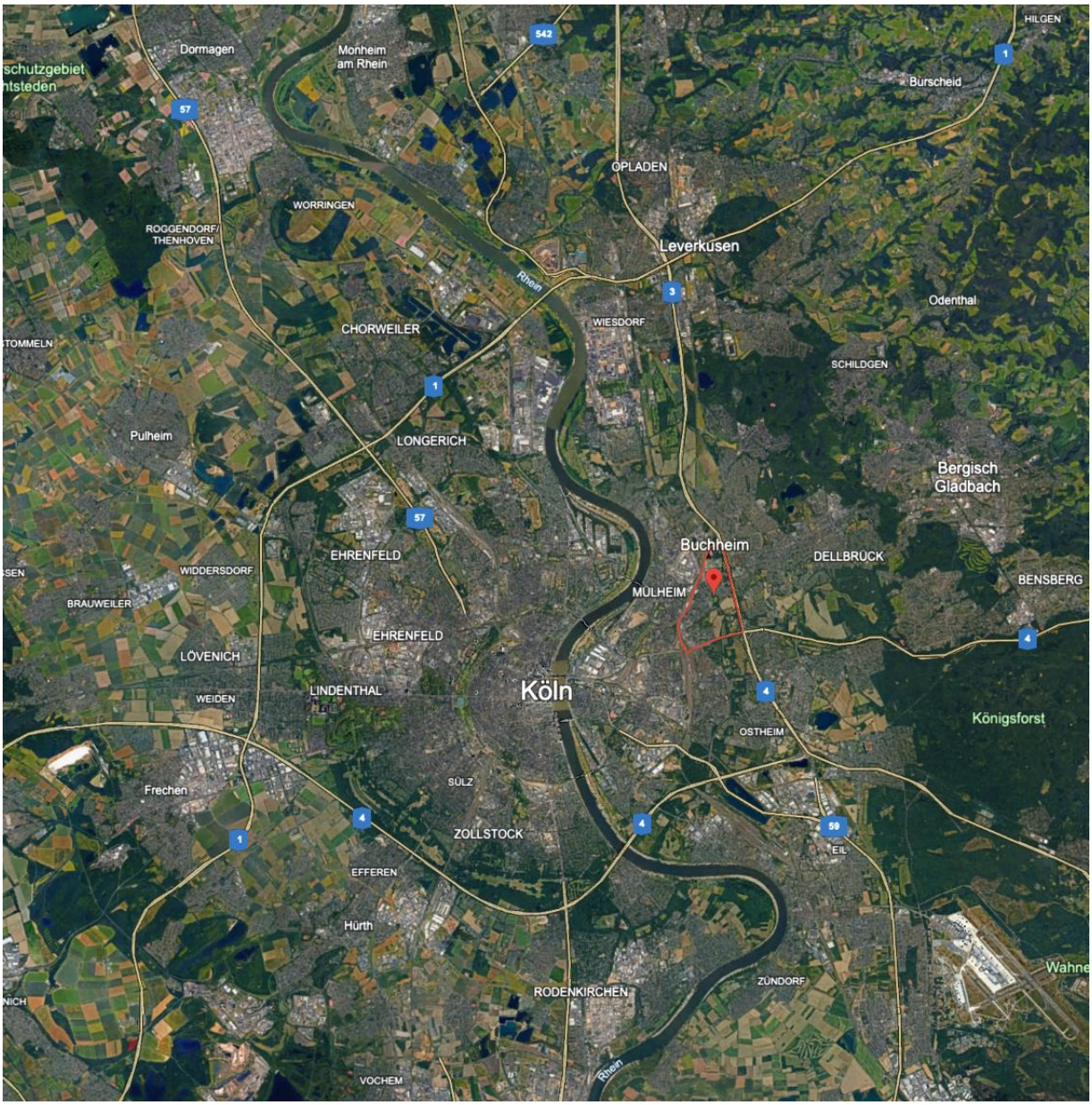


Figure 36 Geographical location of Cologne (Germany).
Source: Google Earth.

Key landmarks and facilities

- St. Mauritius Catholic Primary School, Ahlwipp Community Primary School, St. Theresia Community Primary School, Berthold Otto Primary School, Ferdinand Franz Wallraf Grammar School, Werner Heisenberg Secondary School, Erich Gutenberg Vocational College (for Business and Administration), key regional highway axis (A3, A4), Buchheimer Heide, Merheimer Heide (green area), designated commercial and industrial areas

- Cologne-Buchheim has an elongated shape framed by major infrastructures — the A3 motorway, B55a expressway, and railway lines — which clearly define its edges. The historic core along Frankfurter Straße features narrow streets and 2–4 storey terraced houses with ground-floor shops, reflecting its origins as a working-class suburb. Surrounding areas, developed after World War II, consist of freestanding apartment blocks (5–8 storeys) set within open green courtyards, typical of modernist post-war planning. Toward the east and south, industrial and commercial zones like Romaneystraße introduce larger parcels and car-oriented spaces. Overall, Buchheim's morphology combines dense historic fabric, open post-war estates, and infrastructural landscapes, creating a diverse urban texture within a compact district.

- Buchheim was originally a small rural village. Its name appears in historical records dating back to the 12th and 13th centuries (https://www.stadt...), making it older than the district of Mülheim, to which Buchheim now belongs. In the 19th century, Cologne's industrialisation reached the eastern areas and Buchheim was transformed from a rural village into a working-class suburb. In 1914, Buchheim was officially incorporated into the city of Cologne, linking it administratively and infrastructurally to the growing city centre. This accelerated the development of residential streets, schools and local shops and cemented the district's new importance as a densely built-up suburb. The construction of the A3 and A4 motorways and industrial areas such as Romaneystraße created a mixed-use character comprising residential, industrial and commercial areas.

Data sources

The analysis is based primarily on official statistical and spatial data provided by the **City of Cologne**, including the Open Data Portal, the Statistical Office of the City of Cologne, and district-level demographic and household statistics. Additional spatial information was obtained from municipal geospatial datasets and planning documents. Owing to differences in data availability, the reference year varies depending on the indicator. Statistics

Population

Neighborhood	Number of inhabitants - 2024	Population density – 2024 (hab/km2)
Average Cologne	1.097.519	2.530
Buchheim	13.694	4.788
Buchforst	7.290	8.783
Dellbrück	21.864	2.197
Dünnwald	11.592	1.069
Flittard	8.080	1.044
Höhenhaus	15.779	3.111
Holweide	20.935	5.066
Mülheim	43.249	6.001
Stammheim	7.988	2.188

The population density of the Buchheim district is above average for the city of Cologne. The population density of the surrounding districts varies, so that Buchheim has a slightly above-average population density within Mülheim.

Age Structure

Neighborhood	Average annual population growth rate (2019-2024)	Average age - 2024	Youth aged 15-18 in total population – 2024
Average Cologne	*-1,2*	*42,50*	*88385 (8,46%)*
Buchheim	-0,31	40,16	391 (3,10%)
Buchforst	-1,01	41,08	180 (2,46%)
Dellbrück	-0,54	44,79	608 (2,83%)
Dünnwald	-0,43	41,97	409 (3,53%)
Flittard	-0,54	44,99	244 (3,09%)
Höhenhaus	-0,89	44,17	484 (3,22%)
Holweide	-0,39	41,29	633 (3,02%)

Mülheim	-0,62	39,67	1052 (2,51%)
Stammheim	-1,87	45,01	201 (2,70%)

The growth of population in the study area continued decreasing during the last five years, as in the whole region. In terms of age structure, Buchheim has a slightly younger population than the average for neighbouring districts. The average age in the districts corresponds almost exactly to the average age of the city of Cologne (42.50 years). Nevertheless, the proportion of young people aged 12 to 17 is strikingly low: while the regional average is 8.46% of the total population per district, all districts in the study area fall below this percentage.

Households

Neighborhood	Private household density (households per km²)	Average size of private household (2024)	Share of households with children in private households (%)
Average Cologne	*1.351*	*1,86*	*18,15*
Buchheim	2.185	1,97	21,66
Buchforst	4.638	1,84	19,47
Dellbrück	1.101	1,92	19,56
Dünnwald	492	2,10	25,53
Flittard	485	2,09	21,22
Höhenhaus	1.362	2,15	22,82
Holweide	2.563	1,97	21,96
Mülheim	3.175	1,81	17,38
Stammheim	983	2,01	11,55

Within the study area, housing density varies considerably across neighborhoods, with values ranging from 492 households per km² in Dünnwald to 4,638 households per km² in Buchforst, compared to the Cologne average of 1,351 households per km². Several neighborhoods, such as Buchheim, Buchforst, Holweide, and Mülheim, display densities well above the city average, highlighting their densely populated character. The average household size also shows variation, ranging from 1.81 persons per household in Mülheim to 2.15 persons per household in Höhenhaus, with most neighborhoods exceeding the Cologne average of 1.86 persons per household. This indicates that

households in the study area tend to be slightly larger than the city average, which also applies to Buchheim. Regarding the share of households with children, values range from 11.55% in Stammheim to 25.53% in Dünnwald, with most neighborhoods surpassing the city average of 18.15%. Buchheim reaches 21.66%, highlighting a relatively strong presence of families with children in Buchheim as well as in the study area. Taken together, these data suggest that the study area is a diverse urban environment, characterized by high population density in certain neighborhoods, relatively larger households, and a notable presence of families with children.

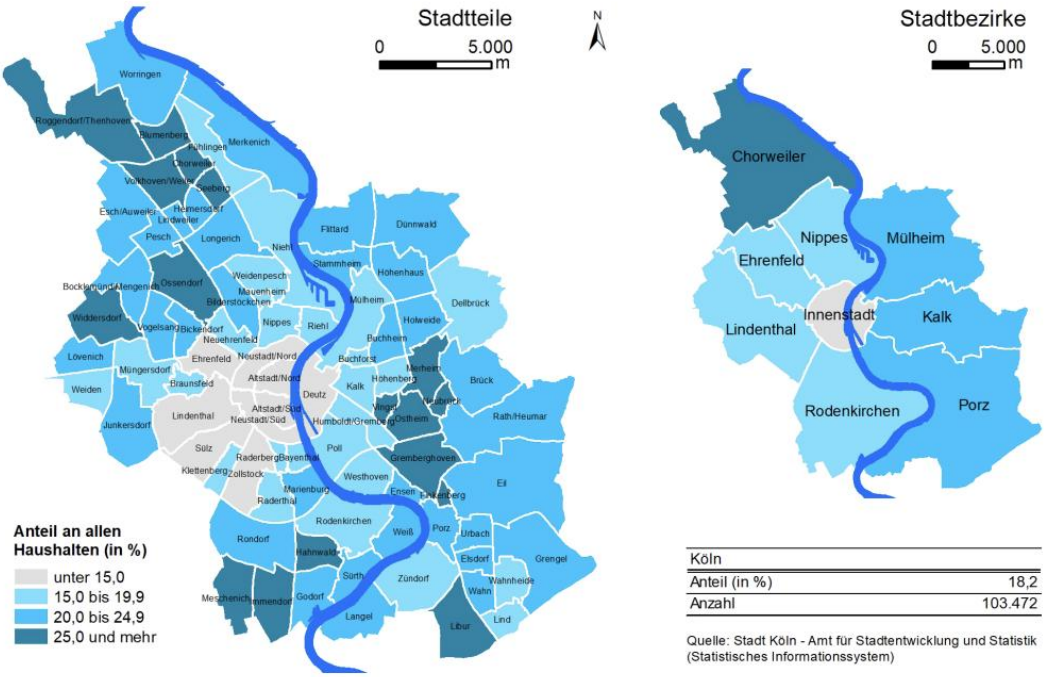


Figure 37 Spatial Distribution of the Share of Households with Children Across Cologne Districts and Neighbourhoods (%)

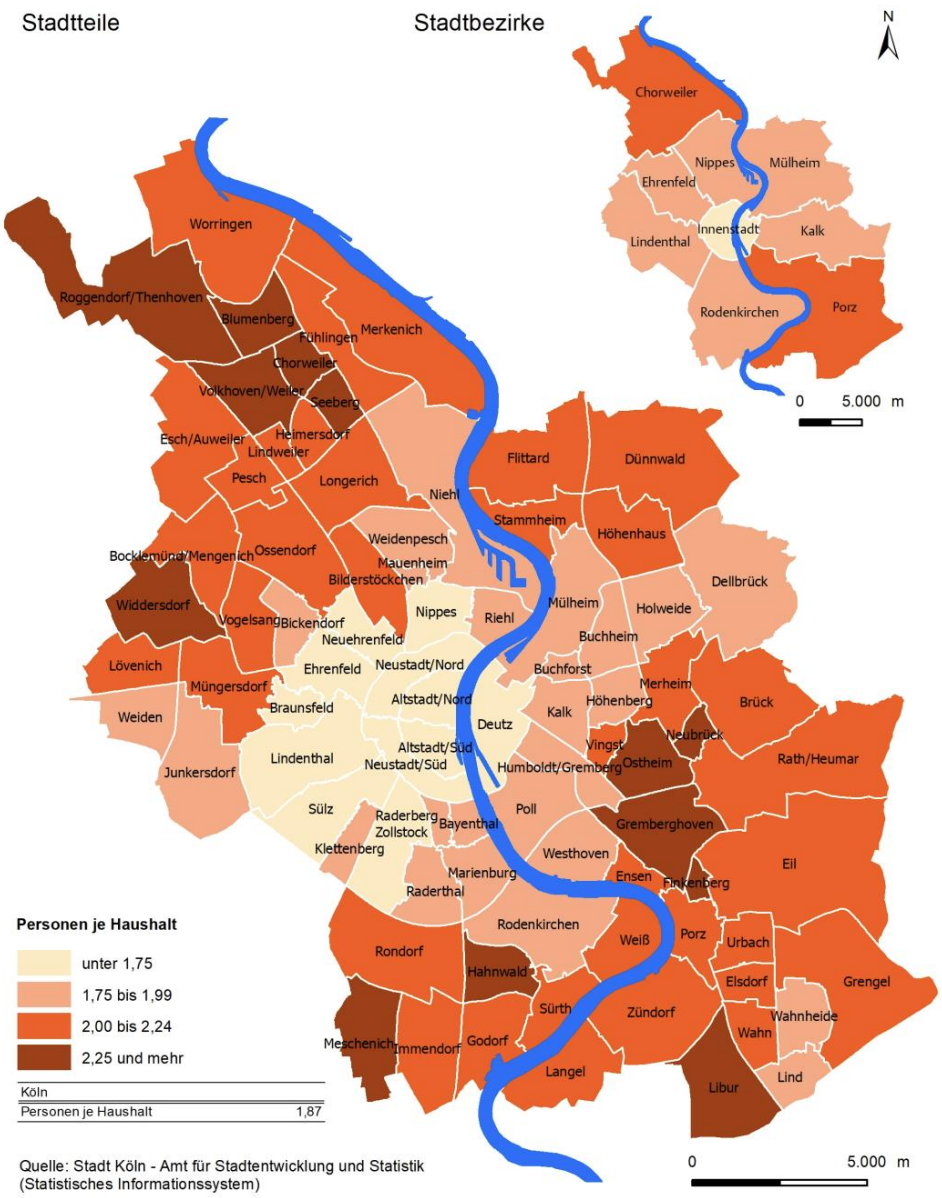


Figure 38 Spatial Distribution of the Average Household Size in Cologne

Multiculturalism and Diversity

Neighborhood	Africa share (%)	Asia share (%)	EU members share (%)
Average Cologne	5,96 %	20,61 %	30,27 %
Buchheim	5,89 %	14,56 %	30,72 %
Buchforst	9,96%	16,55%	26,12%

Dellbrück	5,00 %	19,62 %	36,18 %
Dünnwald	7,97 %	17,85 %	28,24 %
Flittard	3,67 %	21,67 %	29,27 %
Höhenhaus	6,88 %	19,15 %	21,80 %
Holweide	7,70 %	18,46 %	25,43 %
Mülheim	7,26%	18,33%	30,37%
Stammheim	6,79 %	19,96 %	23,95 %

Cologne is well known for the diversity of nationalities that make up its population. However, there are areas of the city where certain foreign groups are more strongly concentrated. In the study area, the most prominent group consists of individuals from countries within the European Union. With addition of Dellbrück (36,18%), the figures are either close to the Cologne average or below. With 30,72% of all non-german inhabitants coming from countries within the EU, Buchheim is almost exactly in line with the Cologne average. There is also a significant presence of residents from Asia, with values across the neighborhoods either close to or below the Cologne average. Buchheim has the lowest number of Asian immigrants among all non-German residents within the study area. A significantly smaller number of non-german residents come from African countries. The range extends from 3,67% in Flittard to almost 10% in Buchforst. The figure for Buchheim corresponds to the Cologne average. Overall, these data reflect the ethnic and cultural diversity of the study area, with a particularly strong representation of individuals from the EU-countries.

Socio-economic characteristics

Neighborhood	Median equivalent income of residents after tax - 2023	Unemployment rate (%) - 2021
Average Cologne	*2.119*	*8,6*
Buchheim	1.687	13,4
Buchforst	1.893	14,1
Dellbrück	2.052	6,4
Dünnwald	1.394	11,7
Flittard	2.313	11,4

Höhenhaus	2.198	10,3
Holweide	2.101	11,0
Mülheim	1.532	14,7
Stammheim	2.283	11,3

While some districts, including Buchheim, are among Cologne's lower-income areas with a higher risk of poverty, others are in line with the Cologne average. The unemployment rate in the borough of Mülheim is well above average and is the second highest in Cologne after Porz. There is only one district that falls below the Cologne average. The highest unemployment rates are found in Buchforst and Buchheim. Therefore, one of the main characteristics of the area is that it is inhabited by residents who face significant economic hardship.

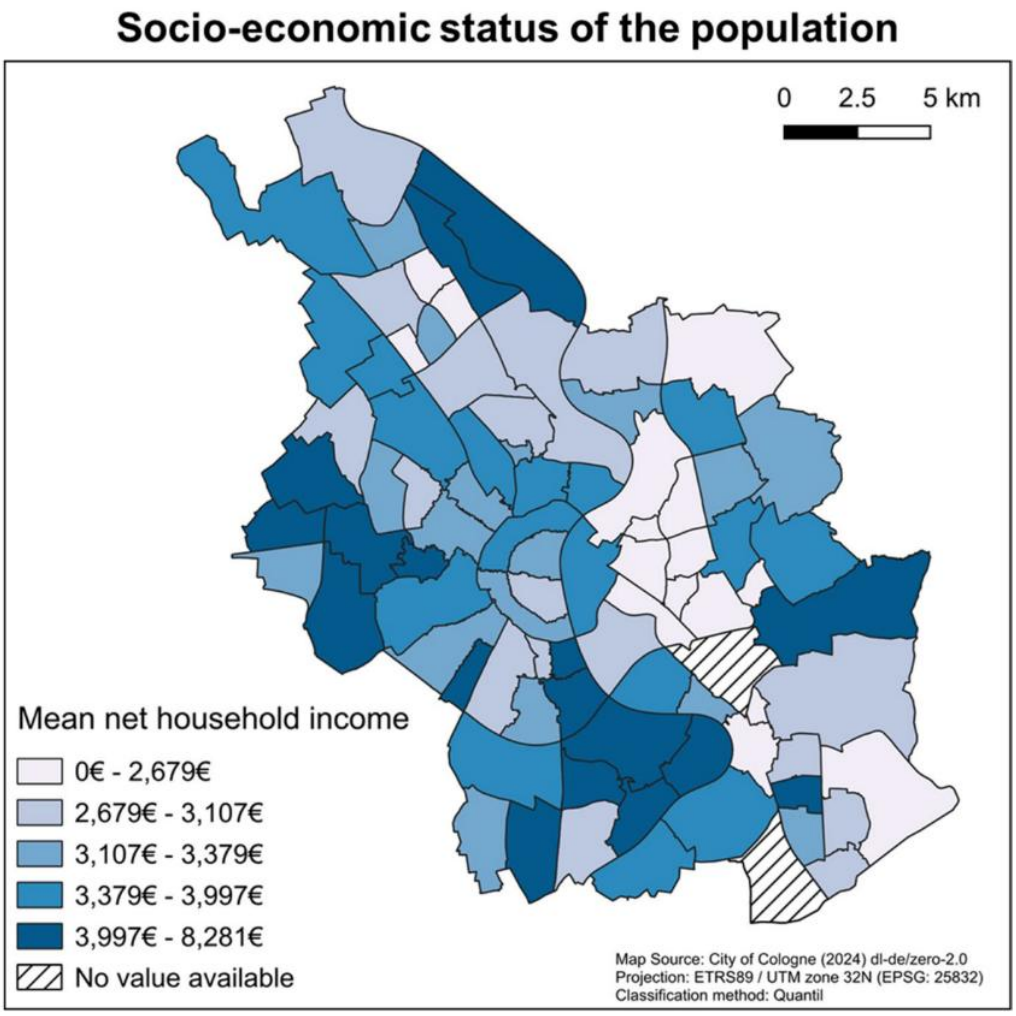


Figure 39 Spatial Distribution of Mean Net Household Income in Cologne (€)

Socio economic status 2025

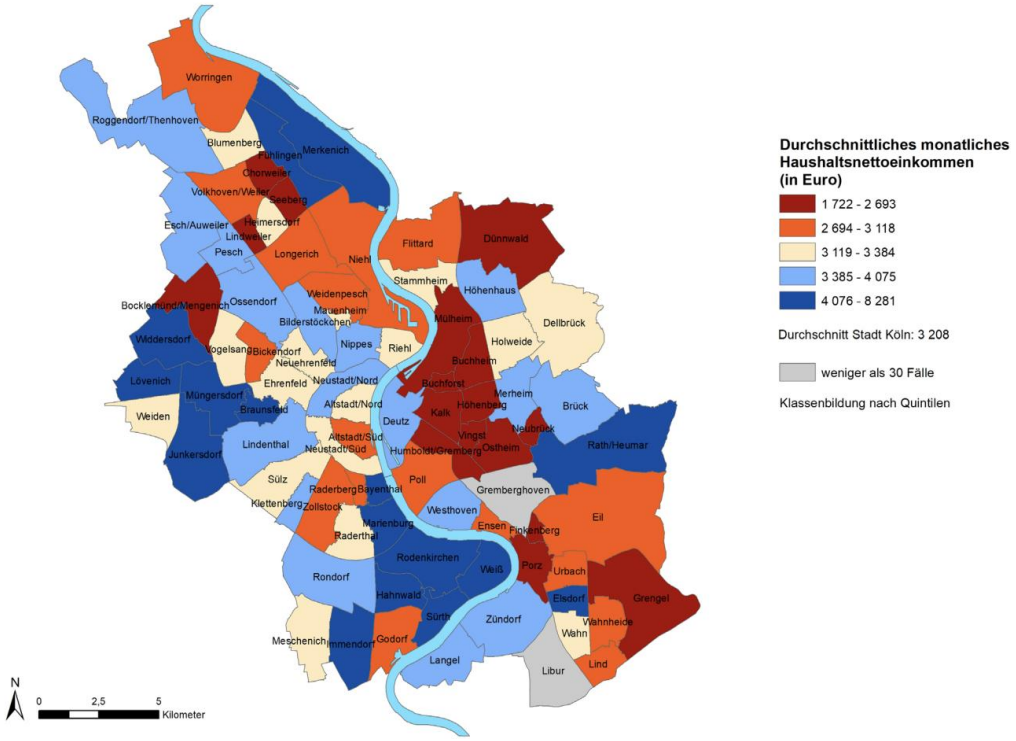


Figure 40 Average monthly income (household)

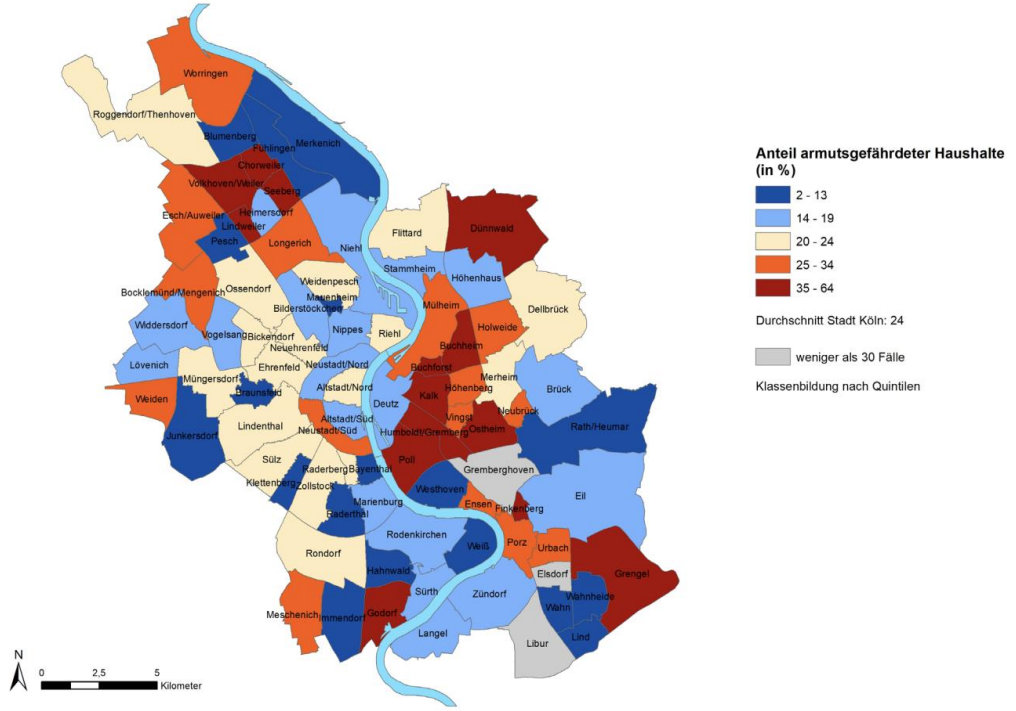


Figure 41 Households at risk of poverty

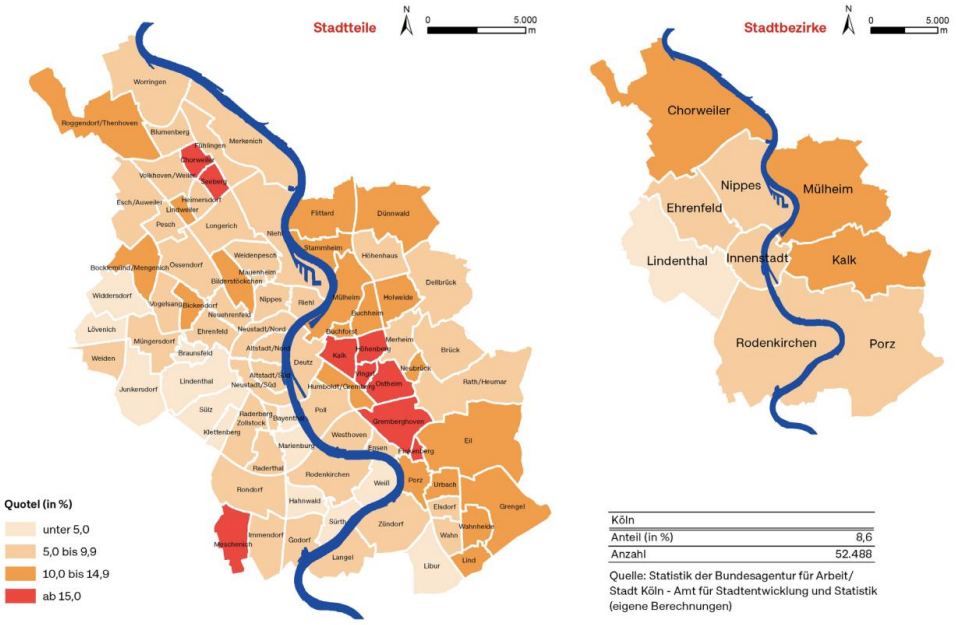


Figure 42 Unemployment rate 2023

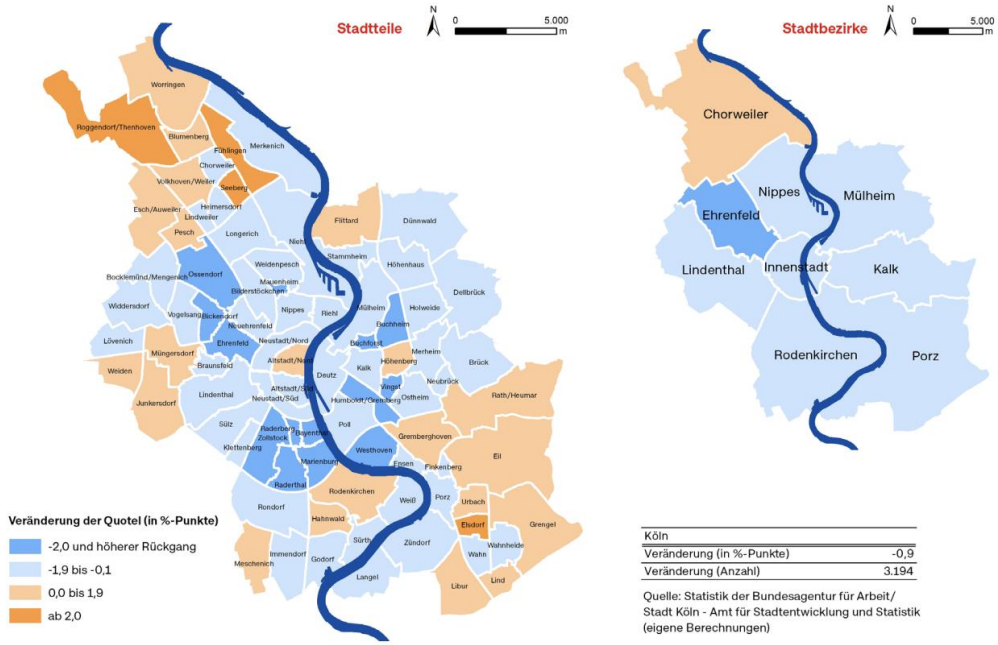


Figure 43 Change in unemployment rate 2010-2023

Housing

Neighborhood	Number of social housing units - 2022
Average Cologne	*37 088*
Mülheim (borough)	6 163

The amount of social housing in Cologne differs between boroughs, While some of them offer only a small number of social housing units, such as Lindenthal with just 1.113, others such as Mülheim and Kalk have up to six times as many.

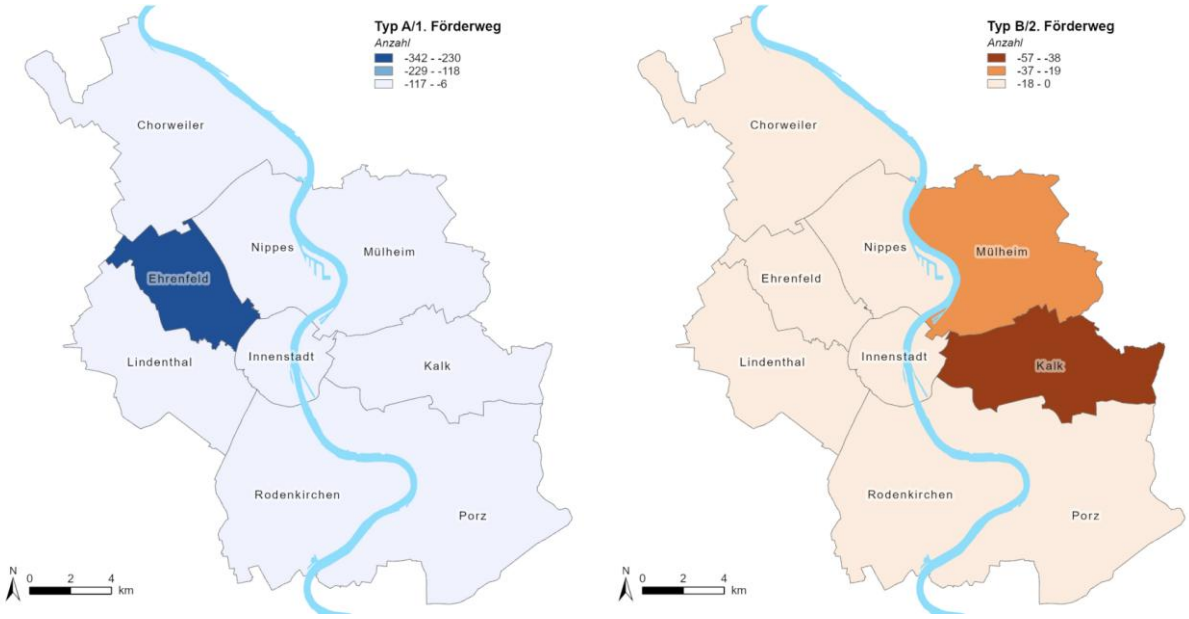


Figure 44 Annual change in social housing stock by funding channel 2020-2022

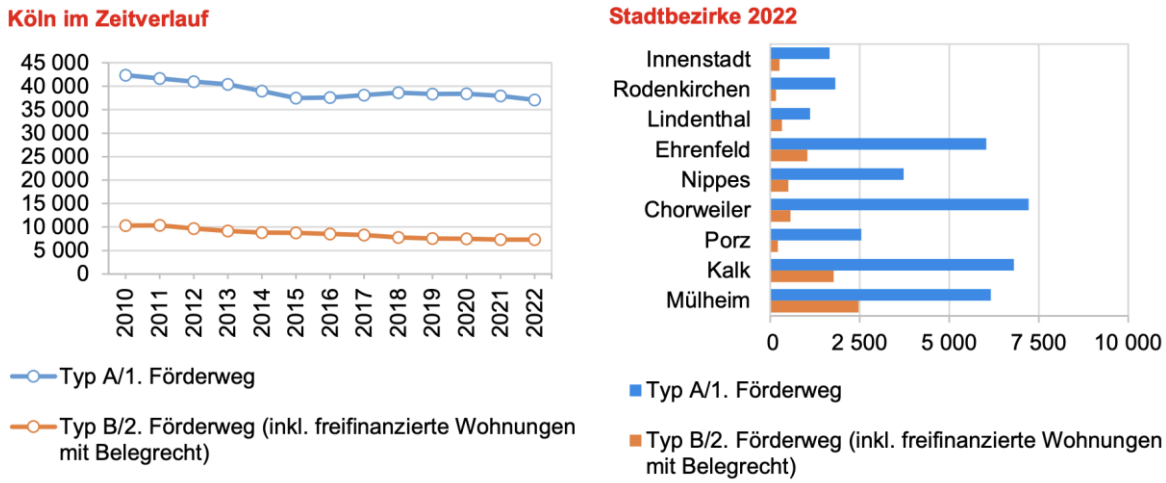


Figure 45 Change over time in Cologne, total numbers in districts

In terms of car use, most neighborhoods within the study area are around the regional averages, although there are **variations depending on the specific neighborhood.** For example, Gare de l'Ouest has a low proportion of households with private vehicles, and its streets do not experience high levels of congestion during peak hours. In contrast, neighborhoods such as Machtens or Scheut exceed the regional average in both vehicle ownership and traffic congestion, particularly at certain times of the day.

In terms of public transport, **the area is well connected to various bus, tram, and metro lines.** However, the neighborhoods of Scheut and especially Machtens have lower

coverage compared to the regional average. Machtens also show a lower percentage of street space allocated to sidewalks, which may hinder the use of alternative modes of mobility such as walking or cycling. This limitation aligns with previously observed data on the high use of private vehicles in the area, where a significant number of cars and notable congestion are recorded during certain hours of the day.

Summary of neighborhoods

Buchforst**:** *Dense residential neighborhood, lower income, mixed population.*

Figure 46 Urban landscape of the Buchforst neighbourhood, Cologne
Source: https://commons.wikimedia.org/

Buchforst represents one of the densest neighborhoods in Mülheim, with around 3,900 households and a density of 4,638 per km². The average household size is 1.84, and about 19.5% of households include children. The area's housing stock largely consists of 1920s–1950s social housing estates, such as the *Weiße Stadt* and *Blaue Hof*, originally designed to provide affordable living space for working-class families.

Today, Buchforst retains a socially mixed population with comparatively lower average incomes and a high share of rental housing. The neighborhood's urban form is compact and well-integrated into the public transport network (S-Bahn and tram connections). Access to green spaces is good, and recent initiatives aim to improve environmental

quality and public space design. Buchforst thus exemplifies the challenges and opportunities of maintaining social balance in high-density inner-urban areas.

Dellbrück**:** *family oriented population, relatively higher income.*

Figure 47 Urban landscape of the Dellbrück neighbourhood, Cologne

Source: https://commons.wikimedia.org/

Dellbrück, by contrast, represents a more suburban environment, characterized by lower density (1,101 households per km²) and a higher prevalence of owner-occupied single-family homes. The average household size (1.92) and the share of families with children (19.6%) suggest a demographically stable and family-oriented population. Socioeconomically, Dellbrück shows a relatively high median income and low unemployment compared to the borough average. Local services are concentrated along Bergisch Gladbacher Straße, while tram and S-Bahn connections provide efficient access to the city center. The district combines residential stability, moderate affluence, and suburban quality, illustrating the gradual socio-spatial transition within Mülheim.

Dünnwald: *higher income and educational level, family homes.*

Dünnwald is one of the least dense districts, with 492 households per km², but exhibits the highest share of households with children (25.5%) and a large average household size (2.10 persons). The area is characterized by single-family homes, low-rise buildings, and extensive green surroundings, including parts of the Wiener Wald and Thielenbruch conservation zones.

Socioeconomically, Dünnwald belongs to the more affluent parts of the borough, with higher educational levels and strong home ownership rates. Accessibility is lower compared to the central districts, yet quality of life indicators — such as green space availability and environmental quality — are considerably higher. The district thus exemplifies suburban residential patterns with family-oriented demographics and relative economic stability.

Flittard**:** *village character, limited commercial infrastructure.*

Figure 48 Urban landscape of the Flittard neighbourhood, Cologne

Source: https://commons.wikimedia.org/

Flittard is another low-density, peripheral district with 485 households per km², an average household size of 2.09, and 21.2% of households with children. Its socio-spatial profile is characterized by small-scale residential developments and proximity to the industrial areas of the Chempark Leverkusen.

While the district has limited commercial infrastructure, it benefits from good environmental conditions and local community structures. Income levels are moderate, and housing ownership rates are relatively high. Public transport coverage is modest, resulting in above-average car dependency. Flittard reflects a quiet, family-oriented

residential environment at the urban fringe, balancing suburban calm with industrial adjacency.

Höhenhaus: *functionally balanced neighborhood, vorad social infrastructure*

Höhenhaus combines a suburban character with moderate density (1,362 households per km²) and one of the largest household sizes (2.15 persons) in the borough. With 22.8% of households including children, it represents a strong family demographic. Socioeconomically, Höhenhaus has a stable middle-income profile with relatively low unemployment. The housing stock is composed of post-war multi-family estates and smaller homes. The district offers a broad range of social infrastructure — schools, sports facilities, and neighborhood centers — and good accessibility via tram line 4. Its combination of residential stability, family orientation, and good infrastructure makes Höhenhaus a socially cohesive and functionally balanced neighborhood.

Holweide: medium-density neighbourhood, mixed land use, strong institutional infrastructure.

Holweide is a mid-density district (2,563 households per km²) with around 10,200 households and a diverse socio-economic composition. The average household size is 1.97, and 21.96% of households have children. Land use is mixed, combining multi-story housing near main transport axes with quieter residential areas toward the east. Socioeconomically, Holweide exhibits middle-income characteristics and benefits from strong institutional infrastructure, notably St. Marien Hospital and several educational facilities. Public transport accessibility via tram lines 3 and 18 is excellent. The district maintains a balance between urban density, accessibility, and family-friendly living conditions.

Mülheim: highly mixed land use, former industrial district.

The central district of Mülheim forms the urban core of the borough, with 23,000 households and a density of 3,175 households per km². The average household size is 1.81 persons, and only 17.4% of households have children, indicating a younger and more transient population. Mülheim counts a relatively high number of people in the age of 18-35 years. Socioeconomically, the district is highly diverse, featuring both gentrifying riverfront areas and neighborhoods with lower income levels and high migrant populations. Land use is intensely mixed — combining residential, commercial, and industrial zones — and redevelopment projects such as *Mülheim Süd/Rheinauhafen Ost* aim to reconfigure former industrial sites. Public transport accessibility is excellent (S-Bahn, Regionalbahn, and tram), though car congestion and limited green space remain key challenges. The area illustrates the dynamics of urban restructuring in Cologne's post-industrial landscape.

Stammheim:

Stammheim, with 3,900 households and a density of 983 households per km^2, is a smaller, predominantly residential district with an average household size of 2.01 and a low share of families with children (11.6%). The area's population is older on average, with lower household turnover and stable property ownership. Socioeconomic indicators point to moderate income levels and a low proportion of social housing. The district features small-scale housing near the Rhine and enjoys good accessibility via tram and bus services. However, its local service infrastructure is less developed than that of central Mülheim. The *Stammheimer Schlosspark* contributes significantly to local environmental quality and recreation.

1.4. Ghent/Kortrijk (Belgium)

OVERVIEW

Ghent (Dutch: Gent) is the capital and largest city of East Flanders province in the Flemish Region of Belgium, and Belgium's third largest city after Brussels and Antwerp. Originally settled at the confluence of the Rivers Scheldt and Leie around 630 AD, Ghent grew into one of medieval Europe's most prosperous cities, driven by a thriving textile industry. Today, it is a vibrant port and university city known internationally for its progressive mobility policies.[3,5]

Sources for this section: [1][3][5][21][26]

Indicator	Value
Population (2025)	272,657 inhabitants [1]
Population (2024)	269,597 inhabitants [1]
Population growth since 1990	+22% (from 223,841 to 272,657) [1][21]
Province / Region	East Flanders / Flemish Region, Belgium [3]
Average income per declaration (2022)	€36,725 (mean) / €28,707 (median) [1]
Households (2024)	122,926 (avg. household size: 2.0 persons) [1]
Non-Belgian nationals (2024)	17.7% of population [3]
Residents with migration background (2020)	35.5% [3]
Metro area population (2024)	477,000 (metro); 560,522 (commuter zone) [26]

Ghent was founded in 630 AD by St Amandus at the confluence ('Ganda') of the Leie and the Scheldt. From 1000 to around 1550, it was one of the largest and most powerful cities

in Europe — larger than London — its wealth built on the production of luxury cloth from English wool.[4,5]

The city declined economically in the late 16th century following the Spanish Habsburg conflicts. Under Dutch administration (early 19th century), Ghent gained its own university (1816) and was reconnected to the sea by the Ghent–Terneuzen Canal (1826). A second wave of industrial prosperity followed, anchored by cotton factories, before the city transitioned to its current diversified economy.[3,4]

Ghent is organised into 25 districts and comprises 12 sub-municipalities (deelgemeenten). The historic city centre is characterised by medieval architecture, canals, and pedestrian zones. The city has won international recognition for its participatory urban governance, sustainability agenda, and progressive mobility policy, including a Low Emission Zone (LEZ), the 2017 Circulation Plan, and ongoing neighbourhood mobility plans.[3,7,11]

POPULATION

Ghent has a notably young and diverse population. The large share of 20–30-year-olds (46,306 ≈ 17%) reflects the university city's student population — Ghent University alone enrols 50,000 students and employs 9,000 staff.[1,6]

The city's diversity continues to increase, with 96+ nationalities represented. The largest non-Belgian groups are Bulgarians, Turks, Dutch, Afghans, and Ukrainians.[3]

Age group	Population (2025)	Share
0–9 years	27,231	10.0%
10–19 years	28,875	10.6%
20–29 years	46,306	17.0%
30–39 years	44,754	16.4%
40–49 years	36,059	13.2%
50–59 years	29,982	11.0%
60–69 years	26,505	9.7%
70+ years	33,945	12.5%

Source: STATBEL / AlleCijfers.be [1]

Households

Ghent has 122,926 private households (2024), with an average size of 2.0 persons — reflecting the high proportion of student and single-person households. Single-person households make up 41% of all households.[1]

Economy

Ghent has transformed from a textile-based economy to a diversified service, knowledge, and industrial economy. The Port of Ghent — the third largest in Belgium — is home to major companies including ArcelorMittal, Volvo Cars, Volvo Trucks, Honda, and Yamaha Motor.[3,5]

The average net taxable income per declaration was €36,725 in 2022 (median: €28,707). Ghent's employment rate stood at approximately 70.7% in 2022, with unemployment at around 8.9% — above the Flemish average of 3.2%, partly reflecting the large student population.[1,16]

Mobility — City Level

Ghent is internationally recognised as a leader in sustainable urban mobility. The city has implemented successive mobility plans since 1993 (bicycle plan), 1997 (inner-city mobility), 2016 (parking), 2017 (Circulation Plan), and 2019 onward (neighbourhood mobility plans).[7,8]

The landmark 2017 Circulation Plan divided the city centre into six sections, preventing through-traffic and dramatically transforming how people travel. Traffic accidents in the city centre dropped by 25% after implementation.[7,8,10]

Mode	Modal share (post-2017) [7][8][10]
Cycling	34% (up from 22% in 2012)
Walking	18% (up from 14%)
Public transport	20% (up 11%)
Private car	27% (down from 55%)

Key cycling infrastructure facts:[9,22]

- 513 km of cycling infrastructure (188 km added since 2010), including 19.9 km of bicycle streets[9]

- 61 bicycle bridges and underpasses[9]
- Shared bicycle services: Blue-Bikes (294), Donkey Republic (750), Dott and Bolt electric bikes (1,250) — 2,294 bikes total[9]
- Low Emission Zone (LEZ) covering the city centre[11]
- Traffic accidents reduced by 25% in the city centre since 2017[7,8]

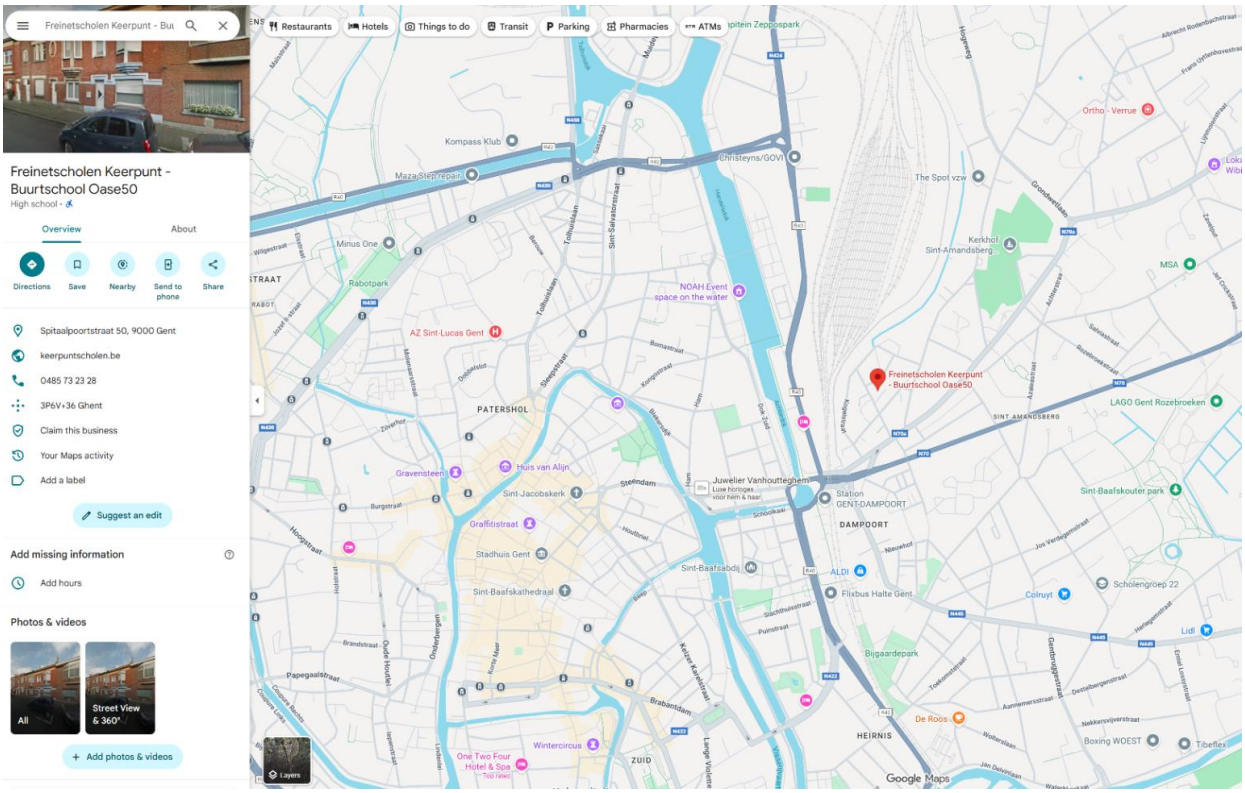
1.4.1. THE NEIGHBOURHOOD — DAMPOORT

The Dampoort neighbourhood (Dampoortwijk) is located in the eastern part of Ghent, centred on the Gent-Dampoort railway station. It takes its name from the former eastern city gate (poort = gate in Dutch) that historically opened the city toward the Waasland region and Antwerp.[12,13]

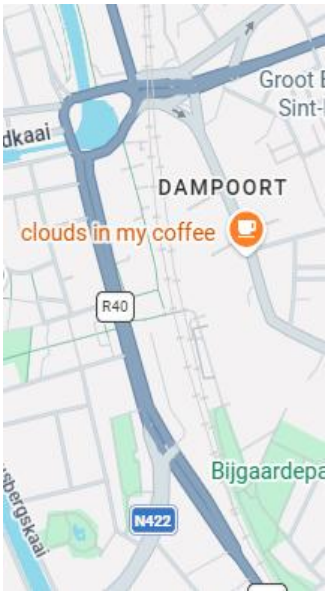
The civic lab site is the Keerpuntschool Oase (Freinet secondary school), located at Spitaalpoortstraat 50, 9000 Gent.[19,20]

The circle in the image below indicates 15 minutes city coverage. For the activities, students were organized by sectors they were familiar with.

Figure 49 THE NEIGHBOURHOOD — DAMPOORT



Sector 3



Sector 5

Location and Borders

The Dampoortwijk is physically cut into three distinct sections by three major arterial roads: the Antwerpsesteenweg, the Land van Waaslaan, and the Dendermondsesteenweg. These roads generate heavy through-traffic and function as barriers within the neighbourhood.[13]

The three sub-areas are:[13]

Scheldeoord — the greenest part, with the Wolterspark and Bijgaardepark, bounded by the Scheldt[13]

Heilig-Hartsite / Begijnhof — centred on the Heilig-Hartplein and the former Heilig Hart church (now Hartetroef social restaurant)[13,17]

Dampoort / Campo Santo — the area closest to the Dampoort roundabout and railway station, where the Keerpuntschool Oase is located[13,20]

At the micro level, the Keerpuntschool Oase sits on Spitaalpoortstraat 50, directly accessible on foot from Gent-Dampoort station. Cyclists can access via a rear entrance on Nieuwewijkstraat (between nos. 24–26).[19,20]

At the meso level, the neighbourhood borders the Portus Ganda yachting basin (opened 2005) — the former confluence of the Scheldt and Leie — connecting via canal to Ghent's commercial seaport.[12]

Descriptive Characteristics

The Dampoort neighbourhood is a dense, working-class canal district undergoing gradual transformation, characterised by:[13,23]

Dense 19th-century terrace housing (rijwoningen), particularly around the Heilig-Hartsite and Scheldeoord[13,23]

Social housing blocks near Scheldeoord with quality issues (mould, poor heating, inadequate insulation)[13]

A lively multicultural commercial strip on the Dendermondsesteenweg (some vacancy)[13]

Portus Ganda yachting area and canal infrastructure as defining geographic features[12]

The 'Spitsen Hoek' — the Nieuwe Wijk social housing area at the sharp corner between the railway line and Antwerpsesteenweg/Campo Santo[13]

Key institutions in the area:

- Keerpuntschool Oase — Freinet secondary school (Spitaalpoortstraat 50) — civic lab site[19,20]
- Freinetschool De Vlieger — primary Freinet school (Wasstraat 120)[25]
- Gent-Dampoort railway station — major public transport hub[12]
- Welzijnssite (OCMW, Kind & Gezin, Woonwijzer, social grocery) — Wittemolenstraat/Doornakkerstraat[13]
- Portus Ganda yachting basin[12]
- Wolterspark and Bijgaardepark (Scheldeoord)[13]
- Heilig-Hartplein / Hartetroef social restaurant (former Heilig Hart church)[13,17]
- Wijkgezondheidscentrum — neighbourhood health centre (expanding)[13]

History

The Dampoort area has served as a gateway into Ghent since medieval times. The original 'dam gate' controlled entry from the east. In the 19th century, the area industrialised around canal transport and working-class housing, giving it its characteristic dense terrace-house fabric.[12,23]

From the 2000s onward, the 2005 opening of Portus Ganda signalled a new phase: creative revival, gentrification, and an influx of young professionals and students. Today the neighbourhood is known for its authentic multicultural character — sometimes described as 'Ghent in miniature' — while facing housing quality challenges and high traffic pressure.[12,13,23]

The ongoing stadsvernieuwingsproject (urban renewal project) 'En Route' is bringing significant investment: the Wasserijsite and Heilig-Hartsite are being redeveloped, with co-creation processes shaping interventions on the Dendermondsesteenweg and Heernisplein.[13,17]

Population

Note on statistical units: The 'Dampoortwijk' (12,870 inhabitants, 2023) is the broader neighbourhood. The 'buurt Dampoort' (2,985 inhabitants, 2024) is the smaller STATBEL statistical sector covering the area closest to the Dampoort roundabout and Keerpuntschool Oase.

Indicator	Value
Dampoortwijk population (2023)	12,870 inhabitants [12][13]
Buurt Dampoort population (2024)	2,985 inhabitants [2][14]
Buurt Dampoort households (2024)	1,268 households [2]
Registered cars (buurt, 2023)	727 vehicles [2]
Population growth 1990–2024 (buurt)	+44% (from 2,070 to 2,985) [2]
Residents of foreign origin (Dampoortwijk)	48% [12][13]
Nationalities represented	96 different nationalities [13]
Average income (buurt Dampoort, 2022)	€27,798 per tax declaration (vs. city avg. €36,725) [2]

Age Structure (buurt Dampoort, 2024)

Age group	Number [2]	Share
0–9 years	379	12.7%

10–19 years	316	10.6%
20–29 years	523	17.5%
30–39 years	618	20.7%
40–49 years	461	15.4%
50–59 years	329	11.0%
60–69 years	231	7.7%
70+ years	128	4.3%

The neighbourhood has a young age profile: 64% of residents are under 40. The 30–39 cohort is the largest (20.7%); children under 10 represent 12.7% — important context for the school's catchment.[2,14]

Multiculturalism and Diversity

Dampoort is one of Ghent's most ethnically diverse neighbourhoods. 48% of Dampoortwijk residents are of foreign origin. The Bulgarian and Turkish communities are the two largest non-Belgian groups and are roughly equally sized in the neighbourhood. With 96 nationalities represented, Dampoort is a microcosm of Ghent's diversity.[12,13]

The Bulgarian community has historically had lower participation in neighbourhood activities, creating a challenge and opportunity for community-building initiatives such as those centred on the Heilig-Hartplein.[13]

Socio-Economic Profile

Dampoort is identified as a socially vulnerable neighbourhood. The buurt's average income of €27,798 (2022) is significantly below the Ghent city average of €36,725. Key challenges include:[2,15,18]

- High unemployment, particularly among young people — elevated concentration of job seekers without work[15,16,18]
- High proportion of benefit recipients (leefloon / OCMW support)[15,18]
- Many residents with low educational attainment[18]
- High proportion of long-term unemployed (over 2 years)[16,18]
- Limited access to affordable, quality housing — many small dwellings in poor condition[13]

Despite these challenges, community resilience is strong: 85% of residents make at least monthly contact with Belgian-origin neighbours (highest of all Ghent neighbourhoods), and nearly half participated in a neighbourhood activity in the past year.[13]

Housing

Housing quality is a significant concern in the Dampoortwijk.[13,17]

- Dense 19th-century terrace houses, many subdivided into small rental units[13,23]
- Social housing near Scheldeoord (Serafijnstraat, Louis Cloquetstraat, Nieuwewijkstraat): mould formation, poor heating, inadequate insulation[13]
- Smaller, lower-quality dwellings near the Heilig-Hartsite, occupied mainly by elderly residents and vulnerable families[13]
- Urban renewal 'En Route' addressing: Wasserijsite, Heilig-Hartsite, Louis Schuermansstraat; Hartetroef social restaurant opened 2024 in former Heilig Hart church[13,17]

Environment

Environmental conditions in the Dampoortwijk are mixed. The Scheldeoord sub-area has access to the Wolterspark and Bijgaardepark, but the areas around the Heilig-Hartsite and Dampoort roundabout — including the immediate vicinity of the Keerpuntschool Oase — have very limited green, recreational, or play space.[13]

Air quality is a concern. In January 2024, the City of Ghent installed 15 new sensor boxes in the Dampoort district to monitor nitrogen dioxide (NO_2) from traffic in real time. These sensors track the impact of the forthcoming district mobility plan and will collect data over a two-year period.[24]

- Green space: good in Scheldeoord (Wolterspark, Bijgaardepark); very limited near Heilig-Hartsite and Dampoort core[13]
- Air quality: elevated NO_2 levels from heavy arterial traffic; 15 new sensors deployed January 2024[24]
- Noise: significant from the Dampoort roundabout and through-traffic on three arterial roads[13]

Urban Diversity and Services

Despite socioeconomic challenges, the Dampoortwijk has a rich and accessible service offer:[13]

- Welfare: OCMW, Woonwijzer, Kind & Gezin, social grocery, straathoekwerker (street-corner worker) on welzijnssite at Wittemolenstraat/Doornakkerstraat[13]
- Health: expanding wijkgezondheidscentrum; woonzorgcentrum for elderly[13]

- Education: multiple schools and youth work offer; demand for more childcare and youth welfare in Scheldeoord and Nieuwe Wijk areas[13]
- Commercial: Dendermondsesteenweg shopping strip (daily goods dominant; some vacancy)[13]
- Community: Open Huizen, buurthuisje, Hartetroef social restaurant (opened 2024)[13,17]

Mobility in the Neighbourhood

Mobility is one of the most pressing challenges in the Dampoortwijk. The neighbourhood sits at the intersection of three major arterial roads generating heavy through-traffic, including trucks and transit vehicles.[13]

Indicator	Value [13]
Residents who find cycling safe	39% only
Residents who think children can move independently and safely	~25%
Residents reporting traffic nuisance in their street	Nearly 1 in 4
Residents satisfied with parking availability	1 in 4 (lowest of all Ghent neighbourhoods)
Public transport coverage	Good — near Gent-Dampoort station; multiple bus routes
PT accessibility for disabled users	Not all stops accessible
Registered cars (buurt, 2023)	727 vehicles for 1,268 households [2]

Key mobility challenges:[13]

- Three major arterial roads (Antwerpsesteenweg, Land van Waaslaan, Dendermondsesteenweg): excessive through-traffic and rat-running in narrow side streets[13]
- Aggressive and fast driving, particularly dangerous for children and cyclists[13]
- Critical shortage of parking for residents[13]
- Only 39% of residents feel safe cycling — limited safe cycling infrastructure[13]
- Children cannot move independently without safety concerns[13]
- Several dangerous intersections, especially the Dampoort roundabout[13]

Improvement: Now, the Verapazbrug (bridge) diverts traffic from the Dampoort roundabout. The district mobility plan for Dampoort and Oud-Gentbrugge is in preparation, supported by the new NO_2 sensor network.[13,24]

1.4.2. The Keerpuntschool Oase — Civic Lab Site

The Keerpuntschool Oase is a Freinet-based secondary school at Spitaalpoortstraat 50, 9000 Gent, part of the Keerpuntscholen network. The school offers education from 1st year through 5th–6th year, including domain-spanning programmes and transition courses.[19,20]

Its location in the heart of the Dampoortwijk — adjacent to the Nieuwe Wijk social housing area and the railway line — places it directly within the neighbourhood's social fabric.[20,25]

Access to the school:[19,20]

- On foot: main entrance at Spitaalpoortstraat 50[20]
- By bicycle: main entrance for bike parking or rear entrance at Nieuwewijkstraat (between nos. 24 and 26)[20]
- By public transport: Gent-Dampoort railway station (De Lijn buses, NMBS trains) — very accessible[20]
- By car: limited — parking is scarce in the area[13]

Summary: Challenges and Opportunities

Challenges	Opportunities
High traffic from 3 arterial roads — unsafe for cyclists and pedestrians, especially children [13]	District mobility plan underway; new NO_2 sensor network [13][24]
Very limited green/recreational space near school and Heilig-Hartsite [13]	Scheldeoord parks within walking distance; 'En Route' urban renewal creating new public spaces [13][17]
Socially vulnerable population: high youth unemployment, low incomes, housing quality issues [15][18]	Strong community resilience and civic participation; 'En Route' bringing investment [13][17]

Limited integration of some communities (e.g. Bulgarian) into neighbourhood life [13]	96 nationalities; dynamic multicultural community; active initiatives on Heilig-Hartplein [13]
Poor housing quality; social housing with maintenance issues [13]	'En Route' project renovating Wasserijsite, Heilig-Hartsite, Louis Schuermansstraat [13][17]
Elevated NO_2 / air quality concerns from traffic [24]	15 new NO_2 sensors deployed Jan 2024; data informing district mobility plan [24]

1.5. Matosinhos (Portugal)

Characterization Municipality of Matosinhos and of the three schools

Matosinhos is a coastal municipality located in the northern part of Portugal, forming an integral part of the Porto Metropolitan Area (Área Metropolitana do Porto, AMP). It occupies a strategic geographical position along the Atlantic coast, directly adjacent to the city of Porto, and plays a key role within the metropolitan system due to its economic functions, transport infrastructure, and urban density gradients.

Geographical and territorial characteristics

Geographically, Matosinhos presents a heterogeneous territorial structure, combining dense urban areas, consolidated suburban neighbourhoods, and more peripheral coastal-rural zones. The municipality extends from the highly urbanised coastal and central areas of Matosinhos city to less dense territories such as Lavra, characterised by open landscapes, dispersed settlement patterns, and a strong relationship with natural coastal systems.

A defining territorial feature of Matosinhos is its structural relationship with the Atlantic Ocean and the Port of Leixões, one of Portugal's main commercial ports. This port-industrial system has historically shaped land use, employment patterns, and mobility infrastructures, generating both economic opportunities and urban externalities, including heavy traffic, environmental pressures, and competition for public space.

The municipality benefits from a well-developed transport network, including several Porto Metro lines, a dense bus network, and direct road connections to Porto and the wider metropolitan area. However, accessibility and modal options vary significantly across the territory. Central areas enjoy high levels of multimodal accessibility, while peripheral zones rely more heavily on feeder bus services and private vehicles, reinforcing spatial disparities in everyday mobility.

Socio-economic profile

From a socio-economic perspective, Matosinhos is a diverse municipality with marked intra-municipal contrasts. Central and coastal areas concentrate a strong tertiary sector, including commerce, services, restaurants, tourism, and port-related activities, reflecting a long-term transition from an industrial economy towards services and urban economy functions. These areas are generally associated with higher urban density, mixed land uses, and greater access to facilities and services.

In contrast, suburban and peripheral areas such as São Mamede de Infesta and Lavra display different socio-economic dynamics. São Mamede de Infesta functions as a dense residential and service area closely integrated with Porto, benefiting from metropolitan employment opportunities but also facing pressures related to traffic congestion, parking, and public space saturation. Lavra, by contrast, presents a less affluent socio-economic profile, lower density, and a more limited range of local services, with greater dependence on car-based mobility and reduced autonomy for non-drivers, particularly children and young people.

Across the municipality, these socio-economic and territorial differences translate into unequal experiences of accessibility, proximity, and quality of urban life. While some areas align more closely with the principles of the proximity city, others reveal structural constraints that limit the feasibility of short-distance, active, and autonomous mobility.

Relevance for the proximity city framework

The internal diversity of Matosinhos makes it a particularly relevant case study for exploring the concept of the city of proximity. The coexistence of central, suburban, and peripheral contexts within a single municipality allows for a comparative analysis of how proximity is produced, experienced, and constrained under different spatial and socio-economic conditions.

This territorial heterogeneity provides a robust empirical basis for participatory and place-based methodologies, such as Photovoice, to capture differentiated lived experiences and to inform more nuanced, context-sensitive urban and mobility policies. In this sense, Matosinhos offers not a single model of proximity, but a spectrum of conditions that highlights both the potential and the limits of proximity-oriented urban transitions.

Figure 50. Map of the three schools selected. Interactive map (LINK HERE)

1.5.1. José Domingues dos Santos School - Lavra (Matosinhos)

Territorial framework

- A parish/village in the far northwest of the municipality , with a strong coastal-rural identity , characterized by beaches and open landscapes.
- Local and institutional literature describes Lavra as a greener and more rural area within the municipality, with a simultaneous presence of sea and rural life .

Central location and public transportation

- The outskirts of the city, in relation to the main metropolitan centers (Matosinhos city center, Senhora da Hora and Porto).
- High reliance on buses for connections to hubs such as Senhora da Hora (Metro) , Senhor de Matosinhos , and retail/service centers (e.g., Mar Shopping).
- UNIR bus lines reported for the area include (examples): 5001, 5004, 5018 (reference to stops and local coverage).
- The existence of UNIR timetables/routes that explicitly connect Lavra to Senhor de Matosinhos and Senhora da Hora (Metro) , reinforcing the "feeder" logic of the Metro.

- UNIR network in the municipality (operation and availability of schedules) confirmed by the local operator.

Socioeconomic and urban profile (trends)

- Predominantly low to medium density residential areas , with a mix of permanent housing and some seasonality associated with the coastal area.
- Traditional and identity-related activities associated with artisanal fishing and agriculture , with recent evolution towards residential functions and local services.

Other relevant factors

- Coastal exposure: opportunities (recreation, natural heritage) and risks (wind, salinity, coastal erosion).
- Daily mobility is more sensitive to bus frequency/reliability and access times to high-capacity hubs (Metro).

2.5.4. . Abel Salazar School - São Mamede de Infesta (Matosinhos)

Territorial framework

- A city and parish with an urban-suburban character , adjacent to Porto, functioning as a consolidated residential and service area.
- High urban density (historical example: 2011 with 23,122 inhabitants in 5.21 km^2, approximately 4,438 inhabitants /km^2).
- In the 2013–2025 period (union of parishes), the territory merged with Senhora da Hora recorded 49,832 inhabitants (2021 Census) .

Central location and public transportation

- High centrality within the metropolitan logic: proximity to key centers in Rio Grande do Sul (universities, hospitals, employment) and good road networks.
- Strong integration via bus (reference lines for the area include 600, 5011, 6313 , among others, according to mobility planning systems).
- Access to the Metro via nearby stations (e.g., Hospital São João / Senhora da Hora axis, depending on the origin-destination point).
- Strategic reinforcement underway/planned: the new "S. Mamede" metro line has been announced , with 6.55 km and 8 stations (connecting to Senhora da Hora II and other points), which is expected to further increase accessibility and functional centrality value.

Socioeconomic and urban profile (trends)

- residential area , with a range of shops and services nearby, and the presence of facilities/activities associated with academic and health centers in the surrounding metropolitan area.
- Continuous urban structure favors short trips, but with pressure on parking and traffic during peak hours (typical of a consolidated suburban area).

Other relevant factors

- It benefits from the "Porto effect": jobs and highly complex services nearby.
- Potential for urban appreciation and transformation with the future Metro infrastructure (impact on transit-oriented densification, TOD).

1.5.2. Gonçalves Zarco School - Matosinhos Center (Matosinhos)

Territorial framework

- The main urban center of the municipality, with administrative functions, commerce, restaurants, a waterfront, and a direct connection to the port-industrial system.
- The municipality has been strengthening the tertiary sector , following a history with a strong industrial presence, which is consistent with the dynamics of the center of Matosinhos (services, restaurants, tourism and urban economy).
- Structural relationship with the Port of Leixões , which contributes to the regional economy and logistics value chains, but introduces externalities (noise, heavy traffic, emissions) that require mitigation.

Central location and public transportation

- Very centrally located within the municipal network and quite well served within the AMP (Municipal Public Health Network) framework.
- Porto Metro stations on the Matosinhos line, with stops such as Matosinhos Sul, Brito Capelo, Mercado and Senhor de Matosinhos (the latter next to the port area).
- Intermodality with buses and structuring axes (easy access to Porto and the rest of the municipality, depending on the neighborhood).

Socioeconomic and urban profile (trends)

- Dense and mixed urban fabric: residents, services, commerce, restaurants, and activities related to the port and logistics in the surrounding area.

- Typical pressures of coastal centrality: real estate demand, tourism, competition for public space (traffic, loading/unloading) and the need to improve the quality of urban space.

Other relevant factors

- Excellent relative walkability in the central area, especially where the street grid is thinner and there is street commerce.
- Externalities of the port and road networks: noise, traffic, air quality, modal conflict, with a direct impact on the quality of public space and perception of safety.

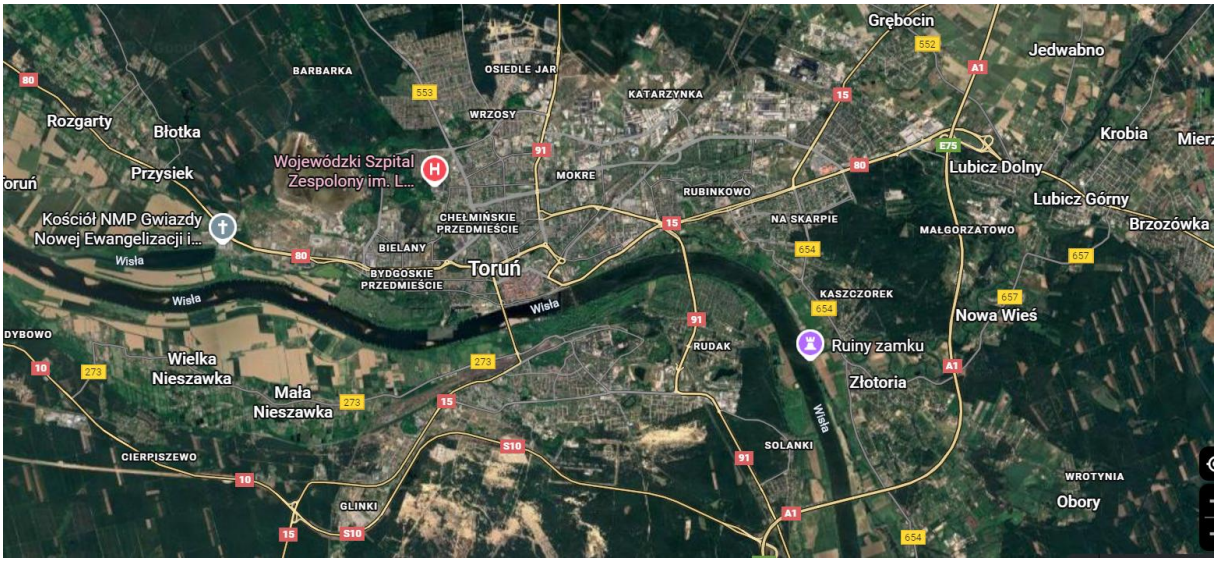
Comparative analysis

1. **More central and multimodal:** Matosinhos Centro (Metro + urban amenities + proximity to jobs/services).
2. **Strong residential metropolitan center:** São Mamede de Infesta (adjacent to the port, bus and metro access nearby).
3. **More peripheral and dependent on buses:** Lavra (connections via UNIR and feeder lines to the Metro and central areas).
4. **Urban density:** São Mamede and Matosinhos Centro tend towards denser profiles; Mining tends towards lower density and a greater rural/coastal component.
5. **Economy and functions:** Matosinhos Center with a strong tertiary sector and a relationship with the Port of Leixões (economic benefits and externalities).
6. **Significant future transformation:** São Mamede de Infesta has the potential to significantly improve accessibility if the new line progresses as announced.

1.6. Toruń (Poland)

OVERVIEW

In the case of the Toruń lab, the lab operates at the scale of the entire city rather than a single street or a clearly defined urban block. Toruń is thus treated as a cohesive urban unit with a diverse spatial, social, and functional structure.



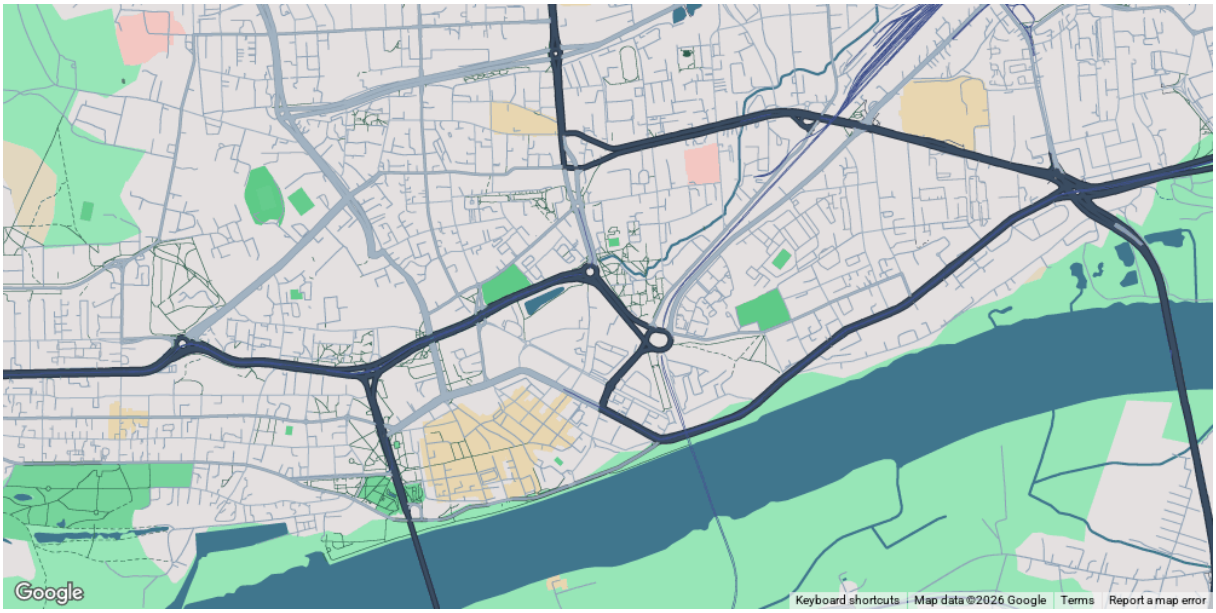


Figure 51. City-wide Scope of the Toruń Lab

Source: Google Earth.

We are not referring to a single street or even to one clearly defined urban block. The area of reference is the entire city of Toruń, understood as a cohesive urban unit with a diverse spatial, social, and functional structure.
Additionally, in the context of upper-secondary schools, it is important to acknowledge that some students do not live in Toruń but regularly commute from neighboring municipalities that are functionally connected to the city.

The boundaries of the area are complex and multi-layered. The formal administrative boundaries of the city of Toruń constitute the primary delimitation. However, in the context of upper-secondary schools, it is reasonable to extend the perspective to the surrounding municipalities, such as:

Łysomice
Lubicz
Wielka Nieszawka
Obrowo
Zławieś Wielka
Chełmża (rural municipality)

and, to a lesser extent, more distant municipalities from which students may commute using regional transport.
For this reason, the area's boundaries are functional rather than strictly administrative. They cannot be clearly defined in a physical sense — instead, we describe the wider catchment area of Toruń as an educational centre for the region.

Micro scale

At the micro scale, the reference point consists of the schools invited to participate in the project and their immediate surroundings — street blocks, neighbourhoods, local transport systems, and basic accompanying infrastructure (bus stops, pedestrian routes, local services). This is the smallest scale at which we analyse accessibility, students' everyday experiences, and direct spatial relations (e.g., the route from the school to the nearest bus stop).

Intra-urban scale

At a broader scale, Toruń functions as an independent urban centre divided into neighbourhoods with different functions — from the historic city centre, through multi-family residential areas, to single-family housing estates.

Inter-urban (regional) scale

At the broadest scale, Toruń acts as a regional educational hub that attracts students from many municipalities in the Toruń county and from more distant parts of the voivodeship. In this perspective, the city forms the core of a larger functional region in which:

- daily student mobility extends beyond administrative boundaries,
- population and service flows are concentrated around Toruń,
- the boundaries of the catchment area are diffuse, shaped by transport networks, travel times, and the educational offer.

Key landmarks and facilities

Nicolaus Copernicus University (NCU)

Toruń is home to one of the most important academic centres in Poland – Nicolaus Copernicus University. The university comprises a large main campus located in the Bielany district, as well as numerous faculty buildings, specialised institutes and research centres distributed across the city. NCU offers a broad spectrum of study programmes in the fields of humanities, social sciences, natural sciences, medicine, and technology, attracting students from across the region and from abroad.
The presence of the university has a significant impact on the city's demographic structure, contributing to a relatively high share of young adults and temporary residents, particularly during the academic year. NCU also plays an important role in shaping daily mobility patterns, housing demand, and the use of public services, especially in districts located near university facilities.
Beyond its educational function, Nicolaus Copernicus University is a key driver of Toruń's cultural and scientific life. The university hosts academic events, conferences, public lectures and cultural initiatives that are open to the wider community. Through research activity and institutional cooperation with local and regional stakeholders, NCU strengthens Toruń's role as a regional centre of knowledge, innovation and higher education.

Cultural Institutions
Key institutions include:
– The Wilam Horzyca Theatre
– The Centre of Contemporary Art "Znaki Czasu"
– The Toruń Symphony Orchestra
– The Planetarium

Commercial and Service Centres

Toruń hosts several large retail and service complexes that constitute an important component of the city's service infrastructure and functional urban structure. Key facilities include Atrium Copernicus and Plaza Toruń, which serve as major shopping destinations

for residents of the city as well as for inhabitants of surrounding municipalities within the Toruń–Bydgoszcz functional area.

The development of large-scale retail and service centres is supported by Toruń's favourable location and transport accessibility. The city covers an area of 116 km^2 and is directly connected to the national motorway network via the A1 highway, with a total road network length of approximately 482 km, facilitating daily mobility and access to commercial functions. These conditions enable retail centres to operate at a supra-local scale, attracting consumers from beyond the administrative boundaries of the city.

Commercial and service centres in Toruń typically combine retail, gastronomy, entertainment and personal services within single locations, reinforcing the concentration of consumption-related activities. Their presence contributes to the spatial organisation of service functions, influences traffic flows and public transport demand, and plays a role in shaping everyday activity patterns of residents, particularly during weekends and peak hours. Within the broader economic structure of the city, large retail and service complexes complement the dominant service sector, which accounts for over 70% of total employment in Toruń, reflecting the city's service-oriented economic profile

Transport and Communication Infrastructure

A1 Motorway/Highway

The A1 motorway/highway runs adjacent to Toruń, providing an important north–south connection (Gdańsk–Łódź–Upper Silesia). It is a key element of regional accessibility.

National Roads (DK91, DK80, DK10)

The network of national roads strengthens Toruń's connections with surrounding municipalities and commuter areas, used daily by residents, including upper-secondary school students.

Bridges over the Vistula River

Two main bridges — the Józef Piłsudski Bridge and the General Elżbieta Zawacka Bridge — are strategic components of the city's mobility system and its links to the wider region.

Public Transport (trams and buses)

Toruń has a well-developed public transport system. Key transfer hubs (e.g., Plac Rapackiego, Rubinkowo, Toruń Główny railway station) support the daily mobility of residents and students.

Urban morphology

The study area has an irregular, elongated shape formed along the Vistula River valley. The river divides the city into northern and southern parts, with the historic centre located on the northern bank. Toruń's spatial development follows a concentric–linear pattern strongly influenced by major transport corridors and post-war urban planning concepts.

Toruń features a diverse residential structure:

- **Historic, compact inner-city fabric** within the medieval Old Town, characterised by high density, perimeter-block development, and narrow plots.
- **Large post-war housing estates** from the 1960s–1980s, particularly in the eastern part of the city (e.g., Rubinkowo I and II), with slab-block layouts, generous open spaces between buildings, and an orthogonal plan.
- **Modern multi-family residential estates** located on former military, industrial, or peripheral sites, often designed as closed or semi-closed blocks.
- **Single-family housing** — detached and semi-detached — dominating in the northern and western districts (e.g., Bielawy, Wrzosy), with a more suburban character and low density.

Street types and transport layout

Several morphological layers are visible in Toruń:

- **Medieval street grid** — narrow, irregular streets within the Old Town.
- **Wide post-war arterials** — straight, multi-lane routes connecting housing estates and allowing efficient cross-city movement.
- **Local residential streets** — often curvilinear, especially in areas of single-family housing.
- **Transport corridors** leading to the A1 motorway and national roads, which significantly shape the city's spatial structure and development.

Public spaces and green structure

The city has an extensive system of parks, squares, and forested areas. Green spaces often serve as buffers between districts and shape the character of local public areas. The Vistula River valley is a dominant landscape element that strongly influences the city's spatial organisation.

Functional mix and land-use pattern

Toruń combines a compact, mixed-use city centre with more differentiated outer zones:

- the centre concentrates administrative, service, educational, and cultural functions,
- peripheral districts are primarily residential with local services,
- industrial and logistics areas are located along major road corridors.

Toruń is one of the oldest and most historically significant cities in Poland, with origins dating back to the 13th century. Founded by the Teutonic Order in 1233, the city quickly became an important trading hub within the Hanseatic League, benefiting from its strategic location on the Vistula River. This mercantile history is still reflected in the well-preserved medieval urban fabric, which today forms part of a UNESCO World Heritage Site. During the late Middle Ages and the early modern period, Toruń developed as a centre of craftsmanship, science, and culture. It is famously the birthplace of Nicolaus Copernicus, whose legacy remains influential in the city's identity and educational landscape. Following the Thirteen Years' War, the city came under the rule of the Polish Crown (1466), later experiencing Prussian and German governance in the 19th century, which introduced new urban planning concepts, industrial areas, and infrastructural investments. These layered influences contribute to the city's distinctive architectural and spatial heterogeneity. In the 20th century, post-war reconstruction and socialist-era planning reshaped Toruń's urban structure, particularly through the development of large housing estates and the expansion of transport corridors. The establishment and growth of Nicolaus Copernicus University (after 1945) further strengthened the city's role as a regional academic and cultural centre. Today, Toruń's historical heritage coexists with modern urban developments, creating a complex spatial and cultural landscape shaped by centuries of political, economic, and social change.

DATA SOURCES

The analysis is based primarily on official statistics published by the **Statistics Poland (GUS)**, complemented by data from the **Local Data Bank (BDL)** and, where appropriate, by municipal statistics and Eurostat. Owing to differences in data availability, the reference year varies depending on the indicator.

The smallest statistical unit used in the analysis is the urban municipality (*gmina miejska*) of Toruń, which corresponds to the city's administrative boundaries. This spatial unit largely overlaps with the Civic Lab area and therefore provides an appropriate basis for analysing demographic, social, economic, and environmental characteristics. However, the functional catchment area of upper-secondary education extends beyond the administrative boundaries of Toruń, encompassing neighbouring municipalities. Consequently, official statistics may slightly underestimate the population directly associated with the educational catchment area, particularly with regard to commuting students.

Population

As of **31 December 2024**, Toruń had **193,717 inhabitants**, with an average population density of **1,674 inhabitants per km²**.

Population distribution within the city is spatially differentiated. The highest population densities are found in large post-war housing estates, including **Rubinkowo**, **Na Skarpie**, and **Bydgoskie Przedmieście**, where multi-storey apartment buildings and compact residential development create high-density urban environments. Relatively high population concentrations also occur in neighbourhoods close to the city centre, particularly in parts of **Chełmińskie Przedmieście** and areas adjacent to the historic core, which benefit from good accessibility to public services, educational facilities, and public transport.

Medium population densities characterise neighbourhoods with a mixed residential structure, such as **Mokre** and the central parts of **Koniuchy** and **Bielany**, where multifamily housing coexists with lower-density residential development.

The lowest population densities are observed in peripheral districts dominated by single-family housing, including **Wrzosy**, **Bielawy**, and **Stawki**. These neighbourhoods are characterised by larger residential plots, more extensive green spaces, and a suburban urban form. Similarly, industrial, university, and service areas accommodate relatively few permanent residents.

Overall, the spatial pattern reflects a core–periphery structure: dense central and eastern districts contrasted with more dispersed, low-density areas on the city's periphery.
Between 2019 and 2024, Toruń experienced a steady decline in population, from 201,447 to 193,717 inhabitants. This trend was accompanied by a gradual decrease in population density, from 1,741 to 1,674 inhabitants per square kilometre.
Over the analysed period, Toruń recorded a persistent negative natural increase. The crude birth rate declined from 9.72 live births per 1,000 inhabitants in 2019 to 6.36 in 2024, while the crude death rate remained higher, reaching 10.84 deaths per 1,000 inhabitants in 2024. As a result, the natural increase remained negative throughout the period.

Neighborhood	Number of inhabitants - 2024	Population density – 2024 (hab/km2)
Toruń	193717	1674,0

AGE STRUCTURE

The population of Toruń has been systematically declining in recent years. This decrease results from both a **negative natural increase** and **negative migration balance**. In terms of age structure, the city is characterized by an **ageing population**. The **share of residents aged 65 and over has clearly increased**, while the **proportion of people under 18** has been gradually decreasing. Consequently, **the median age of Toruń's population continues to rise.** These changes have led to a **high age dependency ratio**, meaning that the number of people in non-working ages is increasing relative to the working-age population. Overall, **Toruń follows a trend typical of medium-sized Polish cities — a declining population combined with an ageing society**, which poses a significant challenge for local social, educational, and economic policies.

Neighborhood	Average annual population growth rate (2019-2024)	Average age – 2024 (median age)	Share of youth aged 12–17 in total population (%) – 2024
Toruń	-7,2	44,1	6,1

The demographic structure of Toruń has been characterised by a growing dependency ratio. The number of people in non-productive age per 100 persons of productive age increased from 69.4 in 2019 to 73.4 in 2024, reflecting the progressive ageing of the population.
Age dependency ratio-73,5

HOUSEHOLDS

Household characteristics in Toruń reflect a predominantly family-oriented urban structure, combined with moderate household density typical of a medium-sized city. In 2021, private household density reached 665 households per km^2, indicating a relatively compact residential pattern, especially in centrally located neighborhoods.

The average size of a private household was 2.54 persons, suggesting a balance between single-person households and larger family units. Notably, a high share of couples with children (69.3%) points to the significant presence of family households, which plays an important role in shaping demand for educational, childcare, and social infrastructure.

Larger households tend to be unevenly distributed spatially, with higher concentrations typically observed in residential neighborhoods characterized by multi-family housing and better access to schools, green spaces, and local services, while smaller households are more common in central and highly urbanized areas.

Neighborhood	Private household density (households per km²)	Average size of private household	Share of couples with children in private households (%)
Toruń	665 houshold/ km² (2021)	2,54 (2021)	69,3 %

MULTICULTURALISM AND DIVERSITY

As of 31 December 2024, Toruń recorded 1,829 foreign residents registered for temporary stay. The distribution of this population is highly uneven, with a small number of nationalities accounting for the majority of registrations.

Citizens of Ukraine constitute the largest group, numbering 1,048 persons, which corresponds to 57.3% of all foreign residents registered for temporary stay. The second largest group consists of citizens of Belarus, with 340 persons, representing 18.6% of the total. Together, these two nationalities account for 1,388 persons, or 75.9% of the temporary foreign population.

A smaller group of nationalities forms a secondary tier in the population structure. These include citizens of China (59 persons; 3.2%), Turkey (44 persons; 2.4%), Zimbabwe (44 persons; 2.4%), India (30 persons; 1.6%), Russia (22 persons; 1.2%) and Georgia (18 persons; 1.0%). Each of these groups represents a limited but measurable share of the total number of temporary foreign residents.

The remaining nationalities are represented by relatively small numbers. More than 40 countries appear with fewer than 10 registered persons each, and many are represented by only one or two individuals. Taken together, these low-frequency nationalities account for approximately 15–18% of all foreign residents registered for temporary stay.

Overall, the structure of temporary foreign residents in Toruń is characterised by a high level of concentration, a dominant group accounting for more than half of all registrations, and a long tail of nationalities with very small individual shares.

The contrast between the size of the temporary foreign population (1,829 persons) and the much smaller number of permanent foreign residents (479 persons) indicates that Toruń functions primarily as a city of temporary migration rather than long-term settlement. Temporary residence appears closely linked to short-term labour demand, education and regional mobility patterns rather than permanent integration.

With a total of 1,829 persons, foreign residents registered for temporary stay accounted for approximately **0.9% of Toruń's total population** in 2024.

SOCIO-ECONOMICS

In 2025, the average monthly gross wage in the enterprise sector in Toruń amounted to 8 908.61 PLN. At the national level, the average gross wage in Poland in 2025 was around 8

700–8 900 PLN, while in the Kujawsko–Pomeranian Voivodeship it was approximately 7 322.89 PLN according to the latest regional statistical data.

As of 2024, Toruń records a **low unemployment rate of 3.2%**, which is significantly below both the **regional average for the Kuyavian-Pomeranian Voivodeship (7.3%)** and the **national average for Poland (5.1%).** Although unemployment in Toruń remains low compared to regional and national levels, recent data indicate a slight upward trend during 2025. This suggests emerging pressures on the local labour market, despite the city's relatively strong service-based economy.

The local labour market is dominated by the service sector, particularly professional, scientific and technical activities, administration and support services, as well as transport and logistics. Recent data indicate a year-on-year increase in employment in knowledge-intensive and service-oriented sectors, while employment in industry has slightly declined.

Neighborhood	Median equivalent income of residents after tax - 2022	Unemployment rate (%)	Share of beneficiaries of the increased intervention for health care (BIM) in the total population (%)
Toruń (2024)		3,2 %	

The level of economic activity in Toruń is reflected in the steady growth of registered economic entities. The number of entities recorded in the REGON register per 10,000 inhabitants of working age increased from 2,225.3 in 2019 to 2,655.8 in 2024.

HOUSING

Recent housing development in Toruń indicates a clear increase in the number of newly completed dwellings, particularly in 2024–2025. In 2025, a total of 1,375 dwellings were completed, almost half more than in the previous year. The structure of new housing is dominated by units intended for sale or rent on the private market (1,109 dwellings), while social rental housing represents a relatively limited share of total new construction (177 dwellings). The average size of newly completed dwellings was 57.7 m^2, reflecting a predominance of compact apartments, especially in multi-family residential buildings.
Although detailed data on the number of social housing units per 100 households in Toruń are not available in standard local statistics, broader national data indicate that home ownership in Poland remains high: approximately 87 % of households live in owner-occupied dwellings, with a relatively low share of private rental and social housing in the overall housing stock.
Housing activity in Toruń has fluctuated in recent years. The number of dwellings completed per 10,000 inhabitants ranged from 69.9 in 2019 to a peak of over 90 in 2022–2023, before declining to 47.2 in 2024.

The housing stock in Toruń is characterised by a significant share of post-war multi-family housing, complemented by recent residential development. In 2025, a noticeable increase in the number of dwellings completed was recorded, particularly in housing intended for sale or rent, while social rental housing plays a relatively limited role.

ENVIRONMENT

Although Toruń benefits from extensive green areas and the Vistula river corridor, environmental challenges remain linked to transport intensity and urban sprawl. Air quality and access to green spaces vary across districts, particularly between central areas and peripheral residential zones.

Particulate matter pollution is a long-term issue that represents a notable environmental challenge to the city of Toruń. In the category of the municipal and residential sector, particularly domestic heating, this sector has the highest share of emissions of PM10, which reaches up to 65.9%. The following sectors are also notable: point source emissions, which account for 17.5%, and road transport, which accounts for 10.5%. In terms of the latest available data up to 2024, there were no exceedances of the limit values for the annual and 24-hour averages of PM10 and PM2.5. The modernization of the Toruń Combined Heat and Power (CHP) plant has considerably improved the air quality, with a 14-fold reduction in dust emissions in 2024 compared to 2016 after the shift to natural gas.

The level of nitrogen oxide pollution in the area of Toruń has a strong correlation with the level of motor vehicle traffic in the area. In the year 2024, the level of NO2 pollution in the area of Toruń, based on data obtained from monitoring stations in the area, especially the one located in the transport hub on Przy Kaszowniku Street, was lower than the standard level of 40 $\mu g/m^3$; the average level of NO2 pollution in the area was 15.0 $\mu g/m^3$

Over the past few years, there has been a considerable reduction in the level of sulfur oxide pollution in Toruń. This was brought about by the commissioning of a new natural gas-fired combined heat and power plant in 2017, which resulted in a 475 times reduction in the level of sulfur dioxide (SO2) emissions from this source compared to 2016 levels. At the moment, the SO2 levels in Toruń are way below the permissible levels. Small amounts of SOx pollution are from the solid fuels used in the residential sector for combustion, but the city's subsidies to replace stoves have reduced this share by the elimination of 8,221 stoves from 1997 to 2020.

With regard to the area of spatial development, the city of Toruń aims at dealing with impermeable surfaces sprawl by introducing requirements related to biologically active surfaces, at a rate of at least one-third, as well as creating pocket parks, addressing the issue of the urban heat island effect and improving water retention in densely populated areas, such as the Old Town, where opportunities are limited.

URBAN DIVERSITY

Access to four basic services is provided through the dual-layered structure that balances infrastructural capabilities with modern societal demands related to the concept of a "15-minute city." Infrastructural capabilities include the provision of basic survival and hygiene services through highly efficient systems, such as water and sewage services provided by Toruńskie Wodociągi, modernization of the energy sector where PGE Toruń has shifted from coal to natural gas to reduce emissions, integrated waste management systems linked to regional recovery facilities, and an efficient transportation system that boasts one of the highest densities of bicycle paths in Poland. The provision of these basic services is essential in ensuring that most of the urbanized areas of Toruń have comprehensive utility coverage across nearly all districts.

The social perspective of service provision is based on quality of life, where essential services are provided in physical proximity to residential areas. Toruń has demonstrated its capabilities in improving that quality of life are delivered through its polycentric structure. In terms of education services, despite an expected decline in the preschool-age population of 29% by 2035, Toruń has ensured that its polycentric structure is served by a dense network of schools and kindergartens to provide physical proximity to residential areas. In terms of healthcare services, Toruń has ensured that primary care facilities are provided in local areas through regional hospitals that act as a medical hub in the region. Daily services are provided through traditional marketplaces and commercial centers, such as those found in large residential areas such as Rubinkowo and Na Skarpie, originally designed as self-sustaining cities. Finally, green spaces are provided through the unique Green Ring Wedge system, where most residents can access significant forested areas within 10 to 15 minutes of residential areas.

The spatial distribution of commercial occupancy in ground-floor units in Toruń reveals significant heterogeneity and mirrors the distinctive urban morphology of its constituent districts. In the Old Town district of Starówka, commercial occupancy on the ground floor represents the predominant form of commercial activity. In the immediate historic core, commercialization rates are above 90%, and local policy actively supports high-prestige commercial services such as gastronomy, retailing, and culture. Moreover, local policy actively safeguards these areas from being converted into residential space as a means of preserving prestige and active commercial activity in the district's central areas.

In the historical suburbs such as Bydgoskie Przedmieście and Chełmińskie Przedmieście, frontage architecture in the form of continuous frontage prevails. In these areas, ground floors are conventionally used for commercial services, but these are small-scale and localized in nature, including small retail outlets and pharmacies. Local policy in these areas focuses on active frontages as a means of avoiding dead zones.

In contrast, the PRL-era housing estates, such as Rubinkowo and Na Skarpie, have a distinctly different configuration. In these estates, commercial functions are concentrated

in separate, low-rise commercial buildings, while the ground floors of extensive residential blocks are used for private, residential purposes. The current compromise in the JAR housing estate aims to address this challenge in a modern context. In this case, the current spatial planning regulations specify that commercial ground floors on main axes of movement, such as Watzenrodego Street, should facilitate the implementation of the 15-minute city concept and ensure that new residents have access to basic service functions within walking distance.

Moreover, strategic documents such as the Revitalization Program recommend that the activation of vacant ground-floor spaces on side streets can be achieved through the development of creative industries and startups. The city also recognizes that a strong relationship exists between the quality of public space and commercial performance. In this case, initiatives such as the Green Starówka project are intended to enhance the attractiveness of ground-floor spaces through improvements to the urban microclimate and aesthetics. In this way, the city of Toruń aims to develop a comprehensive service network that balances its historical legacy with modern-day needs.

Motorisation

Between 2009 and 2024, Toruń recorded a substantial increase in the number of registered motor vehicles and tractors. The total vehicle stock grew from **102,086 units in 2009** to **154,732 units in 2023**, representing an increase of **52,646 vehicles**, or approximately **+51.6%** over fourteen years. This indicates a long-term and sustained growth of motorisation in the city.

The most dynamic phase of growth occurred between 2009 and 2019, when the number of vehicles increased from **102,086 to 140,946 units** (+38,860 vehicles, +38.1%). Growth continued during the pandemic and post-pandemic period: between 2019 and 2023, the vehicle stock rose further to **154,732 units**, an increase of **13,786 vehicles** (+9.8%) despite growing demographic pressures.

In **2024**, a notable change occurred: the number of registered motor vehicles and tractors declined sharply to **124,454 units**, representing a decrease of **30,278 vehicles** (–19.6%) compared to 2023. This sudden drop contrasts with the long-term upward trend observed in previous years and suggests a structural break in the series, potentially linked to administrative, regulatory or registration-related factors rather than to gradual changes in mobility behaviour alone.

When vehicle data are analysed alongside population figures, the long-term trend becomes even more pronounced. Over the same period, Toruń's population declined from **201,447 inhabitants in 2019** to **193,717 in 2024**, a loss of **7,730 residents** (–3.8%). Despite this demographic decline, the number of vehicles continued to grow until 2023, resulting in a significant increase in vehicles per capita.

In 2019, Toruń recorded approximately **700 vehicles per 1,000 inhabitants** (140,946 vehicles and about 201,000 residents). By 2023, this ratio increased to nearly **795 vehicles per 1,000 inhabitants**, reflecting a clear intensification of motorisation relative to

population size. Even after the decline observed in 2024, the level of motorisation remained high, with approximately **640 vehicles per 1,000 inhabitants**.
The combined analysis of vehicle and population data indicates that the growth of motorisation in Toruń was not driven by population increase. On the contrary, vehicle numbers expanded most strongly during a period of demographic stagnation and decline. This suggests that structural factors—such as increased household car ownership, functional commuting needs, and the role of Toruń as a regional service and education centre—played a more significant role than demographic growth.

PUBLIC TRANSPORT AND WALKING

Public transport constitutes a fundamental pillar of Toruń's urban mobility system and provides the structural backbone for daily movement within the city. Public transport services are operated by Miejski Zakład Komunikacji w Toruniu, which manages both tram and bus networks serving the city and selected neighbouring areas. Annually, the system carries approximately **55 million passengers**, underscoring its central role in meeting everyday mobility needs related to employment, education and access to services. The fleet comprises **64 trams**, including **22 low-floor vehicles manufactured by Pesa** and **18 modernised Konstal units,** as well as around **150 buses**, among them **hybrid and fully electric vehicles**. The gradual introduction of low- and zero-emission buses reflects a broader policy orientation towards environmental sustainability and energy transition in urban transport. Within this framework, public transport functions not only as a high-capacity mobility solution but also as a reference point for the integration of other modes, including cycling infrastructure, into a more diversified and sustainable urban transport system.
The development of cycling infrastructure in Toruń over the past decade reflects a clear and sustained policy direction aimed at strengthening non-motorised urban mobility. Quantitative data show a long-term increase in the total length of bicycle paths, while structural indicators provide insight into how this infrastructure has been spatially and institutionally integrated into the city's transport system.
From a quantitative perspective, Toruń recorded a substantial expansion of its cycling network between 2011 and 2018, when the total length of bicycle paths increased from 61 km to approximately 116 km. This period can be interpreted as a phase of intensive infrastructure development, during which cycling routes were rapidly extended across the city. In the years that followed, the pace of growth slowed, but the network continued to expand incrementally. By 2024, the indicator of bicycle paths per 10,000 inhabitants reached 7.59 km, confirming that the accumulated investments resulted in a relatively dense cycling network in relation to the city's population size.
The temporal pattern visible in the data suggests a shift in development logic. While the early phase was characterised by rapid extension of route length, later years indicate a transition towards consolidation rather than expansion. This stabilisation does not imply

stagnation, but rather a maturation of the cycling network, where new investments are more likely focused on filling gaps, improving continuity and integrating existing segments, rather than on large-scale additions of new routes.

A significant share of bicycle paths remains under municipal management, which indicates that the city authorities play a central role in planning, maintaining and expanding cycling facilities. This institutional concentration suggests a relatively coherent governance framework for cycling infrastructure, allowing investments to be aligned with broader urban mobility and spatial planning objectives.

The combined indicators also point to a gradual normalisation of cycling as part of everyday transport rather than a purely recreational activity. The steady increase in per-capita availability of bicycle paths implies improved spatial accessibility across different districts of the city. This is particularly relevant in the context of daily mobility patterns, including commuting to schools, universities, workplaces and local services. The integration of cycling routes into the wider transport system strengthens their functional role and supports modal diversification within the city.

Overall, cycling infrastructure in Toruń has evolved from a phase of rapid expansion into a stage of consolidation and systemic integration. The accumulated length of bicycle paths, their growing per-capita density and their strong embedding within municipal transport management structures suggest that cycling has become a stable and structurally embedded component of Toruń's urban mobility system.

SUMMARY OF THE NEIGHBORHOOD

The neighborhood under analysis encompasses the **entire city of Toruń**, understood not as a single district or street, but as a **cohesive urban and functional unit** that plays a key role as an educational, cultural, and service centre for the wider region. While the city's **administrative boundaries** form the formal frame of reference, the **functional reach of Toruń—especially in the context of upper-secondary education—extends beyond them**, including surrounding municipalities from which students commute daily

Toruń is a **medium-sized Polish city** with a population of approximately **194,000 inhabitants**, characterised by **declining population numbers and progressive ageing**. Demographic change is driven by both a **negative natural increase** and **out-migration**, trends typical for many cities of comparable size. At the same time, Toruń remains demographically dynamic due to its role as a **temporary migration hub**, particularly for students and short-term foreign residents, most notably from Ukraine and Belarus.

Spatially, the city displays a highly diversified urban morphology shaped by historical layers and post-war planning. The medieval Old Town, a UNESCO World Heritage Site, forms a compact and dense historic core, while large post-war housing estates dominate the eastern parts of the city. These contrast with lower-density, single-family residential areas on the periphery. The Vistula River is a defining landscape element, structuring both the city's form and its internal connectivity

Functionally, Toruń is strongly oriented towards the service and knowledge economy, with over three-quarters of employment in services. The presence of Nicolaus Copernicus University significantly shapes the city's social structure, mobility patterns, housing demand and cultural life, reinforcing Toruń's status as a regional academic hub. Cultural institutions, retail and service centres, and a well-developed public transport system further strengthen its supra-local role

From a mobility perspective, Toruń combines high car ownership levels with an increasingly mature public transport and cycling infrastructure. Investments in bicycle paths and public transport integration indicate a gradual shift toward more sustainable urban mobility, although car dependency remains structurally embedded, partly due to commuting patterns from surrounding municipalities

Overall, Toruń can be characterised as a historically layered, functionally diverse, and regionally embedded urban system, facing demographic decline and ageing, yet maintaining strong educational, cultural and service functions. These characteristics make it a particularly relevant setting for analysing educational accessibility, student mobility, and the interaction between urban structure and social outcomes within a broader functional urban area

1.6.1. AREA SURROUNDING PRIMARY SCHOOL NO. 5

The area surrounding Primary School No. 5 in Toruń is a predominantly residential neighborhood with a more heterogeneous spatial and social structure than that of many strictly local catchment schools. It combines elements of inner-city residential fabric with zones of higher functional intensity, which results in more diversified daily mobility patterns among pupils.

The built environment in the immediate vicinity of the school consists mainly of multi-family residential buildings of varying periods, including older tenement-style housing and post-war apartment blocks, interspersed with service buildings and institutional functions. Compared to more peripheral school neighborhoods, residential density is relatively high, and housing types are mixed, which contributes to a broader and less uniform catchment profile of the school population.

The surrounding street network includes both local residential streets and more important collector or transit streets, which structure movement within and through the neighborhood. Sidewalks are present along all main routes and form the primary infrastructure used by children walking to school. However, the proximity of busier streets results in higher traffic intensity, particularly during peak hours, and increases the role of controlled crossings, traffic lights, and pedestrian priority zones in shaping children's everyday routes.

Green spaces in the area are present mainly as linear greenery, tree-lined streets, small squares, and green courtyards between residential buildings. While large parks are not always located directly adjacent to the school, access to dispersed green elements remains an important component of the neighborhood's environmental quality. These spaces are often used informally by children before and after school and serve as transitional zones between home, school, and other daily activities.

Along their daily journeys, children attending Primary School No. 5 pass a wider variety of urban elements than in more strictly residential areas. These include residential entrances, local shops, service points, bus and tram stops, street intersections, and institutional buildings. As a result, the routes to school are embedded in a more complex urban setting, where pedestrian movement intersects more frequently with public transport users and through-traffic.

From a functional perspective, the area around Primary School No. 5 operates not only as a local residential environment but also as part of a broader intra-urban network. The good accessibility of public transport and the location of the school within a well-connected part of the city suggest that its pupil population is likely drawn from a wider area than the immediate neighborhood. This spatial configuration supports a mix of mobility modes, including walking for nearby residents and public transport for pupils commuting from more distant districts.

Overall, the neighborhood surrounding Primary School No. 5 can be described as a dense, well-connected urban area with mixed residential and service functions, offering good pedestrian infrastructure and strong public transport accessibility. Its spatial characteristics indicate a higher likelihood of diverse school commuting patterns, reflecting the school's integration into the wider urban structure of Toruń rather than a strictly local catchment area.

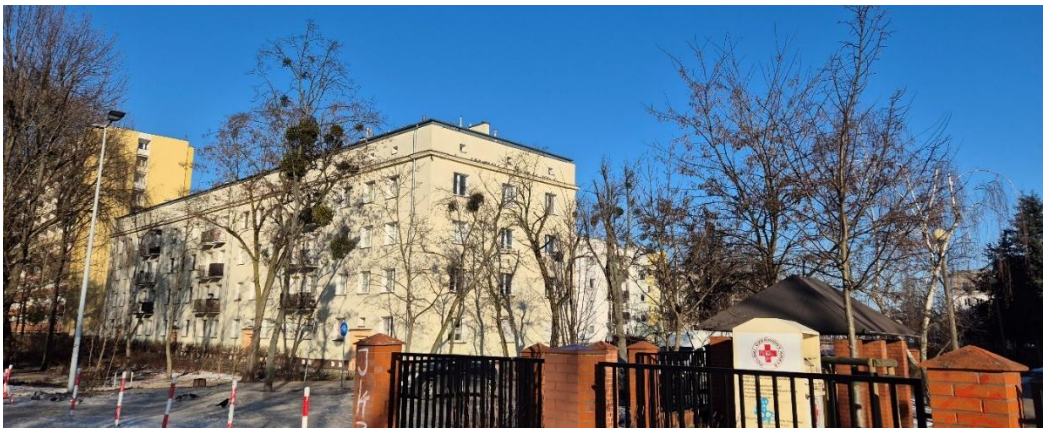


Figure 52 Surroundings of Primary School No. 5

Author: Stefania Środa-Murawska

1.6.2. AREA SURROUNDING PRIMARY SCHOOL NO. 11

The area surrounding Primary School No. 11 in Toruń is a predominantly residential neighborhood, characterised by a compact urban form and a mixed housing structure, typical of inner-city and inner-suburban districts developed mainly in the post-war period. The neighborhood is inhabited largely by families with children, long-term residents, and

older households, creating a relatively stable social structure with strong local routines linked to schools, nearby services, and public transport.

The built environment is dominated by multi-family residential buildings, including mid-rise apartment blocks and older tenement-style housing, complemented by smaller clusters of single-family houses. Ground floors are largely residential, with limited but visible local services, such as small shops, kiosks, pharmacies, and everyday retail functions that support daily needs of residents and schoolchildren.

The street network around the school consists mainly of local and collector streets, designed to serve residential traffic rather than heavy transit flows. Streets are generally lined with sidewalks on both sides, which play a crucial role in children's daily mobility. Sidewalks are continuous and frequently used by pupils walking to school, often accompanied by parents or peers, especially in younger age groups. Pedestrian crossings, traffic calming elements and reduced vehicle speeds contribute to a relatively safe walking environment, although car traffic remains noticeable during peak morning and afternoon hours.

Green elements are present in the form of small green squares, tree-lined streets, lawns between residential buildings, and nearby parks or playgrounds. These spaces, while not always formally designed as large recreational areas, provide important visual relief, informal play opportunities, and resting points along children's routes to school. The presence of greenery softens the built environment and supports everyday outdoor activity.

Along their daily journey to school, children typically pass residential entrances, local shops, bus stops, small service points, and communal spaces. These elements structure the rhythm of the neighborhood and contribute to a sense of familiarity and social control. Public transport stops located within short walking distance reinforce the neighborhood's accessibility and link it to other parts of the city, supporting both student and parental mobility.

Functionally, the area around Primary School No. 11 operates as a local-scale educational and residential micro-centre, where school-related activities strongly shape daily movement patterns. Morning and afternoon peaks are clearly visible, with increased pedestrian activity, short-term car stops, and intensified use of sidewalks and crossings. Despite limited availability of detailed statistical mobility data, observational characteristics suggest that walking is a dominant mode of access for younger pupils, supported by the compact layout and proximity of housing to the school.

Overall, the neighborhood can be described as a well-established, everyday residential environment, offering good pedestrian accessibility, basic services, and green elements, while facing typical challenges of inner-city residential areas, such as traffic pressure during peak hours and limited space for large-scale public amenities. Its spatial and functional characteristics create a setting that strongly supports local, short-distance school mobility and routine-based daily life.

Figure 53 Surroundings of Primary School No. 11

Author: Stefania Środa-Murawska

1.6.3. AREA SURROUNDING UPPER SECONDARY SCHOOL NO. 1

The area surrounding Upper Secondary School No. 1 (I LO) in Toruń is located within the historic city centre, forming part of a dense, heritage-rich urban environment with a strong symbolic and functional significance. This area is characterised by its historic urban fabric, high pedestrian intensity and concentration of public, cultural and educational functions. Unlike neighborhood-based primary schools, the spatial context of I LO reflects its role as a city-wide and supra-local educational institution attracting students from across Toruń as well as from neighbouring municipalities.

The built environment consists predominantly of historic tenement buildings, former public and institutional structures, and compact perimeter-block development typical of the medieval and early modern city. Ground floors are frequently occupied by services, small shops, cafés and cultural functions, which results in continuous street-level activity throughout the day. Residential use remains present but is interwoven with tourism, administration and education-related functions.

The street network is dense and irregular, with relatively narrow streets shaped by historical development patterns. Sidewalks are continuous but often limited in width, reflecting the constraints of the historic layout. Pedestrian movement is therefore highly concentrated, particularly during school start and end times, when students share space with residents, tourists and service users. Traffic is generally calmed, although delivery vehicles, taxis and parental drop-off traffic are present during peak hours.

Public transport accessibility plays a crucial role in students' daily mobility. The school is located within short walking distance of major tram and bus stops situated at the edge of the Old Town and in adjacent central districts. These stops function as key interchange points, enabling efficient access from all parts of the city. For many students, daily travel involves a combination of tram or bus journeys followed by a final walking segment through the historic centre.

In addition to public transport, parental car drop-off remains an important mobility component, particularly for students commuting from neighbouring municipalities or areas outside the direct reach of frequent public transport connections. Due to the spatial constraints of the historic centre, drop-off activity is concentrated along selected access streets and short stopping zones, contributing to temporary congestion during morning peak hours.

Students' daily journeys to I LO typically involve passing through diverse urban environments, including residential districts, transport corridors, interchange nodes and finally the historic city centre. As a result, their mobility experience is shaped not only by the immediate surroundings of the school but by the broader spatial structure of Toruń and its functional hinterland.

Functionally, the area around I LO operates as a city-wide educational node embedded within the historic core of Toruń. Its centrality, symbolic importance and strong public transport connections support a wide catchment area and highly diverse commuting patterns, combining walking, tram and bus travel, and car-based access.
Overall, the neighborhood context of I LO can be described as a highly accessible yet spatially constrained historic urban environment, where intensive student mobility intersects with tourism, services and heritage functions. These characteristics clearly reflect the school's supra-local role and its integration into the wider urban and regional educational system.

Figure 54 Surroundings of I LO

Author: Stefania Środa-Murawska

MAPS

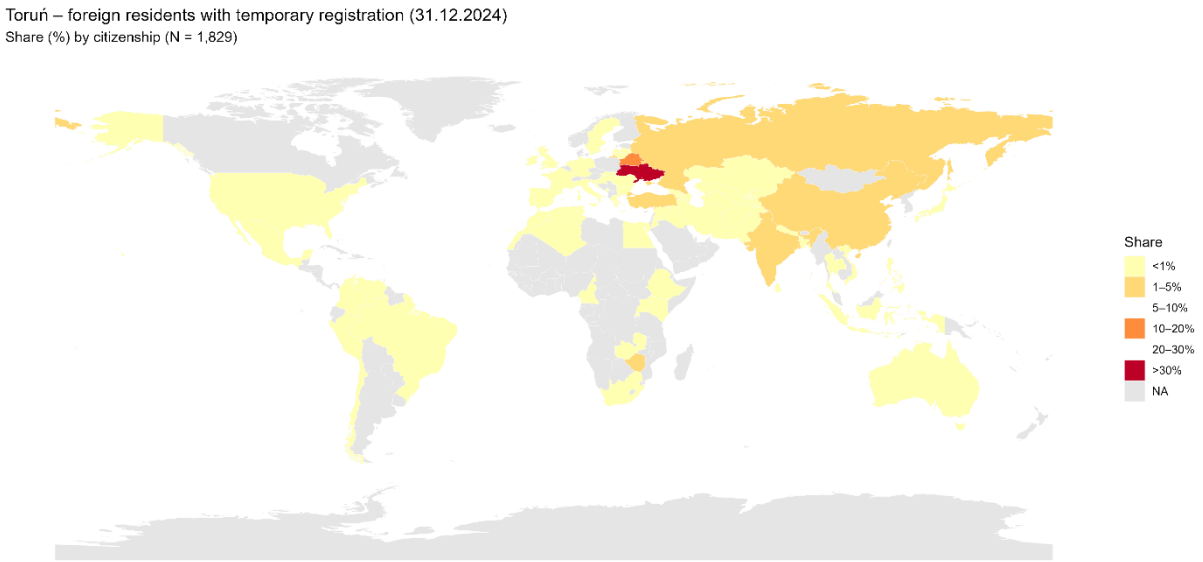


Figure 55 Countries of Origin of Foreign Residents with Temporary Residence in Toruń

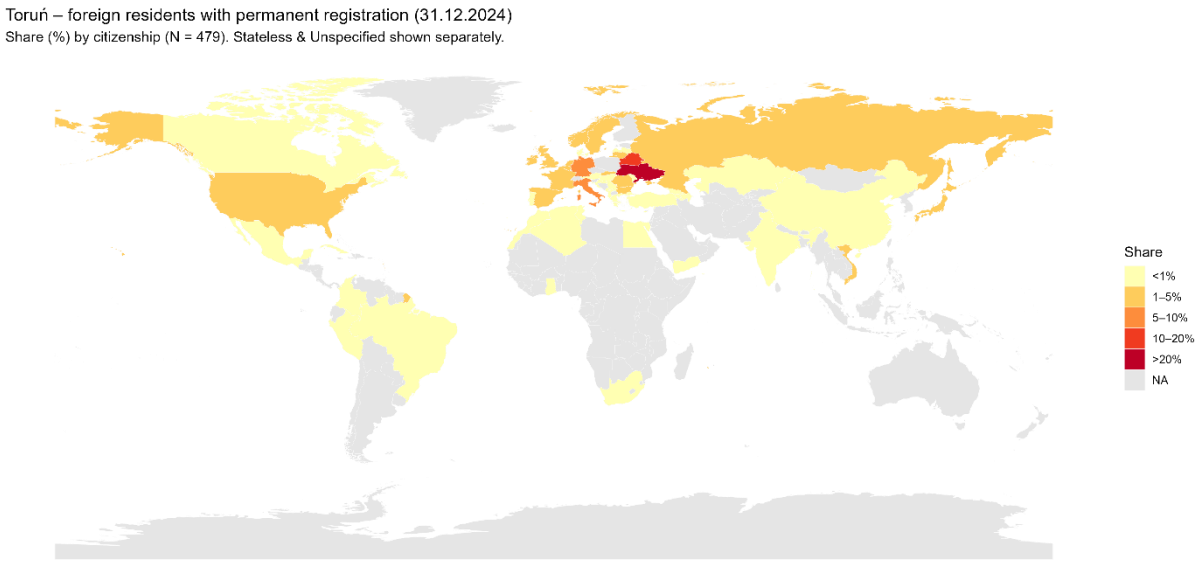


Figure 56 Countries of Origin of Foreign Residents with Permanent Residence in Toruń

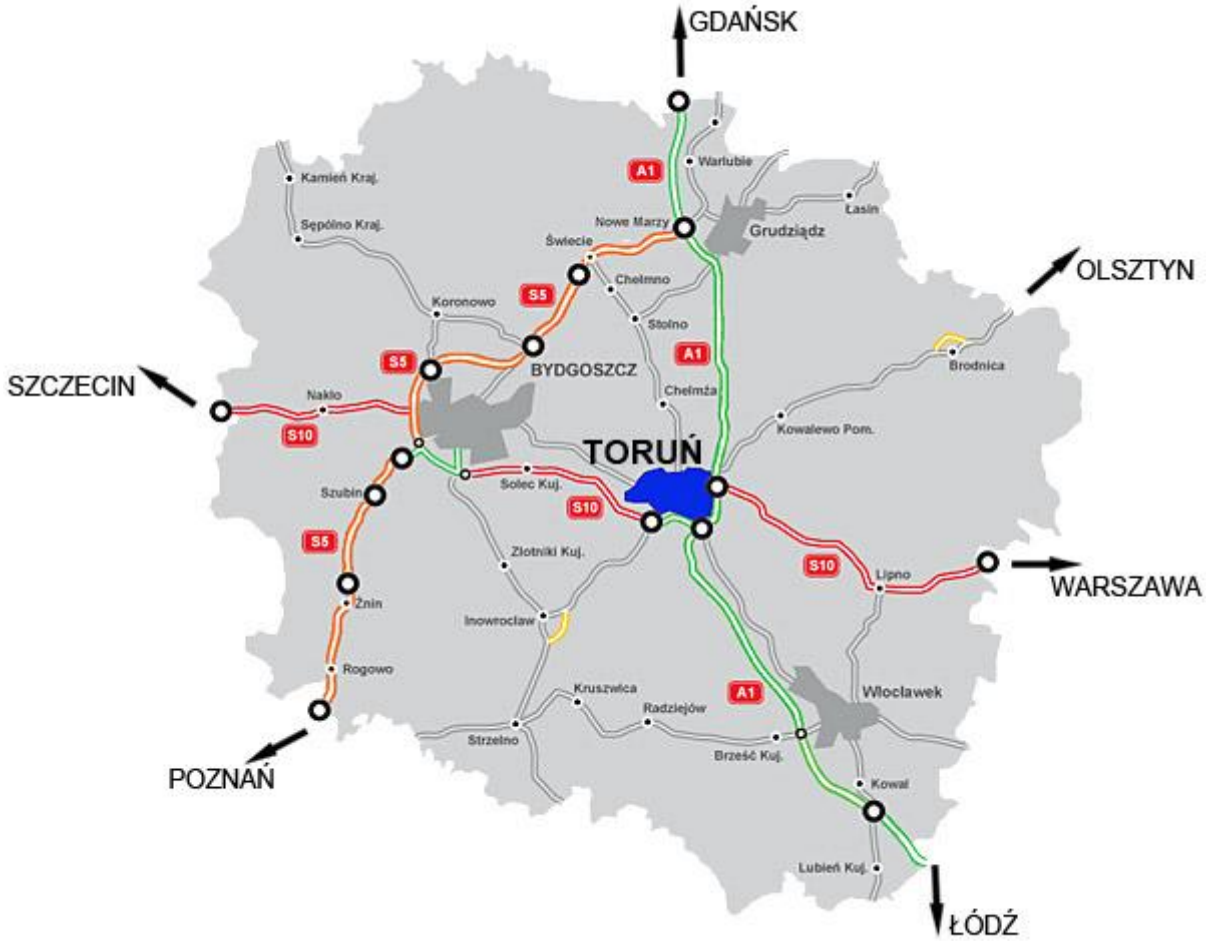


Figure 57 Road network of Toruń

Source: https://torun.pl/pl/uklad-drogowy-torunia

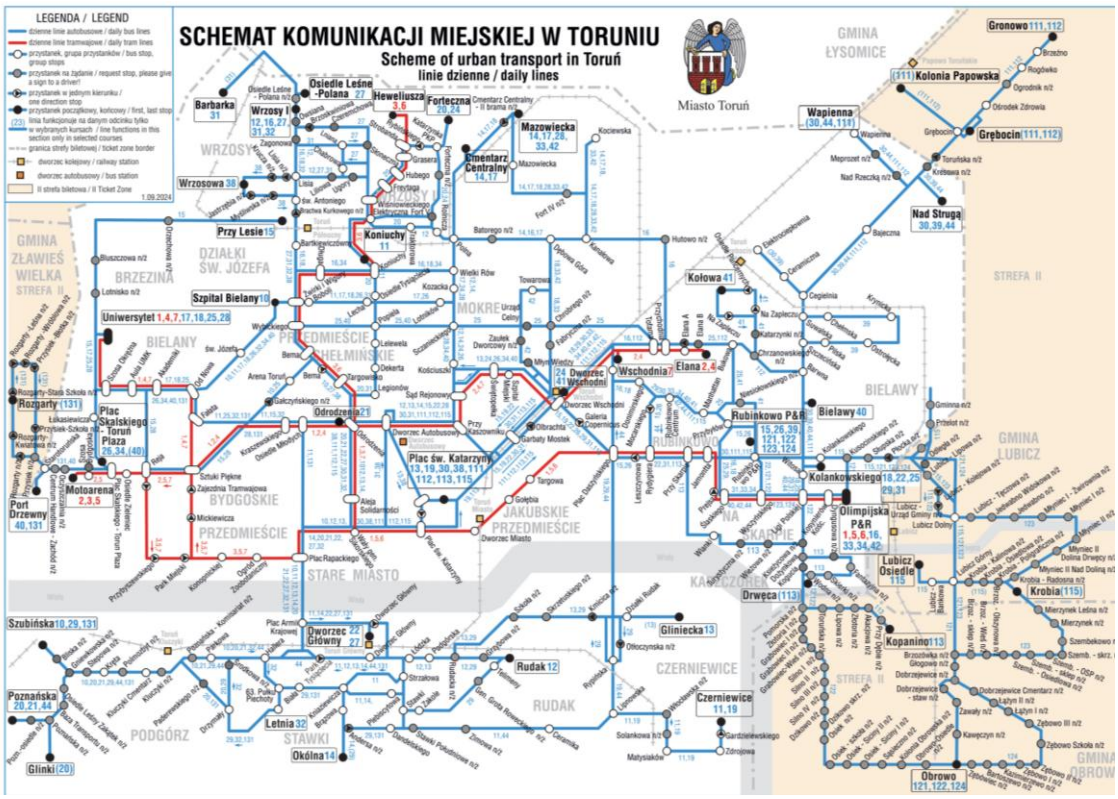


Figure 58 Scheme of the urban public transport system in Toruń

Source: https://mzk-torun.pl/

1.7. Comparative Analysis of the Civic Lab Areas

The six Civic Lab areas included in the CONIFER project differ substantially in their demographic, socio-economic, spatial, environmental and mobility characteristics. These differences reflect the diversity of European urban contexts, ranging from large metropolitan neighbourhoods to medium-sized regional cities and territorially diverse municipalities. At the same time, all Civic Labs share a common objective: creating safer, healthier and more sustainable environments that support children's independent mobility.

1.7.1 Demographic Characteristics

Population density differs substantially across the case studies. The Brussels Civic Lab represents the most densely populated urban environment, with several neighbourhoods exceeding 18,000 inhabitants per km² and Gare de l'Ouest approaching 20,000 inhabitants per km². Similarly, the Dampoort area in Ghent is characterised by compact urban development and high residential density. In Cologne, densities vary considerably between neighbourhoods, reflecting the coexistence of compact post-war housing estates and lower-density suburban districts. Toruń exhibits a markedly lower average density (1,674 inhabitants per km²), although its internal structure also follows a clear core–periphery pattern, with compact multi-family housing estates contrasting with low-density peripheral districts. Matosinhos presents the greatest internal territorial diversity, combining dense metropolitan centres, consolidated suburban neighbourhoods and peripheral coastal settlements with dispersed development patterns. Budapest also encompasses neighbourhoods of differing urban intensity, although the availability of demographic information at neighbourhood level is more limited than in the remaining case studies.

The demographic dynamics of the Civic Labs also differ significantly. Brussels remains a relatively young and growing metropolitan area, with most analysed neighbourhoods recording positive population growth and above-average proportions of adolescents. Ghent similarly benefits from a comparatively young age structure supported by its role as a major university city. By contrast, Cologne and Toruń both experience population ageing, although its consequences are more pronounced in Toruń, where population decline, negative natural increase and negative migration balance contribute to a steadily increasing dependency ratio. Budapest follows demographic trends typical of many Central European capitals, characterised by population ageing and slower demographic

growth, while Matosinhos reflects contrasting demographic trajectories between its central, suburban and peripheral areas.

Household structures further illustrate the diversity of the study areas. Brussels and Cologne display relatively small average household sizes typical of metropolitan environments, although several neighbourhoods contain substantial proportions of households with children. Toruń differs by maintaining a predominantly family-oriented household structure, with an average household size of 2.54 persons and almost 70% of couple households including children. Matosinhos combines densely populated urban neighbourhoods with more dispersed residential communities, reflecting differences in housing forms and lifestyles across the municipality, whereas Budapest presents relatively stable residential neighbourhoods despite limited availability of detailed household statistics at the local level.

Migration and population diversity constitute another important dimension distinguishing the Civic Labs. Brussels and Ghent are characterised by highly multicultural populations representing numerous nationalities and migration backgrounds. Cologne also displays considerable international diversity, although with greater variation between neighbourhoods. Toruń differs substantially from the metropolitan cases, functioning primarily as a city of temporary rather than permanent migration, with residents from Ukraine and Belarus accounting for over three-quarters of all foreign residents registered for temporary stay. In Matosinhos, demographic diversity is expressed less through international migration than through strong territorial contrasts between central, suburban and peripheral communities, while comparable neighbourhood-level migration data remain limited for Budapest.

Overall, the demographic comparison demonstrates that the six Civic Lab areas encompass markedly different stages of urban and demographic development. Some represent rapidly growing and highly multicultural metropolitan neighbourhoods, while others face population ageing, demographic decline or pronounced internal territorial contrasts. Despite these differences, all case studies include substantial populations of children and young people and therefore provide appropriate settings for examining how demographic context shapes everyday mobility, access to services and the use of public space within the framework of proximity-oriented urban development.

1.7.2. Socio-economic Characteristics

The greatest socio-economic disparities are observed within the metropolitan case studies. The Brussels Civic Lab includes several neighbourhoods characterised by low household incomes, high unemployment, substantial social housing stocks and a high

proportion of residents receiving social assistance. Similar patterns of socio-economic vulnerability are evident in the Dampoort area of Ghent, where household incomes remain below the city average and unemployment is comparatively high despite the city's overall economic strength. Both case studies therefore combine dense urban environments with significant social inequalities, making them particularly relevant for analysing how socio-economic disadvantage affects children's independent mobility and access to public space.

Cologne presents a more heterogeneous socio-economic landscape. Considerable differences exist between neighbourhoods, with Buchheim, Buchforst and Mülheim displaying lower income levels and higher unemployment than districts such as Dellbrück, Dünnwald or Flittard. This internal diversity enables comparisons between socially contrasting neighbourhoods within the same metropolitan context and illustrates how local socio-economic conditions may influence mobility patterns despite similar institutional and transport frameworks.

Matosinhos represents a different type of socio-economic diversity. Rather than pronounced urban deprivation, the municipality is characterised by strong contrasts between its central urban areas, suburban neighbourhoods and peripheral coastal settlements. These differences are reflected in employment structure, accessibility to services, housing patterns and transport opportunities. While the urban core benefits from a diversified economy and high accessibility, more peripheral areas experience greater dependence on private cars and reduced access to services and public transport, illustrating how territorial structure interacts with socio-economic conditions in shaping everyday mobility.

The Budapest Civic Lab areas are generally located within relatively stable residential districts characterised by good educational infrastructure, extensive green spaces and satisfactory access to public transport. However, neighbourhood-level socio-economic statistics remain considerably less accessible than in the other case studies, limiting direct comparisons of income, unemployment or housing tenure. Consequently, the Budapest analysis relies primarily on broader district-level characteristics rather than detailed local indicators.

Toruń differs from the metropolitan case studies as a medium-sized regional city with a relatively stable labour market and a service-oriented economy supported by the presence of Nicolaus Copernicus University. Unemployment remains low compared with regional and national averages, while the city continues to record growth in economic activity and housing development. Nevertheless, long-term demographic decline and population ageing are beginning to reshape demand for housing, public services and

educational infrastructure, creating challenges that differ fundamentally from those observed in rapidly growing metropolitan areas.

Overall, the comparison demonstrates that the Civic Lab areas represent three broad socio-economic contexts: socially vulnerable metropolitan neighbourhoods (Brussels and parts of Ghent), economically differentiated urban districts within large metropolitan regions (Cologne and Matosinhos), and relatively stable Central European urban environments (Budapest and Toruń). This diversity strengthens the comparative dimension of the CONIFER project by enabling the assessment of children's mobility across neighbourhoods shaped by contrasting economic conditions, social structures and development trajectories.

1.7.3. Urban Form and Spatial Structure

Brussels and Ghent represent compact urban environments characterised by dense, mixed-use development and highly interconnected street networks. Residential, commercial and public functions are closely integrated, allowing relatively short travel distances between schools, homes and everyday destinations. At the same time, both cities contain major transport corridors and railway infrastructure that fragment neighbourhoods and create significant physical barriers for pedestrians and cyclists. Ongoing urban regeneration projects increasingly focus on reconnecting these fragmented urban fabrics through improvements to public spaces and sustainable mobility infrastructure.

Cologne displays a more heterogeneous urban structure. The Civic Lab encompasses both compact inner-city neighbourhoods with multi-family housing and lower-density suburban districts characterised by detached housing and extensive green spaces. This transition from dense urban environments to suburban residential areas creates substantial variation in accessibility, street connectivity and travel behaviour within the same metropolitan area, providing valuable opportunities for comparative analysis.

Budapest also reflects a polycentric urban structure, where residential districts differ considerably in their morphology and functional characteristics. The Civic Lab areas combine compact residential development with generous green spaces and educational facilities, illustrating the legacy of planned urban expansion and the coexistence of historical and post-war neighbourhoods. Although neighbourhood-level data are less detailed than in the other case studies, the selected areas represent well-established residential environments rather than rapidly transforming urban districts.

Matosinhos presents perhaps the greatest morphological diversity among the six case studies. The municipality includes a dense urban centre, consolidated suburban

neighbourhoods and dispersed peripheral settlements along the Atlantic coast. Consequently, the spatial relationship between housing, schools, services and transport infrastructure varies considerably across the Civic Lab. While central areas largely fulfil the principles of proximity through compact mixed-use development, peripheral areas are characterised by lower densities, greater functional separation and longer travel distances, creating distinct challenges for sustainable mobility.

Toruń differs from the metropolitan case studies as a medium-sized city with a clearly identifiable core–periphery structure. Dense post-war housing estates and the historic city centre concentrate population, services and educational facilities, whereas peripheral districts are dominated by lower-density single-family housing interspersed with green spaces. This spatial pattern creates significant variation in accessibility and travel behaviour while maintaining relatively short distances at the city scale. The historic urban core, together with the presence of the university and major public institutions, further strengthens the concentration of everyday urban functions within central neighbourhoods.

Overall, the comparison highlights that the Civic Lab areas represent complementary models of European urban development, including dense metropolitan neighbourhoods, polycentric metropolitan districts, medium-sized regional cities and territorially diverse municipalities. These contrasting urban forms provide an appropriate basis for examining how spatial structure influences children's independent mobility, accessibility to daily destinations and the implementation of proximity-oriented planning strategies within different European contexts.

1.7.4. Environmental Characteristics

The metropolitan case studies of Brussels and Ghent experience the greatest environmental pressures. High population densities, intensive road traffic and fragmented urban structures contribute to elevated levels of air and noise pollution, while the availability of green space varies considerably between neighbourhoods. Despite these constraints, both cities have implemented ambitious urban regeneration and climate adaptation programmes aimed at expanding green infrastructure, improving public spaces and increasing the resilience of densely urbanised districts.

Cologne presents a more balanced environmental profile. The Civic Lab includes both highly urbanised neighbourhoods and districts characterised by extensive parks, forests and open spaces. As a result, environmental conditions vary substantially within the study area, with suburban neighbourhoods generally benefiting from higher shares of vegetation and lower environmental pressures than more densely developed districts.

This internal diversity creates favourable conditions for comparing children's mobility under contrasting environmental settings.

Budapest also combines compact residential neighbourhoods with extensive green infrastructure. The selected Civic Lab areas benefit from the presence of parks, tree-lined streets and recreational spaces, although environmental conditions differ according to local traffic intensity and urban morphology. Compared with the Western European metropolitan case studies, the analysed neighbourhoods generally experience lower levels of urban density while maintaining relatively good access to natural and recreational environments.

Matosinhos is distinguished by its coastal location and strong environmental contrasts between central urban areas and peripheral settlements. The proximity of the Atlantic Ocean provides important recreational and landscape amenities, while environmental quality varies according to settlement density and transport accessibility. Peripheral areas benefit from greater access to natural landscapes but often experience lower accessibility to services and public transport, illustrating that favourable environmental conditions do not necessarily correspond to high levels of functional proximity.

Toruń differs from the remaining case studies through its relatively high proportion of green areas and its location within the Vistula River valley. Forest complexes, river corridors and numerous urban parks create favourable environmental conditions and contribute to a comparatively high level of ecological connectivity. Nevertheless, environmental quality varies across the city, with more densely built neighbourhoods experiencing greater exposure to traffic and reduced access to green spaces than peripheral residential districts.

Overall, the comparison demonstrates that environmental quality within the Civic Lab areas depends not only on the amount of green space but also on its accessibility, connectivity and integration with everyday urban functions. While metropolitan neighbourhoods face greater environmental pressures, they often compensate through investments in green infrastructure and public space improvements. Conversely, less densely urbanised areas generally offer higher environmental quality but may experience limitations related to accessibility and transport connectivity. These contrasting environmental settings provide an important context for understanding children's perceptions of neighbourhood quality and their everyday mobility choices within the CONIFER project.

1.7.5. Mobility Conditions

The metropolitan Civic Labs of Brussels and Ghent benefit from highly developed public transport networks and compact urban structures that support walking and cycling for many everyday journeys. Short travel distances and mixed land use create favourable conditions for active mobility. Nevertheless, both areas experience heavy traffic, congestion and major transport corridors that act as physical and psychological barriers for children. High traffic volumes, complex intersections and concerns about road safety remain important constraints on independent mobility despite generally good accessibility to services and schools.

Cologne combines relatively well-developed public transport with considerable variation in neighbourhood characteristics. Walking represents the dominant mode of travel to school across the study area, while public transport also plays a significant role. Cycling remains comparatively limited despite the city's extensive cycling network, reflecting differences in neighbourhood infrastructure, travel distances and perceived safety. Considerable variation between compact urban districts and lower-density residential neighbourhoods illustrates the influence of urban form on children's travel behaviour.

The Budapest Civic Lab also demonstrates a relatively balanced mobility profile. Walking and public transport constitute the principal modes of school travel, whereas private car use remains moderate and cycling accounts for only a small proportion of trips. The selected neighbourhoods benefit from good accessibility to educational facilities and public transport, although differences in infrastructure quality and local street environments continue to influence children's everyday mobility choices.

Matosinhos illustrates how mobility conditions vary according to territorial context. In the urban centre, compact development enables many daily destinations to be reached on foot, although heavy traffic and poor pedestrian infrastructure reduce the perceived quality of active travel. In suburban areas, walking remains feasible but is often constrained by discontinuous sidewalks and conflicts with motor traffic. Peripheral settlements experience the greatest mobility challenges, where long travel distances, limited public transport and dispersed development generate a high dependence on private cars and substantially reduce opportunities for independent mobility among children. The comparison of the three school contexts demonstrates that proximity depends not only on physical distance but also on the quality and continuity of mobility infrastructure.

Toruń represents the mobility conditions of a medium-sized Central European city. The relatively compact urban structure allows many schools and public services to remain accessible within short travel distances, while the city's cycling network and public transport system support sustainable mobility. At the same time, increasing motorisation, traffic congestion on major corridors and spatial differences between dense housing

estates and peripheral residential districts create varying conditions for children's everyday travel. The city's ongoing investment in active mobility infrastructure reflects broader efforts to improve accessibility and reduce dependence on private vehicles.

Overall, the comparison demonstrates that mobility conditions across the Civic Lab areas are determined not only by the availability of transport infrastructure but also by the interaction between urban form, socio-economic characteristics and environmental quality. While metropolitan neighbourhoods generally provide high accessibility and extensive transport networks, they also face greater traffic-related barriers. In contrast, medium-sized cities and peripheral areas often benefit from lower traffic intensity but experience longer travel distances and reduced transport options. These complementary conditions provide a valuable foundation for evaluating context-sensitive strategies that promote children's independent mobility across diverse European urban environments.

1.7.6. Comparative Synthesis and Implications for the CONIFER Civic Labs

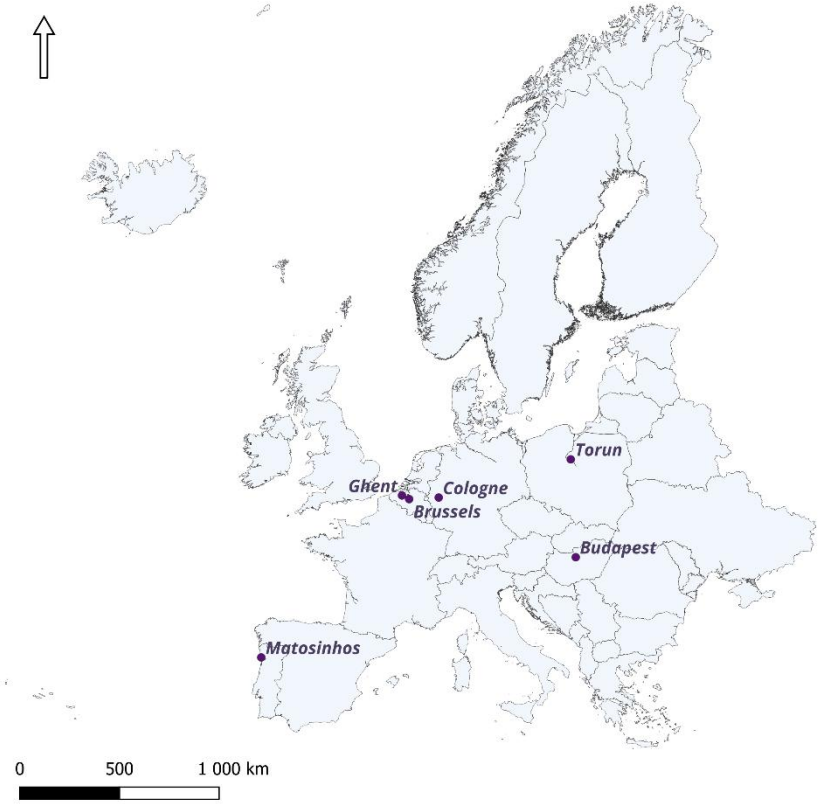
The comparative analysis demonstrates that the six Civic Lab areas represent a broad spectrum of European urban contexts, encompassing large metropolitan regions, medium-sized cities and territorially diverse municipalities. Although they differ substantially in demographic trends, socio-economic conditions, urban morphology, environmental quality and transport systems, all study areas share a common objective: improving children's everyday mobility through more accessible, inclusive and sustainable neighbourhood environments.

Tab. Comparative Characteristics of the CONIFER Civic Lab Areas

Civic Lab	Demographic profile	Socio-economic context	Urban form	Environmental characteristics	Key mobility challenge
Brussels	Young, growing, multicultural	High socio-economic disparities	Dense metropolitan neighbourhoods	High traffic pressure, limited green space in some areas	Road safety, traffic barriers
Budapest	Ageing, relatively stable	Stable residential districts	Compact residential neighbourhoods with green areas	Good environmental quality, neighbourhood variation	Limited cycling, improving active mobility
Cologne	Mature population,	Mixed socio-	Dense urban districts and	High availability of	Differences between

	moderate decline	economic profile	suburban neighbourhoods	parks and green spaces	neighbourhoods in accessibility
Ghent/Kortrijk	Young, multicultural, student population	Moderate socio-economic vulnerability	Compact mixed-use urban structure	Urban regeneration, traffic and environmental pressure	Balancing accessibility with traffic safety
Matosinhos	Diverse demographic structure	Strong centre–periphery contrasts	Urban core, suburban and coastal settlements	Coastal environment, contrasting accessibility	Car dependency in peripheral areas
Toruń	Ageing and declining population	Stable regional economy	Medium-sized city with core–periphery structure	High share of green areas and river landscape	Maintaining sustainable mobility during demographic decline

Figure 59 Geographical Distribution of the CONIFER Civic Lab Areas in Europe



One of the principal findings is that proximity cannot be understood solely in terms of geographical distance. While compact metropolitan areas such as Brussels and Ghent

generally provide excellent spatial accessibility to schools, public transport and everyday services, these advantages are frequently offset by heavy traffic, environmental pressures and complex street environments that reduce children's perceived safety and independent mobility. Conversely, less densely developed areas, including parts of Matosinhos and Toruń, often provide higher environmental quality and lower traffic intensity but face challenges related to longer travel distances, lower service concentration or greater dependence on private vehicles. The comparison therefore confirms that functional proximity emerges from the interaction between spatial structure, transport infrastructure, environmental quality and social conditions rather than from density alone.

The analyses also reveal that socio-economic context plays a fundamental role in shaping mobility opportunities. Neighbourhoods experiencing greater socio-economic disadvantage frequently coincide with higher environmental burdens, lower-quality public spaces and increased dependence on active and public transport. In contrast, more affluent neighbourhoods generally benefit from better environmental conditions and higher-quality public infrastructure but may also exhibit greater levels of car ownership and more dispersed travel patterns. These findings underline the importance of integrating equity considerations into policies promoting sustainable mobility and proximity-based urban development.

Despite considerable contextual differences, all Civic Lab areas demonstrate the strategic importance of schools as local anchors for participatory planning. Schools connect children, families, local authorities and community organisations while concentrating a large proportion of everyday mobility within relatively small spatial areas. As a result, they provide an appropriate scale for testing innovative solutions aimed at improving walking, cycling, public transport accessibility and the quality of public space. This shared characteristic creates a common methodological foundation for comparing interventions across highly diverse urban settings.

The comparative assessment further demonstrates that no single model of a proximity city can be universally applied. Instead, the findings support a place-based approach in which mobility interventions respond to local demographic structures, spatial organisation, environmental conditions and community needs. Measures appropriate for dense metropolitan neighbourhoods, such as reallocating street space or calming traffic, may differ substantially from those required in peripheral or lower-density contexts, where improving public transport connectivity or addressing longer travel distances becomes equally important.

From the perspective of the CONIFER project, the diversity of the six Civic Lab areas constitutes one of its principal strengths. By bringing together contrasting urban

environments from different European countries, the project creates opportunities to identify both context-specific solutions and transferable principles for improving children's independent mobility. Rather than promoting a single urban model, the comparative approach demonstrates how common objectives—safe, healthy and inclusive mobility for children—can be achieved through different planning strategies adapted to local conditions.

Overall, the six Civic Labs form a complementary network of living laboratories that captures the diversity of contemporary European urban development. Their comparison provides a robust empirical foundation for the subsequent phases of the CONIFER project, including participatory co-design, scenario development and the formulation of evidence-based policy recommendations that are both locally grounded and broadly transferable across European cities.

Understanding mobility landscapes in the context of the research results or 15mC perceptions in the context of the research results

This chapter presents the main findings of the empirical research conducted across the Civic Labs participating in the project. The analyses focus on how children and young people perceive their everyday mobility environments and the extent to which these environments reflect the principles of the 15-Minute City. By combining quantitative and qualitative research methods, the project examines mobility behaviours, accessibility, independent mobility, sense of place, and everyday experiences within diverse urban contexts.

The chapter is organised into three complementary research tasks. **Task 3.1** analyses accessibility and mobility patterns by comparing objective travel times with participants' subjective perceptions and evaluations of everyday journeys. **Task 3.2** investigates the relationship between proximity-based living and sense of place, exploring the social, environmental, and behavioural factors that shape local experiences. **Task 3.3** presents findings from participatory media research, highlighting how children and young people perceive, document, and interpret their neighbourhoods through visual methods.

Together, these analyses provide a comprehensive understanding of children's everyday mobility landscapes and identify the opportunities and barriers associated with implementing the 15-Minute City concept across different European urban contexts.

Task 3.1

Collaborative Diagnostics of 15-Minute Accessibility

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Version: 1.1

Date: 30.05.2026

2. Collaborative Diagnostics of 15-Minute Accessibility (TASK 3.1)

2.5. Introduction

The aim of this task is:

- To assess the objective and perceived accessibility of key services and daily activities within the surroundings of schools participating in the civic labs, using a digital mapping tool in a workshop setting.

To fulfil this aim, we will focus on the following objectives.

- Compare computer-estimated travel times with children's subjective estimations and identify discrepancies between perceived and measured accessibility.
- Understand how children's walking experience, its safety, comfort, attractiveness, and overall quality, shapes their perception of accessibility and travel time.
- Investigate whether school-neighbourhood accessibility, housing proximity, or other contextual factors influence mode choice and levels of independent mobility in children's home-to-school travel.
- Identify factors that most influence children's evaluation of route quality and their willingness or reluctance to walk to particular destinations.

To achieve these objectives a Web App was developed to be used in workshops and with also the intended to build spatial awareness and support participatory reflection among

children, enabling them to articulate how their urban environment supports or hinders inclusive and child friendly mobility.

2.6. Research methodology

The research methodology consisted of the following components:

- Development of a web-based mapping application
- Design of the integrated survey
- Development of the participatory workshop format
- Implementation of workshops with school children
- Quantitative and qualitative data analysis

2.6.1. Web Application and Integrated Survey

To achieve these objectives a Web App was developed to be used in workshops and with also the intended to build spatial awareness and support participatory reflection among children, enabling them to articulate how their urban environment supports or hinders inclusive and child friendly mobility.

A map-based web application was developed to collect data on children's 'subjective' (perceived) walking time from school to key amenities within a 15-minute walking radius. The tool enabled comparisons between subjective estimations and 'objective' (computer-estimated) walking times and collected feedback on the walking experience.

2.6.1.1. Walking Speed Calculation

To define the 15-minute walking radius and calculate 'objective' walking times, it was necessary to estimate an average walking speed for different age groups. Age was identified as the primary determinant of walking speed.

Walking speed assumptions were based on Giannoulaki & Christoforou (2024), who provide a systematic overview of pedestrian walking speeds across age categories. As the reported values reflect free-flow conditions, we adjusted them downward by 20% to approximate walking speeds in real urban environments, accounting for factors such as sidewalk quality, pedestrian density, and waiting times at crossings.

Age Group	Free Flow (m/s)	Free Flow (km/h)	Urban Speed (m/s) ×0.8	Urban Speed (km/h) ×0.8
8-11	1.13	4.07	0.90	3.26
12-15	1.16	4.18	0.93	3.34
16-30	1.24	4.46	0.99	3.57

30-40	1.17	4.21	0.94	3.37

Table 1. Free-flow and adjusted urban walking speeds by age group (adapted from Giannoulaki & Christoforou, 2024)

Walking speed assumptions were based on Giannoulaki & Christoforou (2024), who provide a systematic overview of pedestrian walking speeds across age categories. As the reported values reflect free-flow conditions, we adjusted them downward by 20% to approximate walking speeds in real urban environments, accounting for factors such as sidewalk quality, pedestrian density, and waiting times at crossings.

Speeds were further adjusted for children with reduced mobility. Based on data from the Federal Highway Administration (2006), we estimated an average free-flow speed for adults with mobility impairments (0.81 m/s) and calculated a reduction factor relative to adults without impairments (1.17 m/s):

Reduction factor = 0.81 / 1.17 = 0.692

This factor was applied to children's walking speeds across age categories.

Age Group	Free Flow (m/s)	Free Flow, reduced mobility (m/s) × 0.692	Urban Speed, reduced mobility (m/s) × 0.8	Urban Speed, reduced mobility (km/h) × 0.8
9-11	1.13	0.78	0.62	2.23
12-15	1.16	0.80	0.64	2.30
16-18	1.24	0.86	0.69	2.48

Table 2. Adjusted walking speeds for children with mobility impairments

These speed estimates enabled the calculation of a 15-minute walking radius for each child, considering age and mobility characteristics.

2.6.1.2. Amenity Mapping

Key amenities surrounding each school were identified and mapped. Amenity categories included:

- Public transport stops (bus, tram, metro, train)
- Grocery shops and bakeries
- Snack places, canteens, cafés
- Libraries
- Sports centres, swimming pools, gyms

- Parks and green areas
- Homework help or after-school clubs
- Community or youth centres

Some categories were grouped to simplify the survey for children. All amenities were mapped within the maximum 15-minute walking radius using OpenStreetMap, Google Maps, and local knowledge provided by civic lab partners.

Analysis focused on the closest amenity in each category, while also considering the number of available amenities per category.

2.6.1.3. Integrated Survey

Data collection within the web application was conducted through an integrated digital survey designed to be age-appropriate, linguistically accessible, concise, and intuitive for participants. The survey consisted of two main parts:

1. Introductory questions on demographics (age, gender, mobility impairments), commuting mode, and accompaniment.

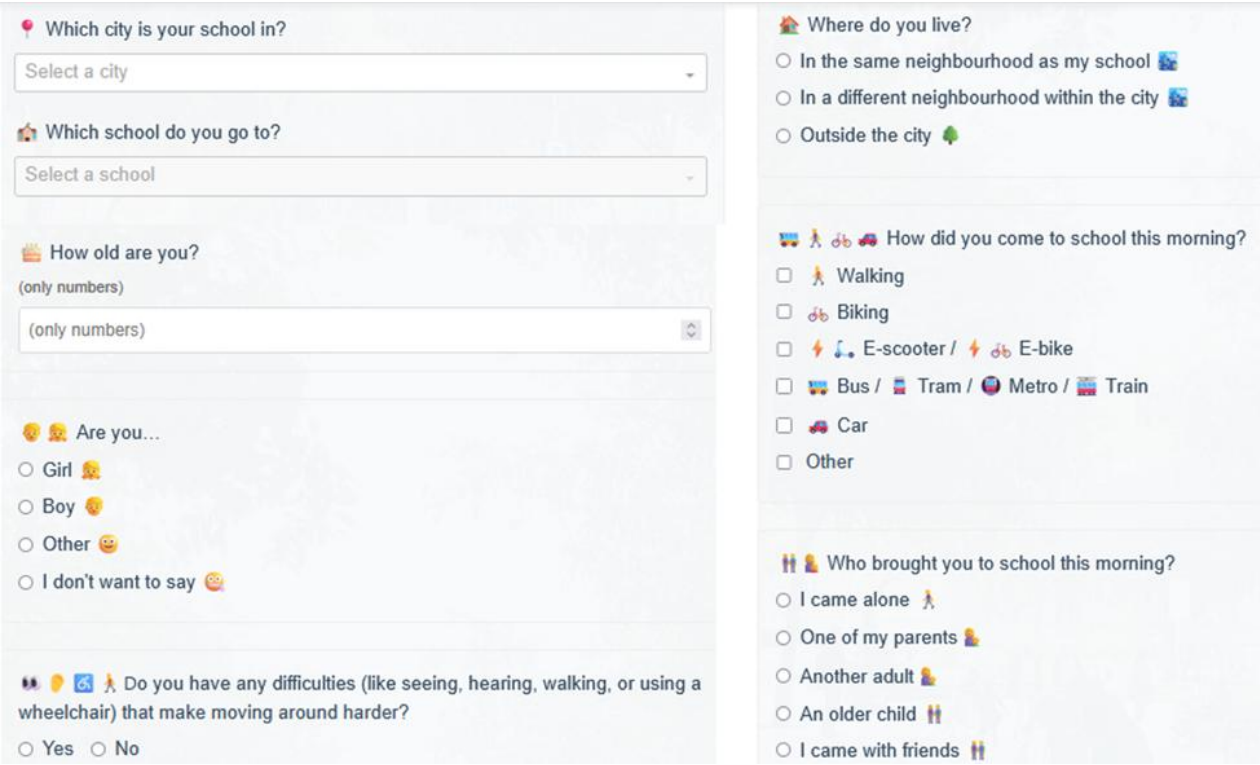

Figure 60 Introductory part of the web application survey (15-minute accessibility assessment tool, 2026)

Some categories were grouped to simplify the survey for children. All amenities were mapped within the maximum 15-minute walking radius using OpenStreetMap, Google Maps, and local knowledge provided by civic lab partners.

2. Route assessment, where children selected amenity categories they frequented, estimated walking time, and rated their walking experience on a 1–5 Likert scale, with an optional comment.

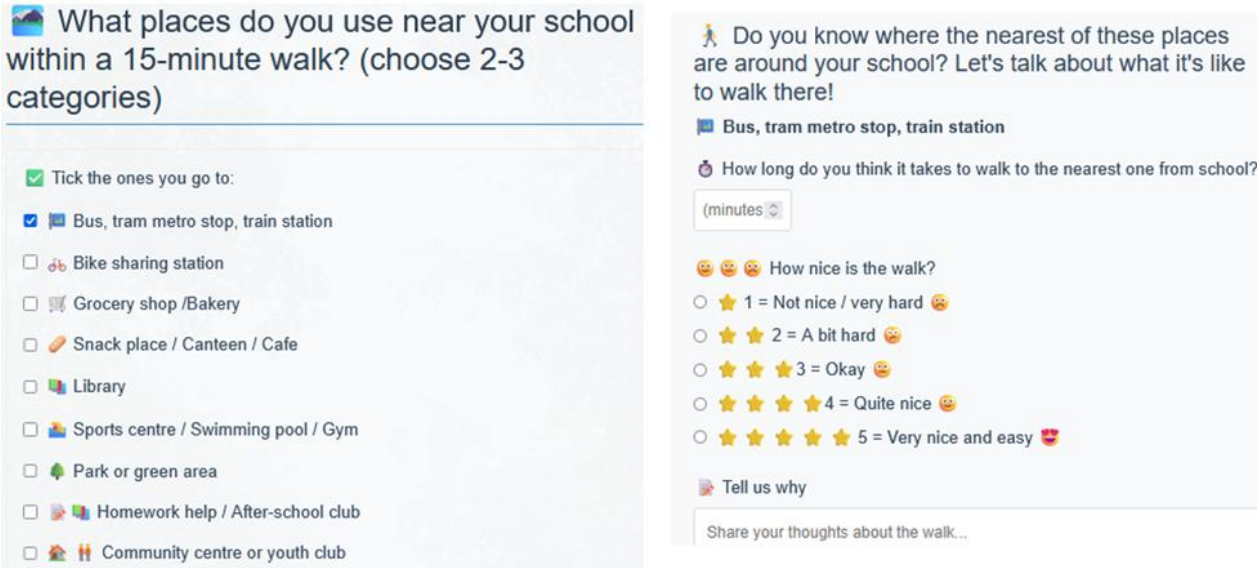

Figure 61 Route assessment interface part of the web application survey (15-minute accessibility assessment tool, 2026)

Some categories were grouped to simplify the survey for children. All amenities were mapped within the maximum 15-minute walking radius using OpenStreetMap, Google Maps, and local knowledge provided by civic lab partners.

Upon completion, children viewed:

- A comparison between children's self-estimated walking times and the computer-generated travel time calculations
- An interactive map displaying a tailored 15-minute walking radius and all accessible amenities within it, organised by amenity type

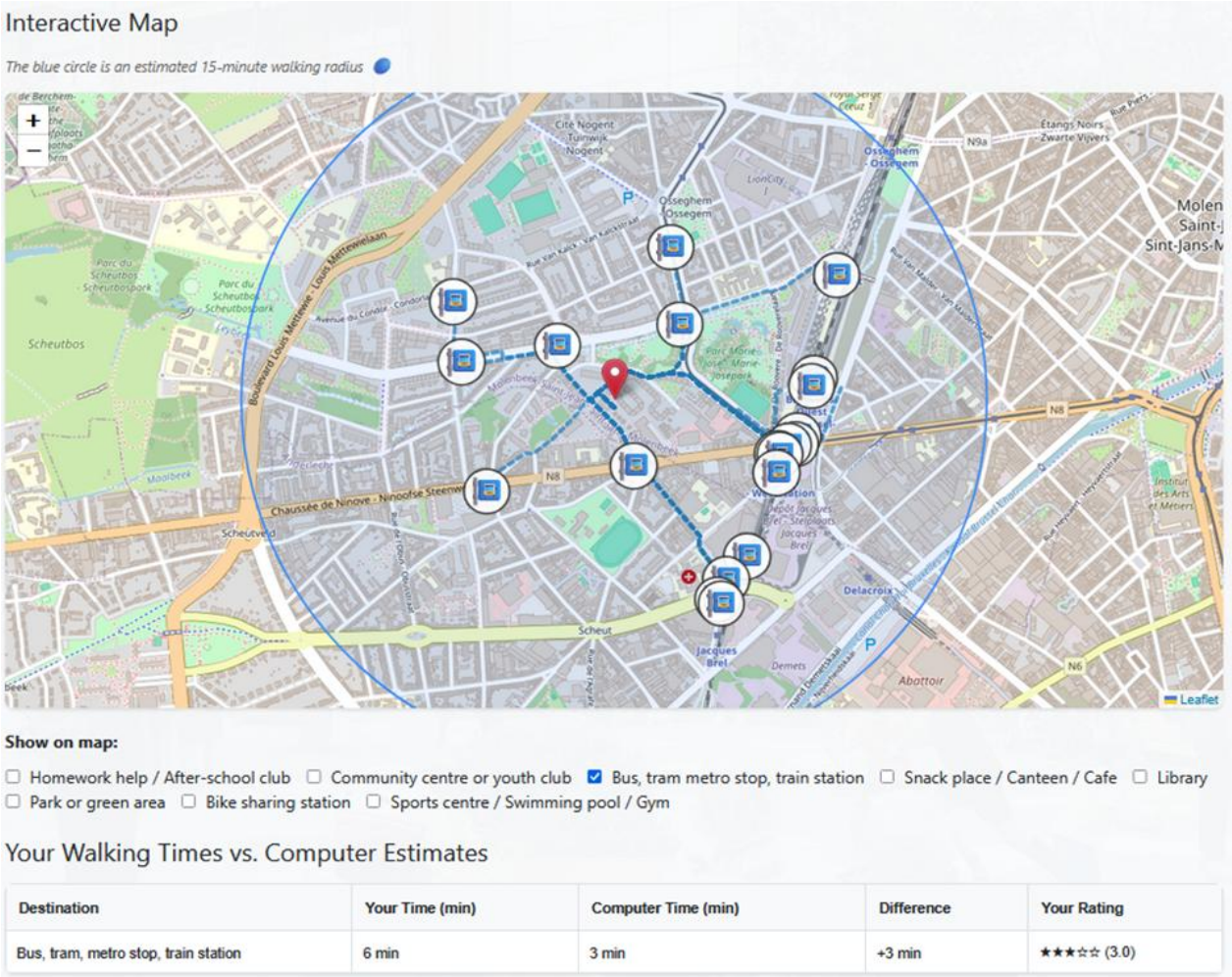

Figure 62 Example of web application survey results (15-minute accessibility assessment tool, 2026)

The survey results page was structured to serve as a discussion catalyst between participants and the facilitator, enabling children to explore and reflect on the characteristics of their school neighbourhood.

2.6.2. Workshop Design and Implementation

The web application served not only as a data collection tool but also as a participatory learning instrument, supporting children's reflection on proximity, mobility, and everyday routes. For this reason, the application was embedded within a participatory workshop format that combined both classroom-based and outdoor activities.

2.6.2.1. Workshop Design

The workshop was designed to invite children to assume the role of young researchers. Participants were encouraged to engage with new concepts, conduct analyses in collaboration with workshop facilitators, and synthesise their observations into a set of

recommendations for improving their neighbourhood. Through this structure, the workshop aimed to foster inquiry-based learning, critical reflection, and active participation.

The workshop outline proposed to the civic labs was structured into six parts:

- **Introductory part**
  In this initial stage, workshop facilitators provided background information about the research project and their role within it. They introduced and explained key concepts such as proximity and the 15-minute city.
- **Explaining sustainable mobility**
  This part focused on presenting the concepts of mobility and sustainable mobility through explanations supported by interactive activities.
- **Discovering the school neighbourhood**
  Children explored the surroundings of their school through a mapping activity and guided discussion, helping them develop spatial awareness and reflect on their daily environment.
- **Work with the web application and printed maps**
  In this stage, children were invited to complete the web application survey and discuss their results with facilitators. In parallel, other children worked with printed maps, marking their routes to everyday destinations and identifying factors that make these walks either easy or challenging.
- **Walkshop**
  Children participated in an outdoor group activity during which they walked to one of their daily destinations. They collectively assessed walking time and identified positive and hindering factors influencing their walking experience in terms of safety, comfort, and pleasantness. Particular attention was directed to elements such as pavement quality, sidewalk width, safety of road crossings, obstacles, slopes, ramps, greenery, noise levels, and availability of resting places.
- **Poster session**
  After completing the various research activities, children synthesised their observations and formulated suggestions for improving walkability in their school neighbourhood. They used creative methods to prepare posters and presented their ideas to the whole class.

Facilitators (researchers and teachers) accompanied groups and provided observational notes submitted through feedback forms.

2.6.2.2. Workshop Implementation and Participation

Workshops were implemented in 11 schools across all civic labs, including three schools in Matosinhos, two in Brussels, two in Budapest, two in Toruń, one in Cologne, and one in

Ghent. Group sizes ranged from 18 to 61 students, and participants' ages varied between 9 and 17 years old.

Across all participating schools, a total of 112 boys, 182 girls, 9 students identifying as "other" or preferred not to disclose their gender took part in the workshops. This distribution indicates that girls were overrepresented in the sample.

Regarding mobility impairments, 290 children reported not having any mobility issues, while 13 children reported having one, corresponding to 4.4% of all respondents. According to Eurostat (2025), 7.1% of people aged 16-24 have a disability, noting that the definition includes mental disabilities. In this sense, the proportion of children with mobility impairments in our sample can be considered broadly representative of the wider youth population.

While civic labs were able to adjust the workshop script to their local needs, all were required to implement the core elements, namely the introduction of key concepts and the structured work with the web application followed by group discussion.

2.6.3. Workshop Design and Implementation

Three types of data were collected:

- Quantitative data from the web application and preliminary map analysis
- Qualitative data from survey comments
- Feedback forms completed by civic lab leaders

Analysis was performed per school, given contextual differences and variations in sample composition.

2.6.3.1. Qualitative Data Analysis

Children's comments explaining their walking experience ratings (1-5) were first grouped by rating. A manual narrative analysis was conducted to verify alignment between numerical ratings and comment sentiment, considering possible misunderstandings of the Likert scale.

Comments were categorised into:

- 'Negative'
- 'Neutral' or 'mixed'
- 'Positive'

Each comment received one or more "meaning tags", which were later grouped into broader themes. Each theme was analysed in terms of frequency, dominance of sentiment, and key recurring expressions.

comment	thematic tag	thematic tag	thematic tag	theme	theme	theme
'Lots of marginalised people who bother me.'	marginalised people	bother me		safety; negative	comfort; negative	
'There are lots of lights and lots of cars, and the pavements are very narrow	many lights	many cars	narrow pavements	comfort; negative	traffic; negative	obstacles/sidewalk; negative
'It's a bit of a boring walk with all the exhaust fumes.'	a bit boring	exhaust fumes		engagement/variety; negative		
'Because you walk along a busy street'	along busy street			traffic; negative		
'Boring and ugly.'	boring	ugly		engagement/variety; negative	enjoyment; negative	
'Walking along the streets again, that's not so nice.'	along (busy) street	not nice		traffic; negative	enjoyment; negative	
'Because you have to cross a busy road'	cross busy road			safety; negative		
It runs along a busy street with lots of traffic to a busy square with lots of traffic	along busy street; lots of traffic			traffic; negative		
'Again marginal'	marginal			safety; negative		
It runs along a busy street with lots of traffic to a busy square with lots of traffic	along busy street; lots of traffic			traffic; negative		
'It's a nice option for walking, but not with a school bag!'	nice option	but not with school bag		enjoyment; positive	difficulty; negative	
'A bit too many junkies.'	many junkies			safety; negative		
'It's on a busy road, so it's not very pleasant.'	on a busy road	not pleasant		traffic; negative	enjoyment; negative	
It's not that far from school, but it's not safe to cross the road between the bus stops.	not far	not safe to cross		distance; positive	safety; negative	
"I don't really like taking the train. I don't mind walking itself. "	don't mind walking			enjoyment; neutral		
'It's busy, but easy to get there.'	busy	easy to get		comfort; negative	difficulty; positive	
'It's on a busy road, so it's not pleasant to be there.'	on a busy road	not pleasant		traffic; negative	enjoyment; negative	
'It's short and not very nice.'	short	very nice		distance; positive	enjoyment; positive	
You don't see much of nature, which means the walk isn't particularly enjoyable or scenic. But it's not a difficult route.	not much nature	not enjoyable/scenic	not difficult	environment/nature; negative	enjoyment; negative	difficulty; positive
It's a bit boring walking around like this, just between buildings, and I'd rather walk in the nature where there are lots of animals, but I'm fine with it because it's not that bad.	a bit boring to walk between buildings	prefer walk in nature	not that bad	engagement/variety; negative	environment/nature; negative	enjoyment; mixed
'It's a bit boring'	a bit boring			engagement/variety; negative		
'Just along the road'	just along the road			engagement/variety; negative		

Figure 63 Example of qualitative classification

2.6.3.2. Quantitative Data Analysis

In the quantitative analysis, the following elements were assessed.

Housing-school proximity, mode choice, and level of independent mobility

Housing proximity to school was analysed based on three self-reported categories:
(a) same neighbourhood,
(b) different neighbourhood (within the same city),
(c) outside the city.

Mode choice was examined through the *modal split*, referring to the distribution of mobility modes used by children for their home-to-school commute, based on the modes reported in the survey.

To assess children's autonomy in daily mobility, a *proxy for independent versus dependent mobility* was derived from the reported accompaniment.

- Independent mobility included responses such as "going to school alone" or "going with a friend."
- Dependent mobility included responses such as "going with a parent," "with another adult," or "with an older child."

Relationship Between Housing Proximity and Mode Choice

To explore whether housing proximity influences mode choice, modal shares were compared across groups of children living in different residential contexts, namely those living in the same neighbourhood as the school, in a different neighbourhood within the same city, and outside the city. This analysis aimed to identify differences in modal split associated with varying levels of residential proximity to the school.

Relationship Between Housing Proximity and Independent Mobility

In addition, the relationship between housing proximity and independent mobility was examined. Levels of independent versus dependent mobility were compared across the same three residential categories (same neighbourhood, different neighbourhood within the city, and outside the city).

The underlying hypothesis guiding this analysis was that higher proximity between home and school is associated with higher levels of independent mobility, as shorter distances and greater familiarity with the local environment may facilitate autonomous travel among children.

Amenity accessibility analysis

In addition to assessing housing-school proximity, modal split, and independent mobility, the quantitative analysis also examined the accessibility of amenities surrounding each school. Amenity accessibility was analysed using three indicators: availability, proximity, and a resulting accessibility index, distinguished into objective, subjective, and comprehensive forms.

Objective accessibility index represents actual proximity of amenities to each school. The accessibility index is constructed from availability and proximity.

Availability

The availability component A_i reflects the presence of amenity types within the 15-minute catchment area and is defined as:

$$A_i = N_i / N_{max}$$

where N_i denotes the total number of amenity types present within the radius, and N_{max} is the number of amenity types included in the analysis.

The value of A_i ranges between 0 and 1, with higher values indicating better amenity availability.

Objective Proximity

Proximity is calculated based on the average walking times to the nearest facility of each amenity type. For objective accessibility, computer-generated walking time estimates are used:

$$C_i^{obj} = 1 - t_i^{obj} / t_{max}$$

where t_i^{obj} represents the average walking time to the closest amenity of each type, and t_{max} is set to 15 minutes.

As with availability, the proximity index takes values between 0 and 1, with higher values denoting better accessibility.

Objective Composite Accessibility Index

Based on the two components, a composite objective accessibility index is calculated as:

$I_i^{obj} = w_1 A_i + w_2 C_i^{obj}$

where w_1 and w_2 are weights satisfying $w_1 + w_2 = 1$.
The simplest specification assigns equal weights: $w_1 = w_2 = 0.5$.

Subjective accessibility index, representing children's perceived proximity to amenities. It is derived using the same availability component A_i as above but replaces computer-estimated walking times with children's perceived walking times.

Subjective Proximity

$C_i^{sub} = 1 - t_i^{sub} / t_{max}$

where t_i^{sub} represents the average subjective walking time reported by children for each amenity type.

Subjective Composite Accessibility Index

$I_i^{sub} = w_1 A_i + w_2 C_i^{sub}$

The same weighting scheme as above applies, with weights summing to 1.

Comprehensive accessibility index, integrating both objective and subjective accessibility in a single indicator. It is constructed as:

$I_i = w_3 A_i + w_4 C_i^{obj} + w_5 C_i^{sub}$

where the weights satisfy $w_3 + w_4 + w_5 = 1$.
A possible parametrization assigns:

$w_3 = 0.5$, $w_4 = w_5 = 0.25$

This formulation allows the composite index to reflect both the physical structure of the urban environment (objective conditions) and children's lived experience of accessibility (subjective conditions), consistent with the broader methodological objectives of the task.

Amenity type use frequency

In addition to accessibility measures, amenity type use frequency was calculated based on the number of times each amenity category was selected by students as part of their daily destinations.

This indicator provided complementary insights, capturing not only how many amenity types were available and how close they were, but also how relevant and diverse these amenities were within children's everyday routines.

2.6.3.3. Analysis of Facilitators' Feedback Forms

In addition to survey data collected through the web-app activity and participatory workshops, facilitator feedback forms constituted an important qualitative input to the research.

The feedback forms captured facilitators' observations and reflections, based on insights gathered during workshops, walkshops, and informal group interactions with students. As such, they represent a second-order qualitative perspective, documenting how children collectively engaged with their neighbourhoods, articulated mobility experiences, and responded to participatory activities, rather than providing individual self-reported accounts.

The feedback forms were designed using a pre-defined and structured format, covering thematic blocks including neighbourhood familiarity, factors influencing amenity and route choices, elements shaping perceived walking time, positive and negative aspects of the walking environment, neighbourhood improvement ideas, and key learnings.

All relevant information from the feedback forms was extracted directly within these predefined thematic categories. Facilitators' observations were subsequently summarised, compared, and synthesised across schools in order to identify recurring patterns, shared challenges, and context-specific insights.

The facilitator feedback forms were treated as complementary qualitative evidence, enriching and contextualising the findings from the web-app survey and participatory methods. While the survey data provided individual-level perceptions and quantitative indicators, the feedback forms offered interpretive, contextual insights into how children interacted with space and articulated mobility issues during collective activities. Together, these sources provided a more comprehensive understanding of children's everyday walking environments and mobility experiences.

2.7. Research results

2.7.1. Brussels – Eugeen Laermans School and TADA School

2.7.1.1. School and Participant Profile

Among pupils from Eugeen Laermans School, 18 children aged between 9 and 12 years took part in the activity. The group was evenly distributed by gender, and two students reported having reduced mobility. Most participants lived in the same neighbourhood as the school (61%), while around one third came from other parts of Brussels.

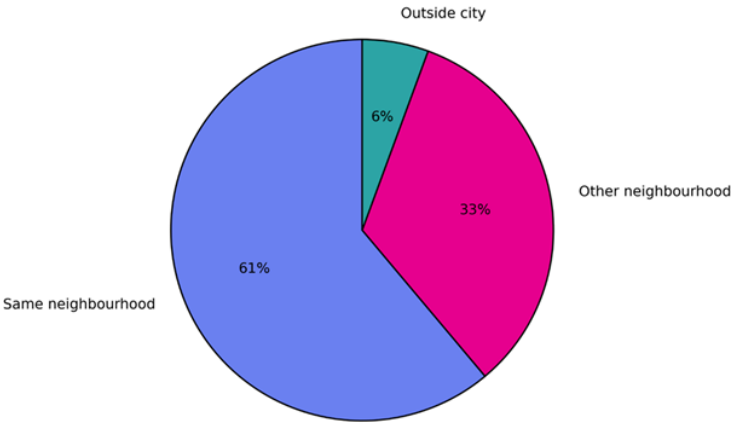

Figure 64 Distribution of students according to place of residence at the Eugeen Laermans school

For children attending TADA School, 21 participants aged 10 to 12 were involved. Girls represented slightly more than half of the group, and no reduced mobility was reported. Around one third of the children lived in the immediate neighbourhood, while the majority (62%) travelled from other areas of the city.

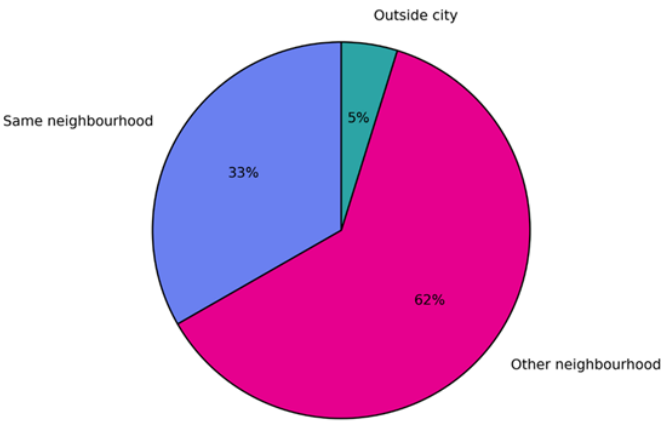

Figure 65 Distribution of students according to place of residence at the TADA school

Although the two groups are similar in age and spatial context, they differ in institutional role. TADA operates as a weekend school focused on supporting children from more vulnerable socio-economic backgrounds, a factor that needs to be considered when interpreting mobility experiences.

2.7.1.2. Amenity Use and Accessibility

In the case of Eugeen Laermans School, six amenity types were located within a 15-minute walking radius, resulting in an availability index (A_i) of 0.75. Computer-estimated walking times yielded an objective accessibility index (I_i^{obj}) of 0.75, indicating good objective access to nearby amenities. Children's perceived walking times were substantially longer than the computer estimates, producing a lower subjective accessibility index (I_i^{sub}) of 0.66. When combining availability, objective closeness, and subjective closeness, the comprehensive accessibility index (I_i) reached 0.7039. On average, perceived walking times exceeded computer-estimated times by more than three minutes, with the largest discrepancies observed for food-related amenities, snack places, parks, and public transport stops.

Results from TADA School indicate a slightly broader range of nearby amenities. Seven amenity types were identified within the same walking catchment, resulting in a high availability index (A_i) of 0.86. Objective walking times produced a strong objective accessibility index (I_i^{obj}) of 0.74. As at Eugeen Laermans, children tended to overestimate walking times, although the overall gap was smaller, averaging just over two minutes. This resulted in a subjective accessibility index (I_i^{sub}) of 0.71 and a comprehensive accessibility index (I_i) of 0.73, remaining relatively close to the objective measure. The largest perception gaps were reported for sports facilities and community centres, while walking times to homework-help locations and the library were underestimated.

Across both schools, children most frequently selected food-related destinations (grocery and bakery shops, snack places or canteens) and public transport stops, underlining the importance of daily necessities and mobility connections in children's routines. Recreational amenities such as parks and sports facilities formed a secondary group of commonly selected destinations. While objective accessibility is strong in the West Station area for both schools, perceived accessibility differed, with walking described as noticeably more demanding by children from Eugeen Laermans School.

2.7.1.3. Mobility Behaviour Patterns

Mode Choice and the Role of Housing Proximity

Mobility patterns differed between the two schools, despite their shared location in the West Station area.

For pupils at Eugeen Laermans School, daily travel to school was characterised by a strong reliance on walking, which accounted for 44% of trips. This was followed by public transport (24%) and car travel (20%), while cycling represented the smallest share at 12%, though this level remains relatively high compared to schools in other civic labs. Residential proximity had a clear influence: among children living in the same neighbourhood as the school, walking was by far the dominant mode (69%), while car use was very low (less than 8%). Children living further away showed a shift towards car reliance (36%) and public transport use (27%), with walking and cycling each accounting for 18%.

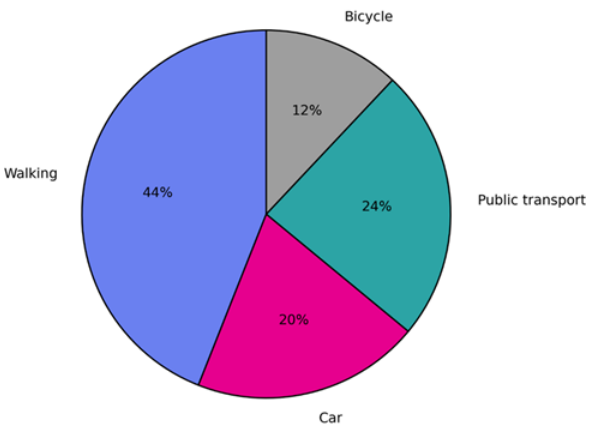

Figure 66: Distribution of students according to mode of commute at the Eugeen Laermans school

A more mixed mobility pattern was observed among participants from TADA School. Walking and car travel were equally common, each representing 33% of trips, followed by

public transport (21%) and cycling (13%). Here too, proximity supported walking: among children living in the same neighbourhood, walking was the dominant mode (57%), followed by car use (29%). For children living in other neighbourhoods within Brussels, car use increased to 40%, while walking decreased by half (to 27%), and both cycling and public transport became more prominent.

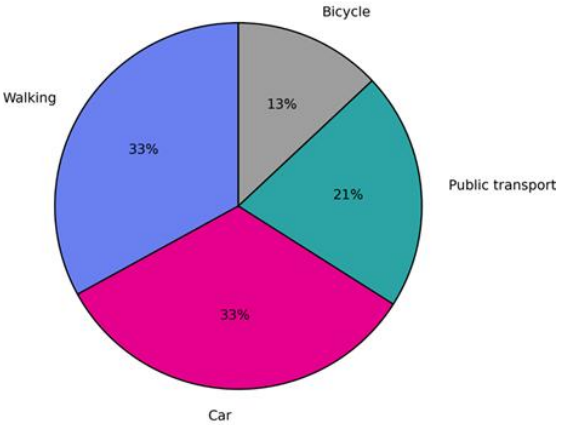

Figure 67 Distribution of students according to mode of commute at the TADA school

Taken together, results from both schools confirm that housing proximity strongly supports walking, but they also show that active mobility is more consistently embedded in everyday routines at Eugeen Laermans School, whereas TADA students rely more on a mix of modes, including car and public transport.

2.7.1.4. Independent Mobility and Housing Proximity

Patterns of independent mobility also differed between the two groups.

At Eugeen Laermans School, one third of students (33%) travelled independently, while two thirds were accompanied by an adult. Independence was clearly linked to proximity: 46% of children living in the same neighbourhood travelled independently, compared to only 17% of those living in another neighbourhood within Brussels. These results indicate that proximity strongly supports independent mobility.

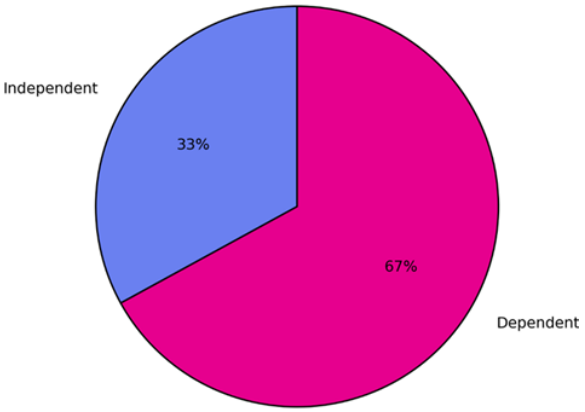

Figure 68 Distribution of students by independent versus dependent mobility at the Eugeen Laermans school

At TADA School, reported levels of independence were higher overall. More than half of students (52%) travelled independently, either alone or with friends, while 48% were accompanied by an adult. Differences by residential location were less pronounced: among children living in another neighbourhood within Brussels, 54% travelled independently, compared to 43% among those living in the same neighbourhood. This suggests that independence at TADA is not as tightly linked to proximity alone and may also reflect differences in family routines, weekend school schedules, or children's interpretation of neighbourhood boundaries.

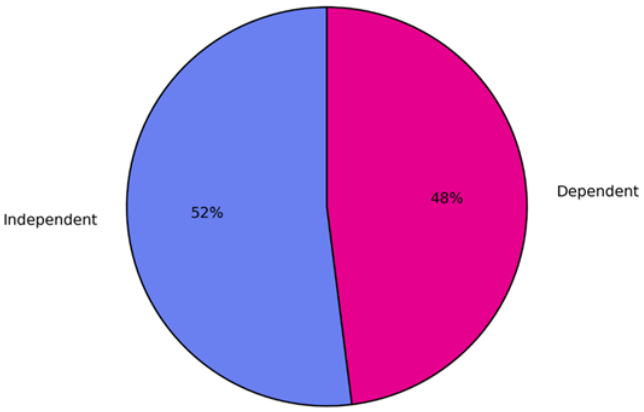

Figure 69 Distribution of students by independent versus dependent mobility at the TADA school

Overall, a clear relationship between residential proximity and independent mobility was observed only at Eugeen Laermans School, where children living closer to the school were substantially more likely to travel independently. At TADA School, independent mobility

levels were higher overall, but they were shaped by other factors rather than proximity, indicating that autonomy in this context cannot be explained by distance alone.

2.7.1.5. Children's Experience of the Walking Environment

Children's descriptions of the walking environment revealed strong overlaps in positive experiences, alongside differences in how challenges were perceived and articulated across the two schools.

Across both schools, children consistently highlighted short distances and ease of movement as key positive aspects of walking. Routes described as "not far" or requiring "not much walking" contributed to generally favourable attitudes, particularly when destinations were easy to reach and familiar. Enjoyment also emerged as a recurring theme, with children frequently describing walking as fun, nice, or something they liked doing, especially when routes felt pleasant and free from stress.

Workshop feedback from both schools further reinforced these positive perceptions. Children expressed strong appreciation for calm, low traffic environments, particularly parks, canal side areas, where walking felt quieter, safer, and more comfortable. These spaces were valued not only for their greenery but also for allowing play along the route, reinforcing walking as a social and enjoyable activity. The quality of pedestrian infrastructure, especially wide pavements, also supported positive walking experiences.

In contrast, survey comments identified relatively few barriers and focused mainly on effort and comfort, such as feeling tired on longer routes and uphill sections, or reluctance to walk through certain areas. However, workshop discussions revealed a much broader and more detailed set of challenges, particularly related to the immediate environment around West Station.

Children pointed to problems related to traffic, insufficient pedestrian infrastructure, and street cleanliness as key barriers to walking. Trash, unpleasant smells, and, in some cases, the presence of rats were frequently mentioned as making routes feel uncomfortable or unsafe. Narrow or missing sidewalks, unsafe crossings, and poor separation between pedestrians and cars were identified as particularly problematic. Traffic was often described as loud, smelly, fast, and chaotic, especially in the surroundings of West Station. In addition, a lack of benches, limited and unsafe cycling infrastructure, and monotonous routes further reduced the attractiveness of journeys.

2.7.1.6. Civic lab summary

The area around West Station offers strong objective accessibility to everyday amenities, as reflected in high objective accessibility indices at both schools ($I_i^{obj} \approx 0.74$-0.75).

However, children's perceptions tell a different story. At both schools, subjective accessibility indices were consistently lower than objective values (I_i^{sub} = 0.66 at Eugeen Laermans and 0.71 at TADA), indicating a clear gap between measured proximity and lived experience. This gap was larger at Eugeen Laermans, where perceived walking times exceeded objective estimates by more than three minutes on average. Workshop feedback suggests that this discrepancy is shaped not by distance alone, but by traffic intensity, route comfort, safety, cleanliness, and the overall sensory quality of walking environments, particularly around West Station.

Across both school communities, calm surroundings, greenery, and opportunities for play supported walking and enhanced enjoyment, especially in parks and canal side areas. Conversely, heavy traffic, unsafe crossings, narrow or discontinuous pavements, cleanliness issues, and a lack of benches or cycling infrastructure consistently reduced comfort and confidence. These environmental stressors often outweighed the benefits of proximity, making walking feel longer, more tiring, or less attractive than objective measures would suggest.

Clear differences emerged in how housing–school proximity translated into mobility outcomes. At Eugeen Laermans School, proximity showed a strong and consistent correlation with both mode choice and independent mobility: children living closer to the school were more likely to walk and to travel independently. At TADA School, proximity supported walking to some extent, but no clear correlation was found between proximity and independent mobility, and mode choice remained more mixed. Independent mobility at TADA appeared to be shaped by other factors, such as family routines, weekend attendance patterns, and broader social context, rather than distance alone.

Overall, the findings demonstrate that children moving through the same urban environment can experience accessibility very differently. Improving pedestrian and cycling infrastructure, reducing traffic impacts, enhancing cleanliness, increasing greenery, and providing more opportunities to rest and play would help narrow the gap between objective and perceived accessibility. Such measures would benefit both school communities, while being particularly important for supporting safe, pleasant, and inclusive mobility for children from more vulnerable backgrounds.

2.7.2. Budapest –Gyermekek Háza Alternative Secondary School and Gymnasiuma & Alternative Secondary school of Economics

2.7.2.1. School and Participant Profile

At Gyermekek Háza Alternative Secondary School and Gymnasium, 23 students aged between 11 and 13 years participated, mostly between 12-13. Slightly over half of the participants were girls, and two students reported reduced mobility. Residential patterns were relatively mixed: around 44% lived in the same neighbourhood, while over one third lived outside the city (35%).

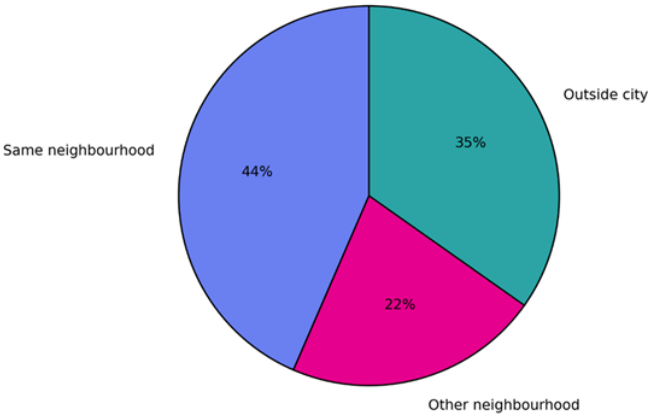

Figure 70 Distribution of students according to place of residence at the Gyermekek Háza Alternative Secondary School and Gymnasium

At Alternative Secondary school of Economics, 18 students aged 10 to 14 took part, with most participants in the older age group of 12-14. No reduced mobility was reported. The majority of students (72%) lived in another neighbourhood within Budapest, while smaller shares lived close to the school (17%) or outside the city (11%).

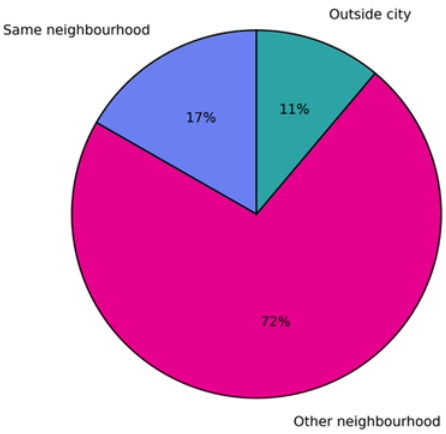

Figure 71 Distribution of students according to place of residence at the Alternative Secondary school of Economics

Across both schools, participants were predominantly older children, but Gyermekek Háza Alternative Secondary School and Gymnasium showed a higher share of students living either very close to or far outside the city, while Alternative Secondary school of Economics had a majority of students commuting from other parts of Budapest.

2.7.2.2. Amenity Use and Accessibility

Around Gyermekek Háza Alternative Secondary School and Gymnasium, seven amenity types were identified within a 15-minute walking radius, resulting in a high availability index (A_i = 0.75). Objective accessibility was modest (I_i^{obj} = 0.66), but children's perceived accessibility was slightly higher (I_i^{sub} = 0.69). A resulting comprehensive accessibility index was modest (I_i = 0.67). On average, walking felt shorter than objectively measured, with an average perception difference of -1.9 minutes.

At Alternative Secondary school of Economics, amenity availability was higher (A_i = 0.86) with seven amenities within the radius, and objective accessibility was relatively strong (I_i^{obj} = 0.72). Subjective accessibility exceeded the objective score (I_i^{sub} = 0.75), again indicating that children perceived destinations as closer than they were in reality. The comprehensive accessibility index (I_i) was higher by approximately 0.6 points in case of Alternative Secondary school of Economics, reaching 0.74. The average time perception difference was small (+0.7 minutes), suggesting close alignment between perceived and measured walking time.

Interestingly, Budapest was the only civic lab, where subjective accessibility index was higher than objective one, with the difference more significant in case of Gyermekek Háza Alternative Secondary School and Gymnasium.

At both schools, food related amenities and public transport stops were selected most frequently, underscoring the importance of everyday necessities. Recreational destinations (parks and sport facilities) were again the second most relevant category of amenities.

2.7.2.3. Mobility Behaviour Patterns

Mode Choice and the Role of Housing Proximity

At Gyermekek Háza Alternative Secondary School and Gymnasium, school travel was dominated by car use (57%), followed by public transport (25%) and walking (18%). Among students living in the same neighbourhood as school or different neighbourhood of Budapest, car trips accounted for half of modal split, with the other half evenly distributed between walking and public transport. Among children living outside the city, three quarter reported commuting by car and the rest relying on public transport.

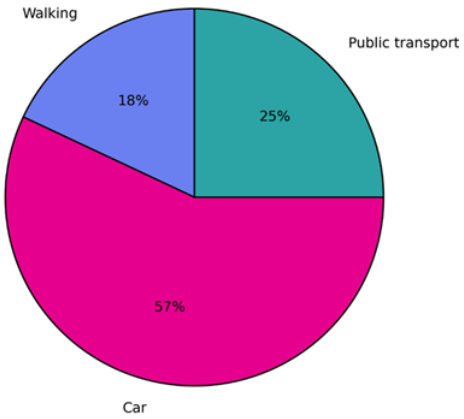

Figure 72 Distribution of students according to mode of commute at the Gyermekek Háza Alternative Secondary School and Gymnasium

In case of Alternative Secondary school of Economics a reliance on motorised travel was even higher, with car travel accounting for 70% of commutes, and public transport (15%) playing a limited role. Car commutes were dominant even among the students who reported to live within the same neighborhood as their school.

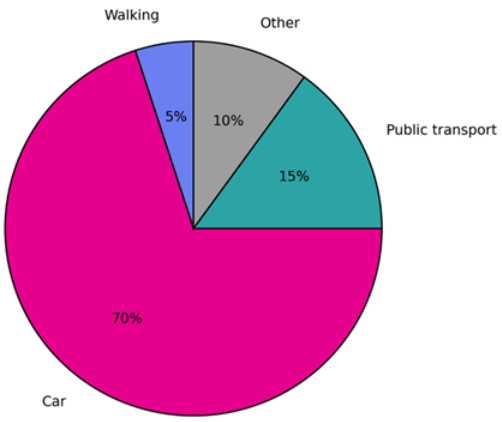

Figure 73 Distribution of students according to mode of commute at the Alternative Secondary school of Economics

Across both schools, housing proximity had a weaker influence on mode choice than observed in other civic labs. Car dependency remained high even among students living close to school, particularly at Alternative Secondary school of Economics, suggesting that distance alone is insufficient to shift travel behaviour in this context.

2.7.2.4. Independent Mobility and Housing Proximity

At Gyermekek Háza Alternative Secondary School and Gymnasium, only 26% of students travelled independently. Independence was lowest among children living outside the city (13%), with a moderate increase for those living within the city (30-40%). Most students were accompanied by an adult regardless of distance.

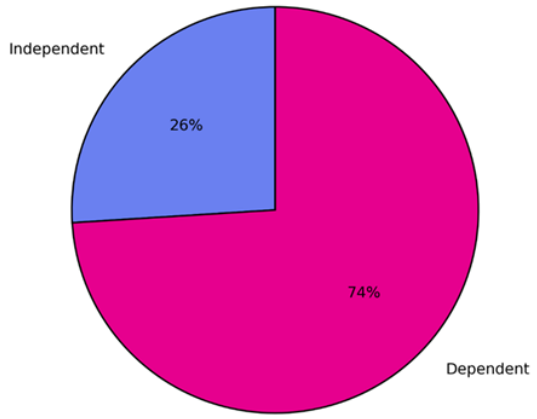

Figure 74 Distribution of students by independent versus dependent mobility at the Gyermekek Háza Alternative Secondary School and Gymnasium,

At Alternative Secondary school of Economics, independent mobility was even lower (22%). Since in this group by far most of students reported living in a different neighbourhood, it is difficult to draw conclusions regarding the correlation between housing proximity and independence rate.

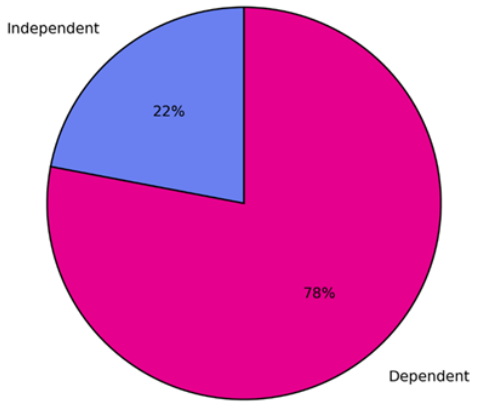

Figure 75 Distribution of students by independent versus dependent mobility at the Alternative Secondary school of Economics

Taken together, no clear or consistent correlation between housing-school proximity and independent mobility could be detected at either school. Autonomy appeared to be shaped more strongly by car dominance in case of both schools.

2.7.2.5. Children's Experience of the Walking Environment

Gyermekek Háza Alternative Secondary School and Gymnasium

Workshop at Gyermekek Háza Alternative Secondary School and Gymnasium showed that children had difficulties in orienting themselves in their school neighborhood when using the digital map, they were mostly interested in theirs places of residence rather than public amenities around the school. Their route choices were mainly influenced by personal relevance and familiarity rather than distance or route characteristics.

When looking at positive aspect of walking, in survey responses children most often described their walking experience through distance and proximity, with destinations frequently characterised as very close, or requiring only a short walk. Positive references to walking were typically linked to enjoyment were mentioned when walking felt relaxing or peaceful. Some children highlighted natural environments, such as forested areas, as pleasant places to walk with fresh air, while others referred to social aspects, such as walking with friends, as contributing to a positive experience.

At the same time, negative aspects were mentioned less frequently. Traffic proximity and safety concerns were raised in relation to difficult crossings or places where children had to walk next to a busy road. Physical effort related to steep uphill terrain or stairs and feelings of exhaustion, reduced walking comfort for several students. Overall, walking experiences were influenced by distance itself but also by natural and social components, safety, and physical effort.

Alternative Secondary school of Economics

Workshops conducted at Alternative Secondary school of Economics revealed that children were generally well acquainted with their school neighbourhood, particularly with routes and destinations that were part of their everyday routines. According to facilitators, children's route choices were shaped primarily by habit and familiarity, perceived safety, distance, and personal preference. While perceived walking time played an important role in route selection, participants sometimes preferred routes that felt safer or more pleasant, even if they were perceived as slightly longer.

Survey data further emphasized proximity as a key positive factor. Many students described destinations as being directly at the school, next to it, or within a short walking distance. Walking was commonly described as a pleasant activity, especially when there is no time pressure, with positive references to natural surroundings and social aspects such as walking with friends, as well as, in contrast, the opportunity to be alone. During the workshop, students also mentioned they appreciated quiet and low-traffic streets and safe crossings, and wide pavements that allow comfortable walking.

Negative experiences were mainly associated with an unengaging or monotonous environment (e.g. “boring to walk there every day”), safety concerns related to crossing or walking alongside busy roads, and physical challenges such as uphill terrain or stairs. The workshop findings further stressed dissatisfaction with narrow, poor quality or cluttered sidewalks (for example, with parked cars), nose and air pollution.

2.7.2.6. Civic lab summary

From an accessibility perspective, both school areas showed relatively strong objective accessibility to everyday amenities within a 15-minute walking radius. Subjective accessibility was rated even higher by children at both schools, making Budapest distinctive in that perceived accessibility exceeded objectively measured accessibility. This suggests that children generally experienced their surroundings as close and easy to reach, even where objective walking distances or times were longer.

Despite this high accessibility rate, both schools exhibited a strong reliance on car commutes and low levels of independent mobility, including among students who reported living relatively close to school. This dependence on motorised and adult accompanied travel likely influenced children’s relationship with their surrounding environment. At Alternative Secondary school of Economics, students demonstrated a general awareness of their surroundings and relied on familiar, routinely used routes. In contrast, children at Gyermekek Háza Alternative Secondary School and Gymnasium showed more limited spatial orientation beyond their home locations and appeared less engaged with amenities around the school, suggesting fewer opportunities to build neighbourhood familiarity through everyday movement. This pattern may also help explain why students tended to underestimate walking times to amenities, as regular car travel reduces direct experience of distances and routes on foot.

Regarding walking experiences, children at both schools described walking primarily through the lens of distance and duration, with short or immediate proximity supporting positive perceptions. Walking was often associated with pleasant experiences, particularly when routes included natural elements, calm surroundings, or social dimensions such as walking with friends. At the same time, negative aspects were consistently linked to environmental quality rather than distance alone. Busy roads, difficult crossings, monotonous routes, and physical effort related to slopes or stairs reduced comfort and enjoyment, sometimes making otherwise short walks feel less attractive.

2.7.3. Cologne – Städtisches Johann-Gottfried-Herder-Gymnasium

2.7.3.1. School and Participant Profile

A total of 38 students aged between 13 and 15 years participated in the activity at *Städtisches Johann Gottfried Herder Gymnasium*. The group was relatively balanced by gender, with girls representing approximately 55% and boys 45% of participants. Most students (95%) reported no reduced mobility, while two students indicated having mobility limitations.

Regarding residential location, the majority of participants (69%) lived in another neighbourhood within Cologne. The remaining students were distributed between those living in the same neighbourhood as the school (18%) and those residing outside the city (13%).

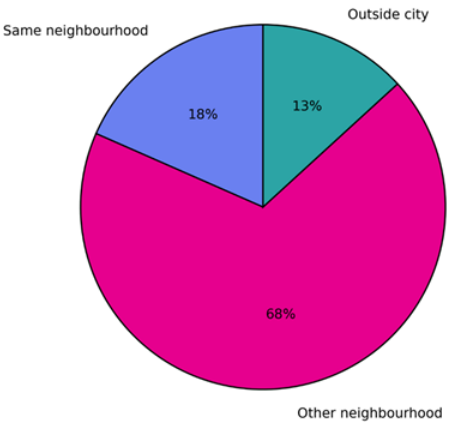

Figure 76 Distribution of students according to place of residence at the Städtisches Johann Gottfried Herder Gymnasium

2.7.3.2. Amenity Use and Accessibility

Seven amenity types were identified within a 15-minute walking radius of the school, resulting in a high availability index (A_i = 0.88). Computer estimated walking times produced an objective closeness index (C_i, obj = 0.64), which, together with availability, yielded a strong objective accessibility index (I_i^{obj} = 0.76). This indicates good objective access to daily amenities in the school surroundings.

Children's perceptions diverged notably from objective measures. The subjective closeness index (C_i, subj) dropped to 0.35, resulting in a substantially lower subjective accessibility index (I_i^{sub} = 0.61). This contrast suggests that walking distances were perceived as significantly longer than they objectively were. The resulting comprehensive accessibility index (I_i = 0.69) highlights a clear gap between objective and perceived proximity and places the school in the lower half of the accessibility scores among all participating schools.

Median time perception differences varied considerably across amenity types. Walking time was strongly overestimated for parks (+8 minutes), sports facilities (+5 minutes), and especially libraries (+13 minutes). In contrast, walking time to homework help locations (-7 minutes) was underestimated. Overall, the average time perception difference amounted to +1.6 minutes, representing a relatively high overestimation compared to other schools.

Students most frequently selected public transport stops and food related amenities (grocery/bakery shops and snack places/canteens) in the survey. Recreational amenities such as parks and sports facilities were selected less often.

2.7.3.3. Mobility Behaviour Patterns

Mode Choice and the Role of Housing Proximity

Public transport dominated daily travel to school, accounting for 58% of reported trips. Walking was the second most common mode (27%), followed by car use (11%) and cycling or e biking (4%).

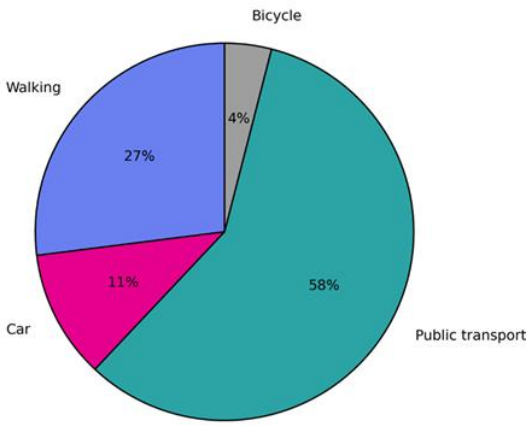

Figure 77 Distribution of students according to mode of commute at the Städtisches Johann Gottfried Herder Gymnasium

Clear differences emerged when considering place of residence. Among students living in the same neighbourhood as the school, active modes represented a substantial share, with walking as the dominant mode (56%) and cycling showing its highest use compared to other residential categories (11%). Public transport accounted for 22% of trips in this group, with the remainder made by car.

For students living in a different neighbourhood within Cologne, public transport was the main mode of commuting (63%), followed by walking (20%) and car use (13%). Students living outside the city relied almost exclusively on public transport (83%), with the remainder walking (167%).

These patterns indicate that housing proximity strongly supports walking and cycling, while longer commute distances increase reliance on public transport rather than private car travel.

2.7.3.4. Independent Mobility and Housing Proximity

Independent mobility was very high overall. Eighty seven percent of students travelled independently, either alone or with friends, while only 13% were accompanied by an adult.

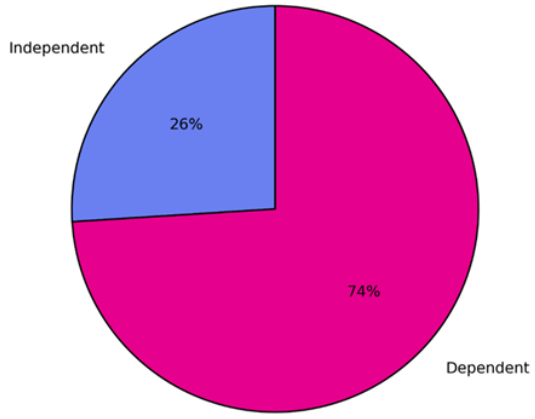

Figure 78 Distribution of students by independent versus dependent mobility at the Städtisches Johann Gottfried Herder Gymnasium

High levels of independence were observed across all residential categories. All students living outside the city travelled independently. Independence remained similarly high among students living elsewhere in Cologne (84.6%) and those living in the same neighbourhood as the school (85.7%).

These findings suggest that public transport availability and the urban context strongly support autonomous mobility, particularly for students in early adolescence, as is the case for this group.

2.7.3.5. Children's Experience of the Walking Environment

Workshop feedback revealed limited neighbourhood engagement beyond regular commuting routes. Students were familiar with supermarkets, fast food outlets, kiosks, bakeries, and public transport stations but made little use of other nearby amenities. Their experience of the school neighbourhood was shaped primarily by passing through rather than spending time there.

Several factors influenced route and amenity choices, including short walking distances, minimal detours, and personal preferences, such as the perceived attractiveness or "coolness" of certain places. Routes that were crowded, noisy, or required crossing multiple roads were often avoided.

Survey responses frequently highlighted proximity as a positive feature, with students describing routes as quick or destinations as only a short walk away. Environment and nature also influenced perceptions, as students appreciated walking through parks, green areas, rural sections, or along tree lined paths. Wide pavements and routes that required little physical effort were also valued. Workshop insights further indicated that positive walking experiences were associated with low noise levels, absence of major roads, good lighting, limited waiting times at traffic lights, and routes that were not overly crowded.

Negative and mixed comments dominated survey responses and focused mainly on route comfort. Students described paths as crowded, noisy, or dirty, and a strong sense of frustration was linked to public transport destinations, particularly due to frequently cancelled trains. Longer distances further reduced the attractiveness of amenities. Poor sidewalk quality, as well as traffic and safety related concerns, such as having to cross multiple roads or walk along busy streets, significantly worsened walking experiences. Several students also referred to unengaging or monotonous environments.

During workshop discussions, students identified additional barriers, including heavy traffic, long waiting times at crossings, litter, narrow sidewalks, and crowded spaces that made walking with friends uncomfortable. Some students explicitly noted that a 15-minute walk felt too long.

Suggested improvements primarily focused on cleaner streets, wider and more pedestrian friendly sidewalks, and more reliable public transport. Less frequently, students mentioned the need for additional green spaces, recreational opportunities, food outlets, or reduced car traffic.

2.7.3.6. Civic lab summary

The area around *Städtisches Johann Gottfried Herder Gymnasium* offers strong objective accessibility to everyday amenities, as reflected in a high objective accessibility index (I_i^{obj} = 0.76). However, children's perceptions reveal a substantial gap between objective and subjective accessibility, with walking often experienced as longer and less convenient than objective measures suggest.

This discrepancy appears to be shaped less by distance itself and more by traffic intensity, sidewalk quality, long waiting times at crossings, crowding, noise, and unengaging environments. In the context of this school, proximity clearly supported active mobility,

while the availability of public transport enabled exceptionally high levels of independent mobility, particularly given the age group (13-15 years).

Overall, improving the quality of walking environments is essential to complement strong objective accessibility. Cleaner public spaces, reduced congestion, wider sidewalks, and safer pedestrian crossings would enhance comfort and help make walking a more attractive component of students' everyday mobility.

2.7.4. Matosinhos – Escola Secundária Abel Salazar, Escola Secundária João Gonçalves Zarco and Escola EB Dr. José Domingues dos Santos

2.7.4.1. School and Participant Profile

Escola Secundária Abel Salazar

At Escola Secundária Abel Salazar, 22 students participated in the activities. Participants were aged between 15 and 17 years. Girls were overrepresented, accounting for more than two thirds of the group (68%), and three students reported reduced mobility (14%).

Residential patterns were almost evenly split between students living outside the city and those living in a different neighbourhood within the city (46% in each category), while only 9% lived in the same neighbourhood as the school.

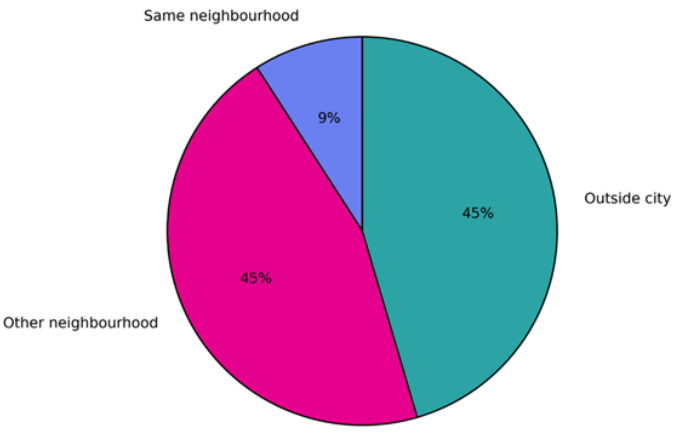

Figure 79 Distribution of students according to place of residence at the Escola Secundária Abel Salazar

Escola Secundária João Gonçalves Zarco

At Escola Secundária João Gonçalves Zarco, 24 students aged between 14 and 16 years took part. The group was also predominantly female (71%), and no reduced mobility was reported.

Most students lived in a different neighbourhood within Matosinhos (54%), while more than one third lived outside the city (36%).

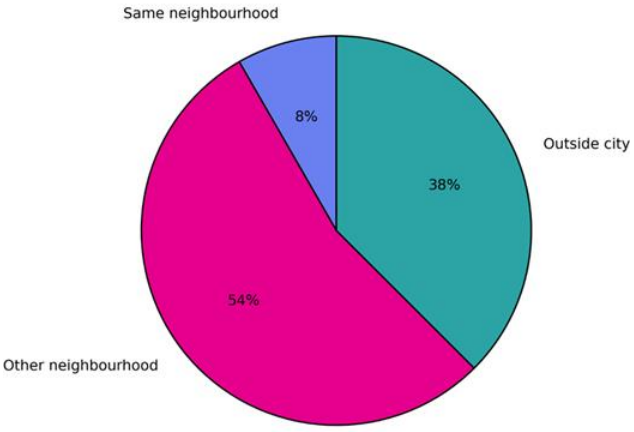

Figure 80 Distribution of students according to place of residence at the Escola Secundária João Gonçalves Zarco

Escola EB Dr. José Domingues dos Santos

At Escola EB Dr. José Domingues dos Santos, 19 students participated, all aged between 13 and 14 years. Gender distribution was relatively balanced, and two students reported reduced mobility (11%).

The majority of students lived in a different neighbourhood within the city (74%), while a smaller share lived in the same neighbourhood (16%) or outside the town (11%).

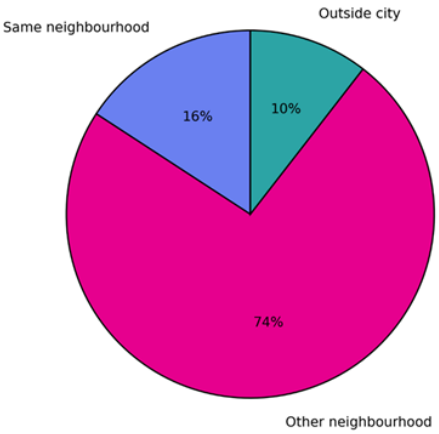

Figure 81 Distribution of students according to place of residence at the Escola EB Dr. José Domingues dos Santos

Across the three schools, participants were predominantly adolescents, with two schools showing an overrepresentation of girls. Residential patterns varied, with Abel Salazar and João Gonçalves Zarco having a higher share of students commuting from outside the city, while students from EB Dr. José Domingues dos Santos were more concentrated in neighbourhoods within Matosinhos.

2.7.4.2. Amenity Use and Accessibility

Escola Secundária Abel Salazar

Around Escola Secundária Abel Salazar, eight amenity types were identified within a 15-minute walking radius, resulting in the maximum availability index (A_i = 1). Objective accessibility was relatively strong (I_i^{obj} = 0.8), while subjective accessibility was slightly lower (I_i^{sub} = 0.77). The comprehensive accessibility index reached 0.7852, indicating the highest overall accessibility among the three schools.

Students tended to overestimate walking time on average (+2.18 minutes), especially for sports facilities and food related amenities, while walking times to parks and public transport stops were sometimes underestimated. Food related amenities and public transport stops were selected most frequently, followed by after school activities such as sports or homework help.

Escola Secundária João Gonçalves Zarco

At Escola Secundária João Gonçalves Zarco, eight amenity types were also available within the defined walking radius, again resulting in the highest possible availability index (A_i = 1). Objective accessibility was among the highest of the three schools (I_i^{obj} = 0.78), while subjective accessibility was slightly lower (I_i^{sub} = 0.76), yet still relatively high. The comprehensive accessibility index reached 0.77.

Average time perception differences were relatively small (+1.22 minutes), suggesting a closer alignment between perceived and measured walking times. Public transport stops and grocery or bakery shops were most frequently selected, followed by parks and libraries, indicating a balance between everyday necessities and recreational or educational destinations.

Escola EB Dr. José Domingues dos Santos

In contrast, the area around Escola EB Dr. José Domingues dos Santos showed the lowest amenity availability, with only three amenity types identified within a 15 minute walking radius (A_i = 0.38). Objective accessibility was likewise the lowest among the schools (I_i^{obj} =

0.52), while subjective accessibility was slightly lower (I_i^{sub} = 0.5). Consequently, the comprehensive accessibility index was also low (I_i = 0.5).

Interestingly, students tended to slightly underestimate walking times on average (-1.06 minutes). Food related amenities were selected most frequently, followed by homework help locations, with public transport selected less often, reflecting its lower relevance due to less frequent use.

2.7.4.3. Mobility Behaviour Patterns

Mode Choice and the Role of Housing Proximity

Escola Secundária Abel Salazar

At Abel Salazar, school travel showed a significant reliance on car use, accounting for nearly half of all trips (48%), followed by walking (30%) and public transport (17%).

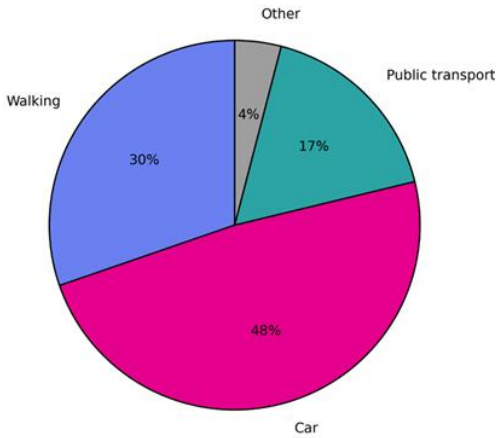

Figure 82 Distribution of students according to mode of commute at the Escola Secundária Abel Salazar

The two students living near the school and around half of those living in a different neighbourhood within Matosinhos walked to school. Among students living in the same neighbourhood, the remaining trips were mostly made by car (40%), with a smaller share by public transport (10%).

The majority of students living outside the city relied on car commuting (64%), while approximately one third used public transport (27%).

Escola Secundária João Gonçalves Zarco

At João Gonçalves Zarco, car dependence was higher, with car travel accounting for 63% of school commutes. Public transport represented just over one quarter of trips (26%), while walking and cycling together accounted for a very limited share.

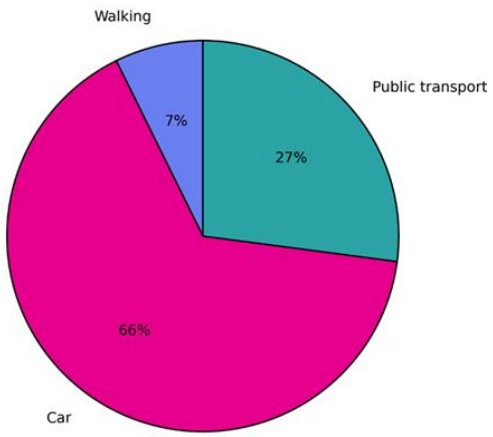

Figure 83 Distribution of students according to mode of commute at the Escola Secundária João Gonçalves Zarco

Among students living in a different neighbourhood from the school, 57% relied on car travel, while around one third used public transport. Car use increased to 73% among students living outside the city, with a similar share relying on public transport.

Escola EB Dr. José Domingues dos Santos

At EB Dr. José Domingues dos Santos, mobility patterns were highly car oriented. Car travel accounted for 80% of school commutes, with the remaining trips made by public transport.

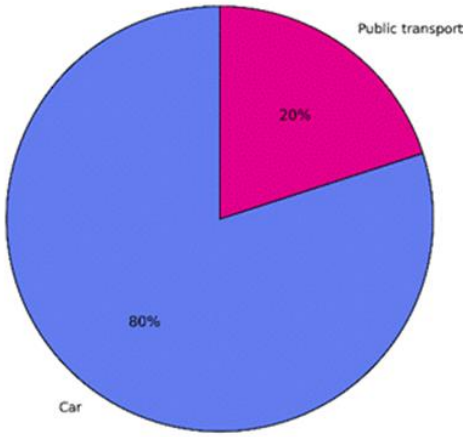

Figure 84 Distribution of students according to mode of commute at the Escola EB Dr. José Domingues dos Santos

Walking and cycling were entirely absent from the reported modal split, regardless of residential location. All students living in the same neighbourhood as the school, as well as those living outside the town, commuted by car. Among students living in a different

neighbourhood within Matosinhos, around one quarter of trips were made by public transport.

2.7.4.4. Independent Mobility and Housing Proximity

Escola Secundária Abel Salazar

At Abel Salazar, 41% of students reported travelling independently. Independent mobility was strongly linked to proximity: both students living in the same neighbourhood travelled independently, compared to around half of those living in a different neighbourhood and only 20% of those living outside the city.

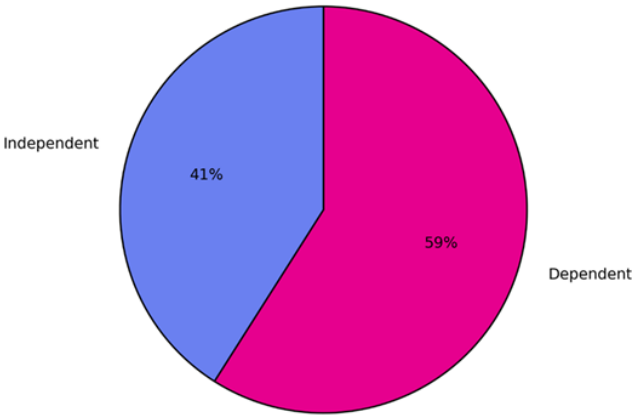

Figure 85 Distribution of students by independent versus dependent mobility at the Escola Secundária Abel Salazar

Escola Secundária João Gonçalves Zarco

At João Gonçalves Zarco, one third of students (33%) travelled independently. Independence was lowest among students living outside the city (11%), while nearly half of those living within the city but outside the immediate neighbourhood travelled independently.

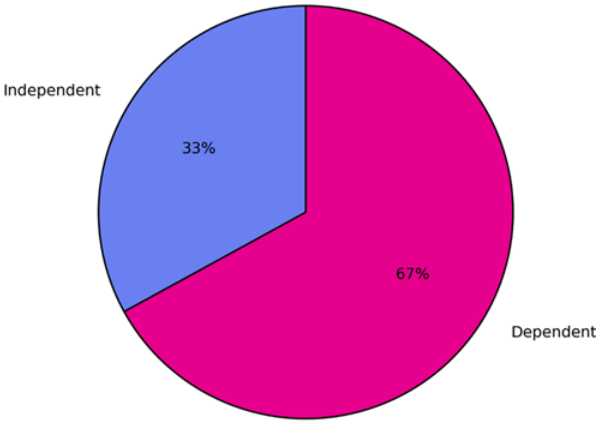

Figure 86 Distribution of students by independent versus dependent mobility at the Escola Secundária João Gonçalves Zarco

Escola EB Dr. José Domingues dos Santos

Independent mobility was very limited at EB Dr. José Domingues dos Santos. Only 16% of students travelled independently, and none of the students living in the same neighbourhood or outside the city reported independent travel.

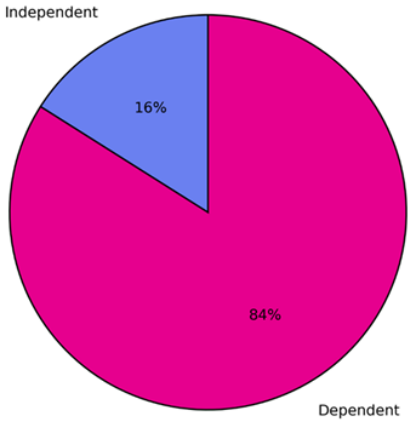

Figure 87 Distribution of students by independent versus dependent mobility at the Escola EB Dr. José Domingues dos Santos

2.7.4.5. Children's Experience of the Walking Environment

Students at all three schools demonstrated strong familiarity with their daily routes, particularly those connecting schools with essential amenities such as public transport stops, supermarkets, and cafés. This familiarity was primarily functional rather than

exploratory, reflecting mobility patterns structured by habit and family routines rather than independent navigation of the wider neighbourhood.

Across all schools, perceived walking time was strongly influenced by safety conditions, traffic exposure, sidewalk quality, and route pleasantness.

Escola Secundária Abel Salazar

In the survey, positive elements shaping walking experiences were mostly related to proximity and enjoyment, with children describing walking as "nice to walk outside." Students appreciated routes with little traffic and few safety concerns. At the same time, negative experiences were predominantly linked to distance to amenities and sidewalk infrastructure quality, with students reporting a lack of sidewalks and pavements that were narrow or affected by "ramps and holes." As with positive perceptions, negative comments were frequently associated with traffic and safety, particularly difficulties related to crossing streets.

During the workshop, students expressed a strong perception of urban space being prioritised for cars, noting frequent sidewalk obstructions caused by parked vehicles. A lack of adequate lighting at night was also highlighted as a factor reducing walking comfort and perceived safety.

Escola Secundária João Gonçalves Zarco

Positive survey responses were again primarily linked to the proximity of amenities and enjoyment of walking routes, with children referring to "joyful" experiences and "spectacular views" along the way. Students also appreciated routes that required little physical effort.

Negative perceptions were mostly related to comfort and environmental conditions, as children reported crowded segments, noise, and unpleasant smells as factors undermining the walking experience. Long distances, heavy traffic, and difficulties crossing streets, either due to long waiting times at traffic lights or malfunctioning signals, were also commonly mentioned. During the workshop, this group placed greater emphasis on time efficiency in mode choice for commuting, while also demonstrating awareness of the trade off between greener environments and car dominance.

Escola EB Dr. José Domingues dos Santos

The experiences of students at Escola EB Dr. José Domingues dos Santos, located in the more peripheral and dispersed context of Lavra, differed from those at the other two schools. Walking experiences were strongly shaped by distance, limited connectivity, and infrequent public transport, resulting in higher car dependence and low levels of student autonomy.

Beyond distance, students appreciated social accompaniment, easy access to amenities, and the presence of green areas. However, the most frequently mentioned negative elements related to the poor quality of pedestrian and cycling infrastructure, described as the absence of proper pavements, crossings, and bike lanes. Safety concerns and hilly terrain were also highlighted as factors negatively affecting walking routes.

Across the three contexts, children identified similar positive elements of the walking environment, including wide pavements, greenery, calm streets, and accessible everyday services. Conversely, shared barriers included traffic dominance, narrow or uneven sidewalks, physical obstacles, and poor maintenance, all of which repeatedly undermined walking comfort and safety.

Finally, students in all three schools proposed similar improvements, most frequently calling for better pavement quality, cleaner streets, covered public transport stops, and more cycling infrastructure. These suggestions reflect a shared understanding of walking as closely tied to infrastructure quality and the prioritisation of pedestrians in public space.

2.7.4.6. Civic lab summary

Across the three Matosinhos schools, students were in early to mid-adolescence, an age typically associated with growing autonomy, yet higher age alone did not result in greater independent mobility or increased rate of active commute. Instead, mobility outcomes were shaped by entrenched car-oriented routines and limited level of autonomy.

At Escola Secundária Abel Salazar and Escola Secundária João Gonçalves Zarco, older students benefited from high objective and subjective accessibility, with a wide range of everyday amenities located within walking distance from schools. These favourable conditions supported generally positive perceptions of walking, particularly in relation to proximity and enjoyment. However, both schools still exhibited high levels of car dependence and only moderate independent mobility, indicating that proximity and age-related capability were often overridden by family routines, traffic dominance, infrastructure shortcomings, and time efficiency considerations.

In contrast, at Escola EB Dr. José Domingues dos Santos operated within a more peripheral and poorly connected context. Limited amenity availability, missing or poor pedestrian and cycling infrastructure, infrequent public transport, and traffic-related safety concerns reinforced strong car dependence and very low autonomy. While students valued nearby destinations, social accompaniment, and green areas, these factors could not offset broader spatial and infrastructural disadvantages.

Across all three schools, incentives for walking, such as short distances, familiar routes, greenery, calm streets, and social interaction, were consistently identified. At the same

time, barriers undermining walking, including traffic dominance, poor sidewalk quality, unsafe crossings, environmental discomfort, and physical effort, played a decisive role in shaping perceived walking time and mode choice.

Overall, the findings indicate that supporting walking and independent mobility among adolescents requires more than proximity or age related autonomy. Even highly accessible environments can remain car dependent when pedestrian conditions and mobility cultures are unsupportive, while in lower accessibility contexts, infrastructural and connectivity deficits further restrict independence. Enhancing pedestrian infrastructure, improving safety, and reducing traffic dominance emerge as essential conditions for translating accessibility into active and independent mobility in Matosinhos.

2.7.5. Ghent – Freinetscholen Keerpunt Buurtschool Oase50

2.7.5.1. School and Participant Profile

A total of 26 students aged between 9 and 14 years, the majority of whom were aged 12–14, participated in the activity at Freinetscholen Keerpunt Buurtschool Oase50, with the group evenly split by gender. None of the participating students reported having reduced mobility.

Just over half of the participants (54%) lived in another neighbourhood within Ghent, followed by 27% living outside the city, while 19% resided in the same neighbourhood as the school, reflecting a mixed residential pattern with varying commuting distances.

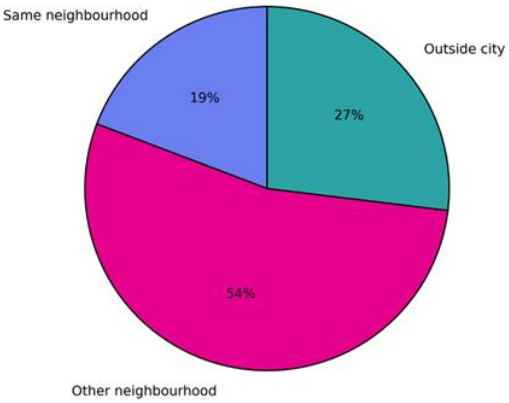

Figure 88 Distribution of students according to place of residence at the Freinetscholen Keerpunt Buurtschool Oase50

2.7.5.2. Amenity Use and Accessibility

Seven amenity types were identified within a 15-minute walking radius of the school, resulting in a high availability index (A_i) of 0.86. Computer estimated walking times produced a relatively strong objective proximity index (C_i, obj) of 0.68, which, when combined with availability, yielded an objective accessibility index (I_i^{obj}) of 0.78, the highest among all schools within civic labs. This indicates good objective access to daily amenities around the school.

Children's perceived walking times were longer than objective estimates. The subjective proximity index (C_i, subj) was 0.54, resulting in a subjective accessibility index (I_i^{sub}) of 0.71. The gap between objective and subjective measures suggests that walking often felt longer than it actually was.

A combination of availability, objective and subjective proximity, resulted in a comprehensive accessibility index (I_i) of 0.74, one of the highest among researched schools.

Median time perception differences varied by amenity type. Walking time was overestimated for sports facilities (+8 minutes) and public transport stops (+2 minutes), while children underestimated walking time to parks (-6 minutes). The average time perception difference was +1.5 minutes, indicating a general tendency to perceive walking as slightly longer than objectively measured.

The most frequently selected amenities were grocery/bakery shops and public transport stops, followed by snack places/canteens. Parks, libraries, and sports facilities were selected less often, suggesting a stronger focus on daily necessities than recreational destinations.

2.7.5.3. Mobility Behaviour Patterns

Mode Choice and the Role of Housing Proximity

Cycling played the most significant role in daily school travel, accounting for 35% of trips, making it the dominant mode at this school. This share is also notably higher than in the other civic labs, where cycling generally played a more marginal role. Public transport accounted for a similar share (31%), followed by car trips (23%), while walking represented the smallest share at 12%.

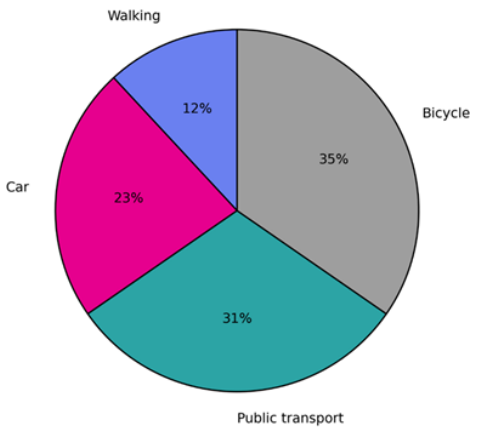

Figure 89 Distribution of students according to mode of commute at the Freinetscholen Keerpunt Buurtschool Oase50

Among students living in the same neighbourhood as the school, walking and cycling were equally dominant (40% each), with the rest of trips made by public transport. For students living elsewhere within the city, cycling was the primary mode (54%), followed by public transport (23%) and car use (15%). Students living outside the city relied exclusively on car and public transport, which were used in equal proportions.

These patterns indicate that proximity strongly supports active mobility.

2.7.5.4. Independent Mobility and Housing Proximity

Independent mobility was high overall. Nearly three quarters of students (73%) travelled independently, either alone or with friends.

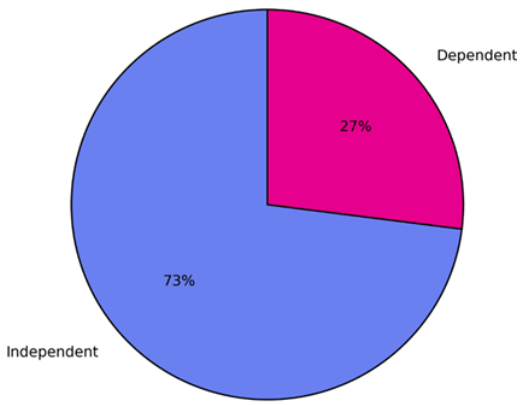

Figure 90 Distribution of students by independent versus dependent mobility at the Freinetscholen Keerpunt Buurtschool Oase50

All students living in the same neighbourhood as school travelled independently. Among those living elsewhere in the city, 77% reported independent mobility, while independence mobility dropped to 50% among students living outside Ghent.

These patterns indicate that proximity strongly supports active mobility; however, age also appears to play a significant role, as the majority of participants in this group were older children. In addition, a well-established cycling infrastructure may help sustain active and independent mobility even when children do not live in close proximity to the school.

2.7.5.5. Children's Experience of the Walking Environment

The workshops showed that children were well familiar with their school neighbourhood. According to the facilitators, children primarily chose routes and destinations based on familiarity, habit, and perceived safety, while route length played a less important role, as most amenities were located within a short walking distance.

Survey responses indicate that children most frequently referred to short distances and proximity when describing positive aspects of their walking experience. Comfort and enjoyment were also highlighted, particularly where routes felt pleasant, with children describing streets as nice or calm. Several comments additionally referred to walking through green environments and to the social aspect of meeting friends along the way.

During the workshops, children further emphasised the importance of sidewalk quality and traffic conditions, noting that streets with low traffic noise or those fully closed to traffic were especially appreciated. They also re-emphasised the value of greenery and green spaces, as well as neighbourhood familiarity, as factors contributing to a more comfortable and confident walking experience.

Survey responses highlighted a range of negative walking aspects, with traffic related conditions emerging most prominently. Children frequently described routes along busy streets with many cars and traffic lights as stressful and unpleasant. Safety concerns, such as not feeling safe at crossings or presence of marginalized people, were also common. In addition, narrow or missing sidewalks, physical obstacles, cleanliness issues (including rubbish, bad smells, and dirt), and visually unappealing or boring routes reduced the attractiveness of walking.

Workshop observations revealed a broader and more detailed set of barriers linked to the wider neighbourhood environment. Children pointed to car speeding, insufficient crosswalks, especially near public transport stops, poor street lighting, and conflicts between pedestrians and cyclists. Sidewalk quality and accessibility were recurring concerns, including narrow pavements, poor maintenance, obstacles, limited accessibility

for strollers or wheelchairs, and slippery surfaces in winter. Environmental and social issues such as littering, lack of greenery, limited recreational spaces for teenagers, homelessness near the station, and poorly maintained public toilets further reduced comfort.

Improvement suggestions focused on addressing these challenges through safety, comfort, and inclusivity measures. Children most often proposed speed enforcement, new and better placed crosswalks, improved lighting, and pedestrian and cyclist specific traffic signals. They also suggested pavement repairs, removal of obstacles, better waste management, more greenery and biodiversity in parks, and the creation of age-appropriate recreational spaces for teenagers. Additional proposals included shelters or social centres near stations and more frequent cleaning of public toilets.

2.7.5.6. Civic lab summary

The area surrounding Freinetscholen Keerpunt Buurtschool Oase50 offers very strong objective accessibility to everyday amenities, as reflected in a high objective accessibility index (I_i^{obj} = 0.78), the highest among all schools participating in the civic labs. Children's perceptions, however, indicate a moderate gap between measured proximity and lived experience. The subjective accessibility index (I_i^{sub} = 0.71) was lower, suggesting that walking was perceived as somewhat more demanding than objective measures indicate, though not to a large extent. This difference, supported by an average time perception bias of +1.5 minutes, points to the influence of contextual and environmental factors beyond distance alone, such as traffic conditions, sidewalk quality, and overall walking comfort.

Children's accounts and workshop feedback suggest that this discrepancy is shaped by traffic intensity, safety conditions, sidewalk quality, cleanliness, and sensory aspects of the walking environment. While proximity and short distances supported walking in principle, experiences of busy roads, unsafe crossings, narrow or poorly maintained pavements, and environmental discomfort frequently undermined the perceived ease of walking. These factors were particularly influential around major traffic corridors and transport nodes.

Within this context, housing-school proximity showed a clear relationship with active and independent mobility, but it did not operate in isolation. Walking and cycling were most common among students living in the immediate neighbourhood, and all such students travelled independently. High levels of independent mobility were also observed among students living elsewhere in the city, reflecting the combined influence of older age groups, and, possibly, the role of well-developed cycling infrastructure. These conditions appear to support active and autonomous travel even when home-school distances are longer.

Overall, the findings demonstrate that strong objective accessibility does not automatically translate into positive walking experiences. Improving pedestrian comfort and perceived safety is essential to narrow the gap between objective and subjective accessibility. Measures such as enhancing sidewalk quality and continuity, reducing traffic impacts, improving cleanliness, increasing greenery, and providing more opportunities to rest and recreate would strengthen walkability. Such improvements would support not only active and independent mobility, but also children's everyday wellbeing and their confidence in using public space around the school.

2.7.6. Torun – Szkoła Podstawowa nr 11 im. Pabla Nerudy and Szkoła Podstawowa nr 5 im. Romualda Traugutta

2.7.6.1. School and Participant Profile

At Szkoła Podstawowa nr 11 im. Pabla Nerudy, 33 students aged 10-15 participated in the activity, with approximately two thirds belonging to the older age group (12-15). The group included a higher share of girls (nearly 70%), and two students reported reduced mobility. More than half of the participants lived in the same neighbourhood as the school, while most of the remaining students lived elsewhere within the city of Toruń.

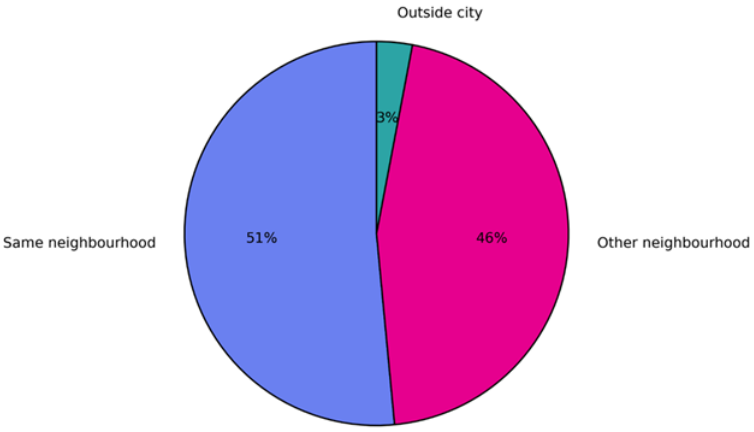

Figure 91 Distribution of students according to place of residence at the Szkoła Podstawowa nr 11 im. Pabla Nerudy

At Szkoła Podstawowa nr 5 im. Romualda Traugutta, the participant group was twice as large, with 61 students aged 9-15, again predominantly in the older age group (around 70%). The gender distribution was similar, with girls accounting for roughly two thirds of participants, and no reduced mobility was reported. Over half of the students lived in the

same neighbourhood as the school, while more than one third lived in another part of the city (36%) and a smaller share outside Toruń (12%).

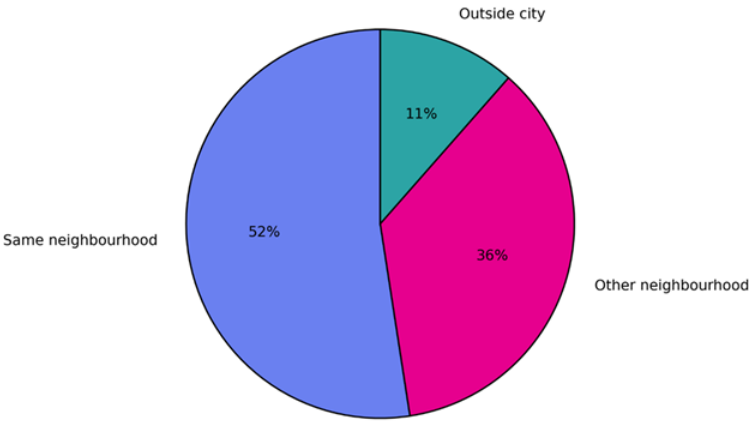

Figure 92 Distribution of students according to place of residence at the Szkoła Podstawowa nr 5 im. Romualda Traugutta

Across both schools, slightly more than half of students lived within the same neighbourhood as their school, creating favourable conditions for active mobility and everyday neighbourhood engagement.

2.7.6.2. Amenity Use and Accessibility

Around Szkoła Podstawowa nr 11, six amenity types were available within a 15-minute walking radius, resulting in a moderate availability index (A_i = 0.75). Objective accessibility was relatively high (I_i^{obj} = 0.74), but children perceived access as more difficult, resulting in one of the lowest subjective accessibility indices (I_i^{sub} = 0.57). This produced a comparatively low comprehensive accessibility index (I_i = 0.66), indicating a substantial gap between objectively measured accessibility and children's perceptions. Walking time was most strongly overestimated for sports facilities, and to a lesser extent for public transport stops, while walking times to community centres were underestimated. On average, walking times were overestimated by approximately 1.9 minutes.

Children most frequently selected food related amenities, green areas, and public transport stops, followed by libraries and sports facilities.

At Szkoła Podstawowa nr 5, amenity availability was identical (A_i = 0.75, six amenity types), but the gap between objective and perceived accessibility was smaller than at School nr 11. Objective accessibility was slightly lower (I_i^{obj} = 0.71), while subjective accessibility was somewhat higher (I_i^{sub} = 0.6). The resulting comprehensive index (I_i = 0.65) points to a comparable overall accessibility level, which remains lower than in several other civic labs. The average time perception difference was also smaller (+1.37 minutes), although walking times to parks, snack places, and sports facilities tended to be overestimated.

Similar to other civic labs, children at this school most frequently selected food and transport related amenities, followed by parks, homework help locations, and sports facilities.

2.7.6.3. Mobility Behaviour Patterns

Mode Choice and the Role of Housing Proximity

At Szkoła Podstawowa nr 11, walking clearly dominated daily school travel, accounting for 73% of trips, alongside limited use of cars (15%) and bicycles (9%).

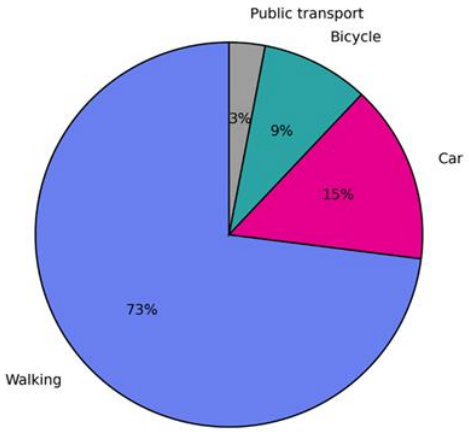

Figure 34: Distribution of students according to mode of commute at the Szkoła Podstawowa nr 11 im. Pabla Nerudy

Among students living in the same neighbourhood as the school, nearly all trips were made on foot. Among those living elsewhere within the city, approximately half relied on walking, while around one quarter used cars (27%) and a smaller share bicycles (13%).

At Szkoła Podstawowa nr 5, mobility behaviour was more diverse. Walking remained the most common mode (42%), but car use was considerably higher (35%), and public transport played a more substantial role (16%).

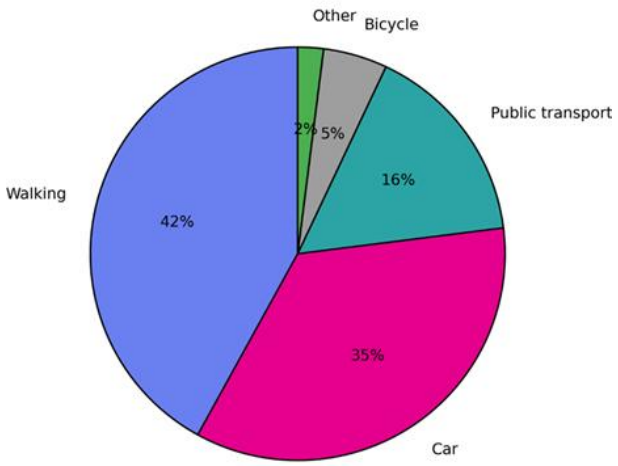

Figure 93 Distribution of students according to mode of commute at the Szkoła Podstawowa nr 5 im. Romualda Traugutta

Among students living close to the school, walking remained dominant (68%), with roughly one quarter of trips made by car (23%) and around 10% by bicycle. For students living in other parts of the city, the share of walking dropped sharply to 20%, while public transport became the primary mode (40%) and car use increased to a similar level (36%). Students living outside the city relied exclusively on car travel.

Taken together, housing proximity strongly supported walking and cycling at both schools, while overall reliance on public transport remained relatively low. Walking played a significantly greater role at Szkoła Podstawowa nr 11, whereas Szkoła Podstawowa nr 5 exhibited noticeably higher car dependency.

2.7.6.4. Independent Mobility and Housing Proximity

Independent mobility was high at both schools, though differences were observed.

At Szkoła Podstawowa nr 11, 82% of students travelled independently, mostly alone. Independence was universal among students living in the same neighbourhood, while among those living elsewhere within the city, approximately one third were accompanied by adults.

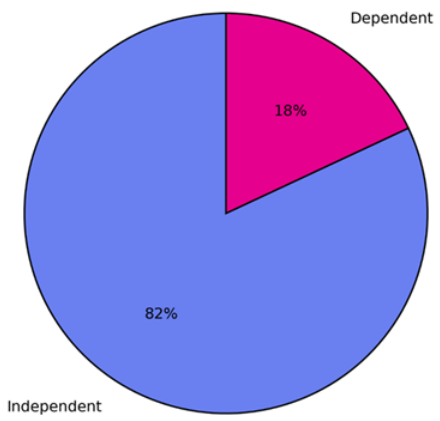

Figure 94 Distribution of students by independent versus dependent mobility at the Szkoła Podstawowa nr 11 im. Pabla Nerudy

At Szkoła Podstawowa nr 5, independent travel was slightly lower but still substantial (69%). Among students living within the city of Toruń, 75-78% travelled independently, whereas all students living outside the city were accompanied by an adult.

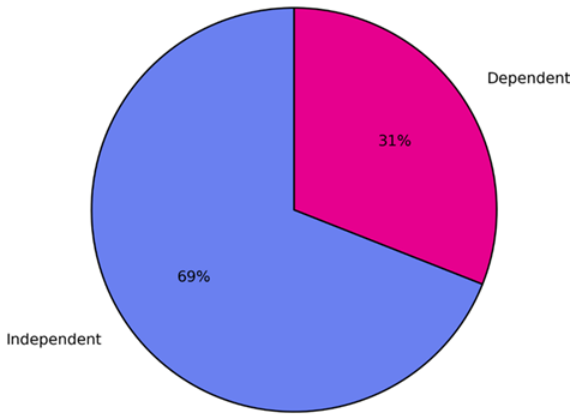

Figure 95 Distribution of students by independent versus dependent mobility at the Szkoła Podstawowa nr 5 im. Romualda Traugutta

Across both schools, proximity clearly supported independent travel, although independence remained relatively high even at longer distances. The share of dependent trips closely mirrors the share of trips made by car, suggesting a strong link between parental accompaniment and motorised travel.

2.7.6.5. Children's Experience of the Walking Environment

Szkoła Podstawowa nr 11 im. Pabla Nerudy

Children frequently described walking in positive terms related to pleasantness and enjoyment, commenting that routes were nice or pleasant. Proximity was also frequently mentioned in a positive way, followed by appreciation of the natural environment, associated with routes passing through a forest or park and offering greenery and fresh air. Children also enjoyed walking in the company of their friends.

Negative comments were less frequent and focused mainly on longer distances and safety concerns, including fear of unfamiliar people, dangerous crossings, or passing through enclosed spaces such as garages.

Szkoła Podstawowa nr 5 im. Romualda Traugutta

At School nr 5, children also emphasised enjoyment as a key positive factor, describing walking as an activity that is good for health, pleasant, and helpful for relaxation. They highly appreciated the proximity of amenities to the school. The social context played an important role, although in different ways: while some children enjoyed walking with friends, others valued the opportunity to be alone or to feel independent. Green spaces, sidewalk quality, and ease of routes also contributed positively, though less prominently.

Barriers were articulated more clearly and frequently. Children reported a high level of discomfort related to the absence or poor condition of sidewalks, including mud, potholes, and litter. Many routes were described as boring, not interesting, or nothing special, underlining the importance of variety and engagement in the walking environment. Safety concerns were also commonly mentioned, including unsafe crossings and feelings of insecurity when passing abandoned buildings, where children reported encounters with individuals perceived as dangerous or intoxicated.

Across both Toruń schools, children valued short distances, pleasant environments, and opportunities for social interaction. Walking was experienced most positively where routes felt safe, green, and engaging. However, differences emerged in the intensity of negative experiences: while students at School nr 11 expressed moderate safety concerns, students at School nr 5 articulated stronger dissatisfaction with infrastructure quality and safety conditions.

During the workshops, children also reported additional problems, such as poorly lit streets, poor sidewalk quality and crossing safety, and traffic congestion near their schools. Harassment by older men was frequently mentioned by girls in the middle grades as a factor negatively affecting their sense of safety in the streets and public transport.

2.7.6.6. Civic lab summary

Both Toruń school neighbourhoods benefit from moderately good objective accessibility to everyday amenities. However, children's experiences reveal a clear gap between objective accessibility and subjective perceptions, particularly at Szkoła Podstawowa nr

11, where walking times were substantially overestimated. This indicates that proximity alone does not automatically translate into a sense of ease or comfort when moving through the neighbourhood.

A high share of students living within the same neighbourhood as their school, together with observed mobility patterns, highlights the strong role of housing proximity in supporting active mobility. Walking clearly dominated school travel at Szkoła Podstawowa nr 11, whereas Szkoła Podstawowa nr 5 exhibited more diversified travel behaviour, including significantly higher levels of car use. Across both schools, public transport played a relatively limited role in daily commuting.

Independent mobility was high at both schools, especially among children living close to the school. A clear alignment between car use and adult accompaniment suggests that motorised travel remains a key constraint on children's autonomy as distances increase.

Children's accounts show that the quality and context of walking routes are as important as distance itself. Proximity, enjoyment, and opportunities to walk with friends strongly supported positive perceptions. At the same time, negative experiences were shaped by environmental and infrastructural barriers, including poor sidewalk conditions, traffic exposure, unsafe crossings, monotonous routes, and feelings of insecurity. These challenges were reported more intensively at Szkoła Podstawowa nr 5, where dissatisfaction with infrastructure quality and safety was higher, particularly around abandoned buildings, poorly maintained spaces, and concerns about harassment raised by girls in the middle grades.

Overall, the Toruń findings demonstrate that strong objective accessibility and high levels of walking do not guarantee positive walking experiences. Improving walkability in these school neighbourhoods requires targeted interventions beyond proximity, including better sidewalk maintenance, safer and better lit crossings, reduced traffic pressure, and more engaging street environments. Importantly, addressing perceived and experienced threats posed by people, often associated with abandoned or poorly maintained areas, is essential for improving children's sense of safety, particularly for girls. Tackling these issues would not only enhance the quality of children's everyday journeys but also strengthen independent mobility and confidence in using neighbourhood public spaces.

2.8. Cross-civic lab comparative analysis and synthesis

The cross civic lab comparison synthesises findings across schools in order to identify systematic patterns and context specific divergences in children's perceptions of accessibility, walking experiences, their mode choices, and level of independent mobility.

2.8.1. Research objective 1. Compare computer-estimated travel times with children's subjective estimations and identify discrepancies between perceived and measured accessibility.

When assessing objective amenity accessibility in school neighbourhoods across the civic labs, results show a relatively narrow distribution across most schools.

With the exception of Escola EB Dr. José Domingues dos Santos in Matosinhos, all school neighbourhoods offered between 6 and 8 amenity types (out of 8) within a 15-minute walking radius. The remaining two schools in Matosinhos reached the maximum number of amenity categories, reflecting their more consolidated urban contexts.

Average computer estimated walking time to the closest amenity varied between 3.7 and 6.8 minutes across schools. As a result, objective accessibility levels were generally high, with objective accessibility indices (I_i^{obj}) ranging from 0.71 to 0.80 for most schools, and Escola Secundária Abel Salazar (Matosinhos) achieving the highest objective score. In contrast, Escola EB Dr. José Domingues dos Santos, located in a peripheral and predominantly residential–agricultural setting, recorded the lowest objective accessibility.

School	N_i	$\bar{t}_i^{obj}$ (min)	A_i	C_i^{obj}	I_i^{obj}
Escola Secundária Abel Salazar (Matosinhos)	8	6	1	0.6	**0.8**

Escola Secundária João Gonçalves Zarco (Matosinhos)	8	6.8	1	0.55	**0.78**
Freinetscholen Keerpunt Buurtschool Oase50 (Ghent)	7	4.9	0.88	0.68	**0.78**
Städtisches Johann-Gottfried-Herder-Gymnasium (Cologne)	7	5.4	0.88	0.64	**0.76**
Eugeen Laermans (Brussels)	6	3.7	0.75	0.75	**0.75**
Szkoła Podstawowa nr 11 im. Pabla Nerudy (Toruń)	6	4	0.75	0.73	**0.74**
TADA (Brussels)	7	5.9	0.88	0.61	**0.74**
Közgazdasági Gimnázium Szakgimnázium és Általános Iskola (Budapest)	7	6.4	0.88	0.57	**0.72**
Szkoła Podstawowa nr 5 im. Romualda Traugutta (Toruń)	6	5	0.75	0.67	**0.71**
Gyermekek Háza Alternatív Általános Iskola (Budapest)	6	6.5	0.75	0.57	**0.66**
Escola EB Dr. José Domingues dos Santos (Matosinhos)	3	5	0.38	0.67	**0.52**

Table 3. Objective accessibility indicators by school

A more differentiated pattern emerged when examining subjective accessibility. Average perceived walking times were consistently higher than computer estimated values, ranging from 5.6 to 9.7 minutes. Subjective accessibility indices (I_i^{subj}) showed greater dispersion across schools, forming three broad groups:

(i) a high accessibility group with indices between 0.71 and 0.77,

(ii) a mid-range group between 0.60 and 0.69, and

(iii) a lower accessibility group between 0.50 and 0.57.

This wider spread suggests that children's perceptions of accessibility vary more strongly than objectively measured conditions.

School	N_i	$\bar{t}_i^{subj}$ (min)	A_i	C_i^{subj}	I_i^{subj}

Escola Secundária Abel Salazar (Matosinhos)	8	6.9	1	0.54	**0.77**
Escola Secundária João Gonçalves Zarco (Matosinhos)	8	7.3	1	0.51	**0.76**
Közgazdasági Gimnázium Szakgimnázium és Általános Iskola (Budapest)	7	5.6	0.88	0.63	**0.75**
TADA (Brussels)	7	6.7	0.88	0.55	**0.71**
Freinetscholen Keerpunt Buurtschool Oase50 (Ghent)	7	6.9	0.88	0.54	**0.71**
Gyermekek Háza Alternatív Általános Iskola (Budapest)	6	5.6	0.75	0.63	**0.69**
Eugeen Laermans (Brussels)	6	6.6	0.75	0.56	**0.66**
Städtisches Johann-Gottfried-Herder-Gymnasium (Cologne)	7	9.7	0.88	0.35	**0.61**
Szkoła Podstawowa nr 5 im. Romualda Traugutta (Toruń)	6	8.4	0.75	0.44	**0.6**
Szkoła Podstawowa nr 11 im. Pabla Nerudy (Toruń)	6	9.1	0.75	0.39	**0.57**
Escola EB Dr. José Domingues dos Santos (Matosinhos)	3	5.8	0.38	0.62	**0.5**

Table 4. Subjective accessibility indicators by school

Comparing objective and subjective accessibility highlights a consistent pattern across most schools: objective accessibility exceeds perceived accessibility, indicating a general tendency for children to perceive amenities as farther than they objectively are. An important exception emerges in Budapest, where children tended to underestimate walking distances, resulting in higher subjective than objective accessibility scores.

The largest gaps between objective and subjective accessibility (differences between 0.10 and 0.17) were observed in both Toruń schools, the Cologne school, and Eugeen Laermans in Brussels, suggesting notable mismatches between physical proximity and lived experience in these contexts.

School	I_i^{obj}	I_i^{subj}	ΔI (I_i^{obj} - I_i^{subj})
Szkoła Podstawowa nr 11 (Toruń)	0.74	0.57	**+0.17**
Städtisches Johann-Gottfried-Herder-Gymnasium (Cologne)	0.76	0.61	**+0.14**
Szkoła Podstawowa nr 5 (Toruń)	0.71	0.6	**+0.11**
Eugeen Laermans (Brussels)	0.75	0.66	**+0.1**
Freinetscholen Keerpunt Buurtschool Oase50 (Ghent)	0.78	0.71	**+0.07**
Escola Secundária Abel Salazar (Matosinhos)	0.8	0.77	**+0.03**
TADA (Brussels)	0.74	0.71	**+0.03**
Escola EB Dr. José Domingues dos Santos (Matosinhos)	0.52	0.5	**+0.03**
Escola Secundária João Gonçalves Zarco (Matosinhos)	0.78	0.76	**+0.02**
Közgazdasági Gimnázium Szakgimnázium (Budapest)	0.72	0.75	**-0.03**
Gyermekek Háza Alternatív Általános Iskola (Budapest)	0.66	0.69	**-0.03**

Table 5. Comparison between objective, subjective accessibility by school

The resulting comprehensive accessibility index integrates both objective and subjective dimensions and reveals three distinct groups of school neighbourhoods.

The highest accessibility group ($I_i \approx 0.70$-0.79) includes the two central schools in Matosinhos, the Ghent school, one Budapest school, and both Brussels schools.

A mid-range group ($I_i \approx 0.65$-0.69) consists of the Cologne school, the second Budapest school, and both Toruń schools, where strong objective conditions coexist with comparatively weaker perceived accessibility.

Finally, Escola EB Dr. José Domingues dos Santos, located in a peripheral area of Matosinhos, stands out as a clear outlier with the lowest comprehensive accessibility score ($I_i = 0.51$).

School	I_i^{obj}	I_i^{subj}	I_i
Escola Secundária Abel Salazar (Matosinhos)	0.8	0.77	**0.79**
Escola Secundária João Gonçalves Zarco (Matosinhos)	0.78	0.76	**0.77**
Freinetscholen Keerpunt Buurtschool Oase50 (Ghent)	0.78	0.71	**0.74**
Közgazdasági Gimnázium Szakgimnázium és Általános Iskola (Budapest)	0.72	0.75	**0.74**
TADA (Brussels)	0.74	0.71	**0.73**
Eugeen Laermans (Brussels)	0.75	0.66	**0.70**
Städtisches Johann-Gottfried-Herder-Gymnasium (Cologne)	0.76	0.61	**0.69**
Gyermekek Háza Alternatív Általános Iskola (Budapest)	0.66	0.69	**0.67**
Szkoła Podstawowa nr 11 im. Pabla Nerudy (Toruń)	0.74	0.57	**0.66**
Szkoła Podstawowa nr 5 im. Romualda Traugutta (Toruń)	0.71	0.60	**0.65**
Escola EB Dr. José Domingues dos Santos (Matosinhos)	0.52	0.50	**0.51**

Table 6. Objective, subjective, and comprehensive accessibility by school

2.8.2. Research objective 2. Understand how children's walking experience, its safety, comfort, attractiveness, and overall quality, shapes their perception of accessibility and travel time.

To understand how children's walking experience shapes their perception of accessibility and travel time, we analyzed the relationship between walking experience ratings and both subjective and objective measures of walking time, using the whole sample for between statistical representation.

The results show that children's walking experience is more strongly associated with perceived walking time than with objectively measured walking time. Subjective walking time shows a negative and statistically significant relationship with walking experience ratings, indicating that routes perceived as longer tend to be evaluated less positively (see figure 38). While the strength of this relationship is moderate, it remains robust when controlling for school level differences, suggesting a consistent pattern across diverse urban contexts.

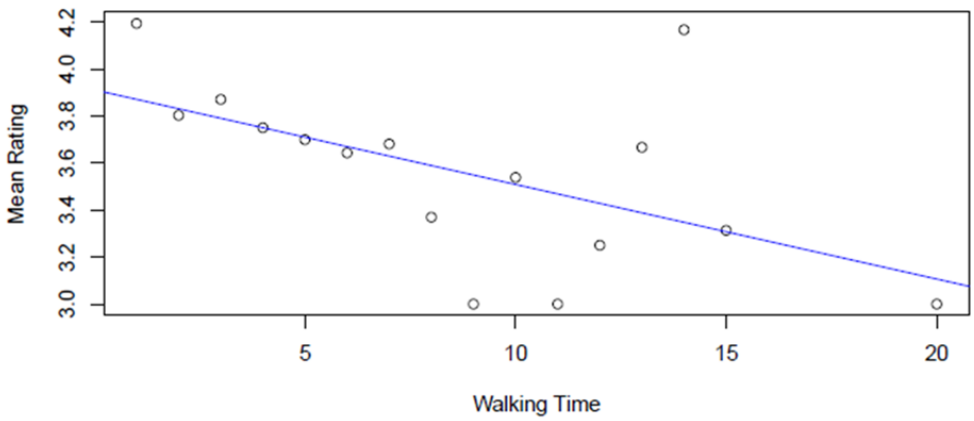

Figure 96 Relationship between average walking experience rating and subjective walking time (OLS regression)

At the same time, subjective walking time explains only a limited share of the overall variation in experience, pointing to the influence of additional qualitative factors beyond duration alone.

By contrast, objective walking time shows no systematic relationship with walking experience. Neither correlation analysis nor regression models reveal a significant association between computer estimated walking times and children's ratings of their walking routes. This lack of connection persists when accounting for school specific characteristics and when using objective accessibility indices, suggesting that measured distance or time alone does not adequately capture how children experience walking.

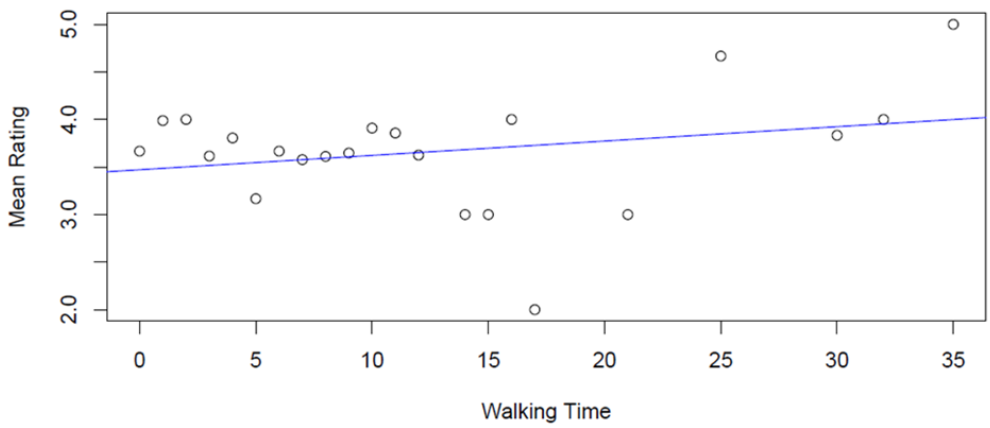

Figure 97 Relationship between average walking experience rating and objective walking time (OLS regression)

Overall, these findings indicate that children's walking experience, linked to factors such as comfort, safety, attractiveness, and route quality, plays a decisive role in how travel time is perceived. As a result, improvements in walking conditions may influence perceived accessibility even in environments where objective distances remain unchanged, reinforcing the importance of prioritising experiential and environmental qualities alongside spatial proximity.

2.8.3. Research objective 3. Investigate whether school neighbourhood accessibility, housing proximity, or other contextual factors influence mode choice and levels of independent mobility in children's home to school travel.

Mode choice

To investigate whether school neighbourhood accessibility influences mode choice, we examined relationship between objective and subjective accessibility indices calculated above and share of car use in a school, using a simple OLS regression.

In case of the first one, results indicate a partial relationship between objective accessibility and mode choice. Higher objective accessibility is associated with a lower

share of car use in home to school travel. This relationship is negative and statistically significant, suggesting that schools embedded in environments with better objective access to amenities tend to display reduced car dependence. However, objective accessibility explains only a limited share of the variation in car use across schools, indicating that accessibility alone is not sufficient to account for observed differences in mode choice. For example, the table below shows that in two Matosinhos schools that lead in terms of the objective accessibility rate the share of the car usage is relatively high. Similarly, in case of Közgazdasági Gimnázium Szakgimnázium és Általános Iskola in Budapest the car use rate is quite high given a moderate rate of school neighbourhood accessibility.

School	I_i^{obj}	Share of car usage (%)
Escola Secundária Abel Salazar (Matosinhos)	0.8	48%
Escola Secundária João Gonçalves Zarco (Matosinhos)	0.78	63%
Freinetscholen Keerpunt Buurtschool Oase50 (Ghent)	0.78	23%
Städtisches Johann-Gottfried-Herder-Gymnasium (Cologne)	0.76	11%
Eugeen Laermans (Brussels)	0.75	20%
Szkoła Podstawowa nr 11 im. Pabla Nerudy (Toruń)	0.74	15%
TADA (Brussels)	0.74	33%
Közgazdasági Gimnázium Szakgimnázium és Általános Iskola (Budapest)	0.72	70%
Szkoła Podstawowa nr 5 im. Romualda Traugutta (Toruń)	0.71	35%
Gyermekek Háza Alternatív Általános Iskola (Budapest)	0.66	57%
Escola EB Dr. José Domingues dos Santos (Matosinhos)	0.52	80%

Table 7. Objective accessibility and share of car usage by school

In contrast, subjective accessibility does not show a statistically significant relationship with mode choice. Perceived accessibility levels are not systematically associated with car use across schools, suggesting that children's perceptions of distance and accessibility do not directly translate into modal decisions, which are more strongly shaped by other factors.

The second factor examined in relation to mode choice was students' age. As several schools included relatively broad age ranges, a dominant age group was identified for each school, defined as the age range most strongly represented among participants. A common assumption was that older students would be less likely to be driven to school and would rely more on independent or active modes of travel.

However, the analysis did not reveal a strong relationship between age and mode choice. Contrary to initial expectations, older students in the sample were, on average, slightly more likely to commute by car than younger students. Large variations in car use were observed within the same age groups, indicating that age alone does not explain differences in commuting behaviour.

These findings suggest that contextual factors, such as housing proximity, neighbourhood structure, accessibility conditions, and household travel routines, play a significantly more important role than age in shaping mode choice in children's home to school travel.

School	Age range	Dominant age range	Share of car usage (%)
Eugeen Laermans (Brussels)	9-12	10-11	20%
TADA (Brussels)	10-12	10-11	33%
Szkoła Podstawowa nr 11 im. Pabla Nerudy (Toruń)	10-15	11-12	15%
Gyermekek Háza Alternatív Általános Iskola (Budapest)	11-13	11-12	57%
Szkoła Podstawowa nr 5 im. Romualda Traugutta (Toruń)	9-15	11-12	35%
Freinetscholen Keerpunt - Buurtschool Oase50 (Ghent)	9-14	12-13	23%
Közgazdasági Gimnázium Szakgimnázium (Budapest)	10-14	12-13	70%
Escola EB Dr. José Domingues dos Santos (Matosinhos)	13-14	13-14	80%

Städtisches Johann-Gottfried-Herder-Gymnasium (Cologne)	13-15	13-14	11%
Escola Secundária João Gonçalves Zarco (Matosinhos)	14-16	14-15	63%
Escola Secundária Abel Salazar (Matosinhos)	15-17	15-16	48%

Table 8. Students' age and share of car usage by school

The third factor examined in relation to mode choice was home to school proximity. The analysis reveals a clear and systematic influence of living location on travel behaviour. Children living in the same neighbourhood as their school rely predominantly on walking, which clearly dominates the modal split in this group. By contrast, for children living in a different neighbourhood within the same city, and especially for those living outside the city, the car becomes the dominant mode of transport.

Public transport use increases with residential distance and is significantly lower among children living in the immediate school neighbourhood. Cycling plays a less significant role overall and is least prevalent among children living outside the city, indicating that longer distances constrain its use.

Living location	Car	Public transport	Bicycle / e-bike	Walking
Outside a city	59%	32%	2%	3%
Different neighbourhood (within the same city)	40%	30%	9%	20%
Same neighbourhood	21%	10%	8%	61%

Table 8. Living location in relation to school and share of car usage

Overall, these patterns demonstrate that housing proximity is one of the strongest determinants of mode choice and strongly shapes the balance between active and motorised travel in children's home to school commutes.

Independent mobility

In addition to mode choice, the analysis examined whether independent mobility is influenced by neighbourhood accessibility. Results show that neither objective nor subjective accessibility is significantly associated with children's levels of independent mobility. Across the overall sample, higher accessibility, whether objective or perceived, does not translate into greater travel autonomy.

As shown in Table 9, schools with similarly high objective accessibility indices display very different levels of independent mobility, ranging from below 20% to over 80%. This further indicates that neighbourhood accessibility alone does not explain variations in children's autonomy in home to school travel.

School	I_i^{obj}	Share of independent mobility (%)
Escola Secundária Abel Salazar (Matosinhos)	0.8	41%
Escola Secundária João Gonçalves Zarco (Matosinhos)	0.78	33%
Freinetscholen Keerpunt Buurtschool Oase50 (Ghent)	0.78	73%
Städtisches Johann-Gottfried-Herder-Gymnasium (Cologne)	0.76	87%
Eugeen Laermans (Brussels)	0.75	33%
Szkoła Podstawowa nr 11 im. Pabla Nerudy (Toruń)	0.74	82%
TADA (Brussels)	0.74	52%
Közgazdasági Gimnázium Szakgimnázium és Általános Iskola (Budapest)	0.72	22%
Szkoła Podstawowa nr 5 im. Romualda Traugutta (Toruń)	0.71	69%
Gyermekek Háza Alternatív Általános Iskola (Budapest)	0.66	26%
Escola EB Dr. José Domingues dos Santos (Matosinhos)	0.52	16%

Table 9. Objective accessibility and share of independent mobility by school

Similarly, no meaningful relationship was found between students' age and independent mobility. As shown in Table 10, schools with comparable dominant age groups exhibit markedly different autonomy levels, indicating that age alone does not explain patterns of independent travel.

School	Age range	Dominant age range	Share of independent mobility (%)
Eugeen Laermans (Brussels)	9-12	10-11	33%
TADA (Brussels)	10-12	10-11	52%
Szkoła Podstawowa nr 11 im. Pabla Nerudy (Toruń)	9-15	11-12	82%
Gyermekek Háza Alternatív Általános Iskola (Budapest)	10-15	11-12	26%
Szkoła Podstawowa nr 5 im. Romualda Traugutta (Toruń)	11-13	11-12	69%
Freinetscholen Keerpunt - Buurtschool Oase50 (Ghent)	9-14	12-13	73%
Közgazdasági Gimnázium Szakgimnázium (Budapest)	10-14	12-13	22%
Escola EB Dr. José Domingues dos Santos (Matosinhos)	13-14	13-14	16%
Städtisches Johann-Gottfried-Herder-Gymnasium (Cologne)	13-15	13-14	87%
Escola Secundária João Gonçalves Zarco (Matosinhos)	14-16	14-15	33%
Escola Secundária Abel Salazar (Matosinhos)	15-17	15-16	41%

Table 10. Students' age and share of independent mobility by school

By contrast, the only factor showing a clear and linear relationship with independent mobility is home to school proximity. As shown in Table 11, children living in the same neighbourhood as their school are predominantly independent travellers, while those living outside the city are more often accompanied by an adult. Among students living in a different neighbourhood within the same city, levels of independent and dependent mobility are more evenly balanced.

Living location	Independent mobility	Dependent mobility

Outside a city	28%	72%
Different neighbourhood (within the same city)	56%	44%
Same neighbourhood	69%	31%

Table 11. Living location in relation to school and share of independent mobility

Overall, these findings indicate that independent mobility is shaped primarily by housing proximity and everyday mobility arrangements rather than by accessibility levels or age alone. Distance, car dependence, and household routines play a stronger role in determining whether children travel independently than do school neighbourhood accessibility conditions or age.

Mode choice and independent mobility

When examining the relationship between mode choice and independent mobility, a clear and consistent pattern emerges. Across schools, higher levels of car use are closely associated with higher levels of dependent mobility, while environments characterised by greater use of active modes (walking and cycling) display substantially higher shares of independent travel.

As shown in Table 12, schools with the lowest car use shares exhibit the lowest levels of dependence, whereas schools with high car reliance are also those where the majority of students are accompanied by an adult. This relationship appears linear across the sample, indicating a strong coupling between car-oriented commuting patterns and reduced travel autonomy.

School	Share of car commute (%)	Share of dependent mobility (%)
Städtisches Johann-Gottfried-Herder-Gymnasium (Cologne)	11%	13%
Szkoła Podstawowa nr 11 im. Pabla Nerudy (Toruń)	15%	18%
Eugeen Laermans (Brussels)	20%	67%
Freinetscholen Keerpunt – Buurtschool Oase50 (Ghent)	23%	27%
TADA (ToekomstAtelierdelAvenir) (Brussels)	33%	48%

Szkoła Podstawowa nr 5 im. Romualda Traugutta (Toruń)	35%	31%
Escola Secundária Abel Salazar (Matosinhos)	48%	59%
Gyermekek Háza Alternatív Általános Iskola (Budapest)	57%	74%
Escola Secundária João Gonçalves Zarco (Matosinhos)	63%	67%
Közgazdasági Gimnázium Szakgimnázium (Budapest)	70%	78%
Escola EB Dr. José Domingues dos Santos (Matosinhos-Lavra)	80%	84%

Table 11. Share of car commute and dependent mobility by school

A similarly strong pattern is observed when relating active mobility to independent mobility. As shown in Table 12, increases in the share of walking and cycling are associated with markedly higher levels of student autonomy. Schools with minimal active mobility consistently exhibit low independence, while those with high active mobility shares show the highest levels of independent travel.

School	Share of active mobility: walking & cycling (%)	Share of independent mobility (%)
Escola EB Dr. José Domingues dos Santos (Matosinhos-Lavra)	0%	16%
Közgazdasági Gimnázium Szakgimnázium (Budapest)	5%	22%
Escola Secundária João Gonçalves Zarco (Matosinhos)	11%	33%
Gyermekek Háza Alternatív Általános Iskola (Budapest)	18%	26%
Escola Secundária Abel Salazar (Matosinhos)	30%	41%
Städtisches Johann-Gottfried-Herder-Gymnasium (Cologne)	31%	87%

TADA (ToekomstAtelierdelAvenir) (Brussels)	46%	52%
Freinetscholen Keerpunt – Buurtschool Oase50 (Ghent)	47%	73%
Szkoła Podstawowa nr 5 im. Romualda Traugutta (Toruń)	47%	69%
Eugeen Laermans (Brussels)	56%	33%
Szkoła Podstawowa nr 11 im. Pabla Nerudy (Toruń)	82%	82%

Table 12. Share of active mobility and independent mobility by school

Overall, these results show that mode choice and independent mobility are strongly interrelated. Car oriented commuting patterns coincide with higher dependence on adult accompaniment, whereas active mobility-oriented environments consistently support higher levels of autonomy.

2.8.4. Research objective 4. Identify factors that most influence children's evaluation of route quality and their willingness or reluctance to walk to particular destinations.

To analyse the factors that most influence children's perceptions of the walking experience, we examined children's feedback collected through the web app survey alongside observations recorded by workshop facilitators. The analysis was structured around three analytically predefined dimensions: safety, comfort and convenience, and enjoyment, with each dimension further subdivided into enablers and barriers. A comparative overview of these factors across schools is presented in Table 13. These dimensions operate cumulatively rather than independently: favourable conditions in one domain cannot reliably compensate for significant deficits in another. While proximity and short distances frequently facilitate walking, they are insufficient on their own to ensure a positive evaluation of routes.

School	Safety	Comfort & Convenience	Enjoyment

Eugeen Laermans & TADA (Brussels)	**Enablers:** Low-traffic streets **Barriers:** Heavy and chaotic traffic; unsafe crossings; poor separation from cars; lack of safe cycling infrastructure; missing sidewalks	**Enablers:** Short distances; wide sidewalks; good-quality pavements **Barriers:** Long distances; uphill routes; poor cleanliness and unpleasant smells; narrow sidewalks; lack of benches	**Enablers:** Quiet, low-stress environments; parks and canal-side routes; play opportunities **Barriers:** Monotonous routes; stressful environments
Gyermekek Háza Alternatív Általános Iskola (Budapest)	**Barriers:** Difficult crossings; traffic proximity to routes	**Enablers:** Short distances to destinations **Barriers:** Steep slopes; stairs	**Enablers:** Parks and forests; social walking; peaceful environments
Közgazdasági Gimnázium Szakgimnázium (Budapest)	**Enablers:** Low-traffic streets; safe crossings **Barriers:** Routes near busy roads	**Enablers:** Proximity of destinations; wide pavements **Barriers:** Stairs; uphill sections; narrow, poor-quality, cluttered sidewalks; noise; air pollution	**Enablers:** Pleasant environments; natural surroundings; social walking; quiet settings **Barriers:** Monotonous and unengaging routes
Städtisches Johann-Gottfried-Herder-Gymnasium (Cologne)	**Enablers:** Good lighting **Barriers:** Heavy traffic; multiple road crossings; walking along busy roads	**Enablers:** Short and direct routes; wide pavements; quieter segments **Barriers:** Long waiting times at crossings; crowding; noise; dirtiness; long distances; poor sidewalk quality; unreliable public transport	**Enablers:** Green spaces and parks **Barriers:** Monotonous environments

Freinetscholen Keerpunt – Buurtschool Oase50 (Ghent)	**Enablers:** Traffic-calmed or car-free streets **Barriers:** Busy streets; unsafe or missing crossings; cyclist-pedestrian conflicts; presence of marginalised people	**Enablers:** Short distances; wide pavements; good sidewalk quality; neighbourhood familiarity **Barriers:** Narrow, missing, or inaccessible sidewalks; sidewalk obstacles; poor lighting; littering; poorly maintained public toilets	**Enablers:** Calm streets; greenery; social walking; pleasant atmosphere **Barriers:** Boring routes; stressful environments; lack of greenery; lack of age-appropriate spaces for teenagers
Escola Secundária Abel Salazar (Matosinhos)	**Enablers:** Low-traffic routes **Barriers:** Traffic dominance; difficult crossings; cars obstructing sidewalks; poor night-time lighting	**Enablers:** Proximity to amenities **Barriers:** Narrow or missing sidewalks; poor pavement quality	**Enablers:** Calm environments; green spaces
Escola Secundária João Gonçalves Zarco (Matosinhos)	**Enablers:** Familiar and perceived-safe street segments **Barriers:** Heavy traffic; unsafe crossings; malfunctioning traffic lights	**Enablers:** Proximity; low-effort routes **Barriers:** Long distances; crowding; noise; unpleasant smells; long waiting times at traffic lights; narrow and uneven sidewalks	**Enablers:** Scenic views; calm environments; green areas
Escola EB Dr. José Domingues dos Santos (Matosinhos)	**Enablers:** Quiet street segments **Barriers:** Absence of pavements, crossings, and bike lanes; traffic dominance;	**Enablers:** Easy access to selected amenities **Barriers:** Long distances; hilly terrain; limited connectivity;	**Enablers:** Green areas; calm environments; social walking **Barriers:** Low feasibility of walking

	road-safety concerns	infrequent public transport; narrow and uneven sidewalks	limits overall enjoyment
Szkoła Podstawowa nr 11 im. Pabla Nerudy (Toruń)	**Enablers:** Generally calm and safe environments **Barriers:** Fear of strangers; enclosed spaces (garages); dangerous crossings; poor lighting; traffic	**Enablers:** Proximity of destinations **Barriers:** Longer distances	**Enablers:** Pleasant routes; parks and forests; fresh air; social walking; engaging routes
Szkoła Podstawowa nr 5 im. Romualda Traugutta (Toruń)	**Enablers:** Familiar and trusted routes **Barriers:** Unsafe crossings; abandoned buildings; fear of dangerous strangers; poor lighting; traffic; harassment of girls by older men	**Enablers:** Proximity of amenities; good sidewalk segments; easy routes **Barriers:** Poor or absent sidewalks; mud, potholes, litter; traffic congestion	**Enablers:** Pleasant and relaxing environments; social walking; independence; green spaces; engaging routes **Barriers:** Boring routes

Table 13. Comparative analysis of enables and barriers of walking per school

Safety

Across all school contexts summarised in Table 13, safety emerges as a key prerequisite for walking. Children consistently identified routes characterised by heavy traffic, missing or unsafe pedestrian crossings, poor separation between pedestrians and vehicles, inadequate or absent street lighting, enclosed or abandoned spaces, and fear of strangers or marginalised individuals as major deterrents. Both traffic related and social safety concerns played an important role in shaping route evaluations.

Conversely, routes passing through low traffic or car free streets, featuring safe and well marked crossings, good lighting, and generally calm environments were consistently evaluated more positively. A perceived sense of safety, whether related to traffic conditions or social context, often proved decisive in children's willingness to walk.

Comfort and convenience

Beyond safety, children's willingness to walk is strongly shaped by comfort and convenience, which determine whether walking is perceived as a feasible option. As shown in Table 13, proximity is frequently mentioned as a key enabler of walking. This prominence may, however, partly reflect the survey design, as children were explicitly asked about walking distance and time and therefore referred to these aspects more often. Other important enabling factors included wide and uncluttered sidewalks with good surface quality, short waiting times at crossings, and generally easy access along routes.

In contrast, in addition to long distances, children repeatedly identified narrow, uneven, or poorly maintained sidewalks, sidewalk obstructions (including those caused by parked vehicles), long waiting times at traffic lights, steep slopes and stairs, crowding, noise, air pollution, litter, unpleasant smells, and a lack of places to rest as major barriers. These factors often increased perceived effort and stress, making walking feel inconvenient or exhausting even when destinations were located nearby.

Enjoyment

In addition to feasibility, enjoyment plays a crucial motivational role in shaping children's route evaluations and walking preferences. As summarised in Table 13, children consistently valued routes along streets with greenery, through natural spaces, or offering fresh air, pleasant views, and calm, quiet environments. Opportunities to play along the way and to be accompanied during the walk, most commonly by friends, also contributed positively. Feelings of peacefulness, relaxation, fun, engagement, and independence enhanced children's willingness to walk and framed walking as a desirable activity rather than a necessity.

Conversely, routes described as monotonous, visually unappealing, noisy, crowded, or lacking greenery or age-appropriate spaces were frequently associated with reluctance to walk. Even where safety and convenience conditions were adequate, boredom and environmental stress reduced children's motivation to choose certain routes.

Taken together, the findings presented above indicate that children's perceptions of route quality are shaped by a cumulative interplay of factors related to safety, comfort and convenience, and enjoyment. In this framework, safety functions as a minimum requirement, shaping both children's and caregivers' decisions about whether active mobility modes are acceptable and whether children are allowed to move around independently. Comfort and convenience determine whether active travel, particularly walking, is perceived by children as a feasible option in everyday routines, while enjoyment sustains children's long-term motivation to choose walking over other modes. Importantly, shortcomings in one domain cannot be offset by strengths in another, as these dimensions operate cumulatively rather than compensatory.

2.9. Research limitations

Several limitations should be considered when interpreting the findings of this task.

First, the sample size and composition limit the extent to which robust qualitative generalisations can be drawn. While the research covers multiple schools and urban contexts, the number of participating children varies substantially across civic labs. This uneven distribution, combined with differences in age representation, constrains the comparability of findings and limits the generalisability of results beyond the specific cases examined.

Second, cross school and cross city comparisons are affected by substantial contextual differences. Variations in local urban form, transport infrastructure, neighbourhood characteristics, and school settings inevitably shape children's mobility experiences and perceptions. Consequently, observed differences across schools cannot be attributed solely to individual preferences or behaviours but must be interpreted in relation to place specific spatial and socio environmental conditions.

Third, despite the use of a shared methodological framework, workshop implementation differed across schools. Variations in facilitation styles, group dynamics, time availability, and levels of engagement may have influenced the nature and depth of children's contributions. These differences introduce an additional layer of variability into the qualitative material collected through participatory activities and facilitator observations.

Fourth, the use of a web-based application during workshops presents methodological constraints, particularly for younger participants. Some children encountered difficulties engaging with the digital interface or translating experiential perceptions into structured responses. In particular, time estimation and time perception proved to be abstract concepts for younger children, which may have affected the reliability of reported walking times and perceived accessibility measures.

Relatedly, children occasionally struggled with abstract spatial concepts, such as the notion of a "neighbourhood" or "city", which may not correspond to their everyday spatial reference frames. In some cases, children appeared unfamiliar with nearby amenities and instead provided estimates for destinations they recognised rather than for those geographically closest. This may have introduced inaccuracies in reported walking times.

In addition, rating based survey questions posed challenges for some participants. Discrepancies were observed between numerical ratings of walking experiences and accompanying qualitative comments, suggesting difficulties in mapping subjective experiences onto numerical scales. This mismatch highlights the limitations of relying on quantitative ratings alone when capturing children's experiential perceptions.

Finally, children's qualitative responses may have been influenced by survey framing effects. As questions focused on walking time and distance, children's comments on walking experience of given routes often emphasised proximity, potentially amplifying the salience of distance related factors relative to other dimensions such as comfort, safety, or enjoyment.

Taken together, these limitations indicate that the findings should be interpreted as context specific rather than fully generalisable. Nevertheless, the combination of survey responses, participatory workshops, and facilitator observations provides a rich and nuanced understanding of children's walking experiences and offers valuable insights for future research and policy development.

Task 3.2

Relating the sense of place to proximity-based living

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3. Relating the sense of place to proximity-based living (TASK 3.2.)

This chapter presents the findings of the research examining the relationship between sense of place and proximity-based living across the participating Civic Labs. Drawing on survey data, the analyses explore how spatial, social, environmental, and behavioural factors influence participants' attachment to their neighbourhoods and their perceptions of local accessibility. The chapter is structured into an introduction, a description of the research methodology, the presentation of empirical results, and a discussion of the key findings.

3.5. Introduction

The aim of the study was to analyse and verify the relationship between (1) psychological factors, such as sense of place, sense of safety, and the perception of space, and (2) mobility patterns and the everyday accessibility needs of the target groups regarding important urban destinations.

One of the key objectives of the study was to examine how the everyday experiences of respondents—primarily children and young people—in navigating urban space shape their personal preferences. To this end, particular attention was paid to the prevalence of different modes of transport, including private cars, public transport, bicycles, scooters, and walking. These mobility patterns were analysed in two contexts: travel between home and school, and movement during leisure time. This approach made it possible to determine to what extent young people's mobility choices in urban space reflect their own preferences and to what extent they are constrained by infrastructure, spatial distances, or parental decisions.

Another important objective of the report is to identify the social dimension of familiarising oneself with urban space. The analysis focuses on the ways in which young city residents explore their surroundings, including the immediate neighbourhood of their homes, the areas around their schools, and the city as a whole. This diagnosis is complemented by an examination of the degree of sense of place (understood as a feeling of being “at home”) and sense of safety, both of which, as the findings indicate, change markedly as the distance from familiar environments increases and individuals move into more abstract and unfamiliar spaces.

An important complement to these analyses is the reconstruction of young people's visions of the type of city in which they would like to live as adults. Comparing preferred future urban environments—from green and compact communities, through metropolitan areas with well-developed public transport systems, to more futuristic visions of urban space—provides valuable insights into the aspirations of the younger generation regarding their desired living environments.

Children and young people occupied a central position in the study. In order to better understand the motivations and behaviours of young urban residents, their parents were also invited to participate in the research. This approach was intended to provide a comprehensive perspective on the attitudes and behaviours under investigation.

3.2. Research methodology

3.2.1. Survey, PAPI & CAWI techniques

The study on the sense of place in relation to proximity-based living was conducted using the survey method. This scientific method follows an established process that can be systematically implemented, documented, and replicated in other studies using questionnaires. Surveys are commonly employed to investigate opinions, attitudes, behaviors, and other factual information about members of a population (Ballou, 2008).

There are several ways of conducting survey research. Nowadays, the most common approaches include PAPI and CAWI. The questionnaire on the sense of place in relation to proximity-based living was conducted using both formats.

PAPI (Paper-and-Pencil Interviewing) is the traditional form of survey research, in which researchers typically conduct face-to-face interviews or participants complete printed questionnaires independently (Lavrakas, 2008). This approach offers several well-established advantages, as researchers have greater control over inconsistencies, can identify potential errors, and can clarify misunderstandings on the part of participants. However, this method is more time-consuming, particularly with regard to transferring collected data into a database. Moreover, certain procedures, such as randomization, are more difficult to implement in paper-based surveys (Lavrakas, 2008). For these reasons, CAWI (Computer-Assisted Web Interviewing) has become the preferred method in many contemporary studies and was therefore adopted as the primary survey method in this research.

CAWI (Computer-Assisted Web Interviewing) is a method in which respondents complete questionnaires independently using a prepared web-based form (Wójcicki, 2012). It enables easy access to very specific participant groups and allows for the generalization of results to the broader population (Reips, 2000). Additionally, it reduces costs related to laboratory space and ensures public control of ethical standards (Reips, 2000). Compared to other data collection methods, such as telephone interviews or paper-and-pencil surveys, CAWI leads to savings in direct costs associated with monitoring, data processing, and personnel, while maintaining a high level of quality in terms of data collection and processing (Fiorello et al., 2016). However, this method also has some limitations. It requires access to a stable internet connection and a computer or other device, as well as basic digital literacy. Moreover, the lack of direct contact with the researcher may be

problematic if participants do not fully understand the instructions. Finally, not all types of studies can be conducted using this method (Reips, 2000). In our study, these limitations were partially addressed by providing researcher assistance during the completion of the questionnaire, allowing participants to ask questions if needed. Additionally, in the case of the CAWI questionnaire, access to computers and a stable internet connection was ensured by the school during the study period. Study was conducted using a quantitative approach, with some possibilities for more qualitative answers. Quantitative research is based on the numerical representation of data and the manipulation of variables, which are later used to describe and explain the phenomenon, while in qualitative research, data are not numerical but consist of notes, interviews, or observations (Wysocki, 2007).

3.2.1.1. Design of the survey

The starting point for designing the survey questionnaire was the extensive literature review conducted in Task T1.1. Based on the theoretical knowledge gained, a team from NCU, including human geographers and psychologists, worked during July and August 2025 to prepare the first version of the questionnaire. At the end of August, the questionnaire was consulted with the project partners, primarily the representatives of the Civic Labs (CLs), who were responsible for conducting the survey. These consultations took place in several stages and included online meetings as well as discussions among all CONIFER project partners during the consortium meeting in Toruń. Taking into account the comments and observations of the partners—which, in addition to substantive remarks, concerned issues such as the comprehensibility of questions for children of different ages, cultural specificities, and the length of the questionnaire—and with the support of an NCU educational specialist experienced in working with children and youth, the final survey form was successfully developed by the end of November 2025.

The choice between the PAPI and CAWI survey techniques was an independent decision of each Civic Lab. The PAPI variant was selected by the Civic Lab in Brussels. The remaining Civic Labs—Budapest, Cologne, Matosinhos, and Toruń—decided to collect data using the CAWI technique.

In December, NCU, as the task leader, launched a public procurement procedure to select a company that transferred the questionnaire into a specialised survey system in six language versions for three target groups: children aged 10–13, youth aged 14–18, and their parents and carers. In addition, for Cologne and Toruń, besides the set of mandatory questions used by all Civic Labs, an additional set of questions was developed to provide a more in-depth diagnosis of respondents' attitudes and behaviours related to the sense of place in the context of proximity-based living. Each version of the questionnaire was

reviewed and approved by the respective Civic Labs before distribution among respondents.

Data collection in all Civic Labs was successfully completed in April 2026. The survey data collected through the CAWI method were verified, and the databases from the different language versions were harmonised. In April, NCU also received an Excel database from the Brussels Civic Lab, which had conducted the survey using the PAPI technique. Considerable effort was required to minimise the impact of missing data (in the CAWI survey, the system required responses to all questions and automatically prevented missing values) and to align the Brussels database with the CAWI datasets collected by the other Civic Labs. This was particularly important because the Brussels Civic Lab used only one version of the survey form for both children and youth, namely the shorter questionnaire version originally designed for the 10–13 age group.

After checking the completeness and consistency of the data, the collected material was subjected to statistical analyses, including:

1. **Descriptive statistics**, combined with an analysis of adjusted residuals associated with chi-square tests for each survey question in relation to the city;
2. **Multivariate analyses**, aimed both at identifying mobility cultures and at developing models of factors influencing the key scales used in the study.

3.2.1.2. Participants

Participants included children aged 10 to 13 years, youth aged 14 up to the age of 18, and their parents or carers living within the area served by each civil lab. Descriptive statistics of the participants are presented in the following tabes. As it was shown the survey covered 1,367 respondents from six European cities representing six Civic Labs: Budapest, Brussels, Cologne, Ghent, Matosinhos, Toruń. The largest group consisted of youth (644 respondents, 47.1%), followed by children (546 respodents, 39.9%) and parents and carers (288, 21.1%). The highest number of respondents was recorded in Toruń (314) and Cologne (312), while the lowest was in Ghent (65).

Table. Number of respondents in the proposed groups of respondents compared with the city (Civic Lab)

	CITY						Total
	Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1. Children	89	107	129	76	19	126	546
2. Youth	162	195	93	74	38	82	644
3. Parents and carers	101	45	56	78	8	0	288

Altogether	**314**	**312**	**278**	**190**	**65**	**208**	**1367**

Source: Own elaboration on the basis of the questionnaire survey

* Age

Table C.13 presents the age structure of children participating in the survey across the six cities. Overall, the largest proportion of respondents were 13-year-olds (42.4%), followed by 12-year-olds (24.5%) and 11-year-olds (23.8%). The age distribution varied considerably between cities.

Table Y.22 presents the age distribution of youth respondents across the surveyed cities. A total of 635 young people participated in the study, with 14-year-olds constituting the largest age group (41.7%), followed by 15-year-olds (26.8%). Respondents aged 16–18 accounted for smaller shares of the sample, while only 3.0% were aged 13. The age structure varied significantly between cities.

Table P.20 presents the age structure of parents and carers participating in the survey across the five cities. The largest proportion of respondents were aged 45–49 (32.3%), followed by those aged 40–44 (27.4%) and 50–54 (18.8%). Respondents under the age of 35 and over the age of 55 constituted only a small share of the sample. The age distribution varied across cities.

Crosstab C.13. The structure of responses to the question: 'How old are you?' compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
9	N	0	0	0	0	0	1	1
	% of the city	**0,0%**	**0,0%**	**0,0%**	**0,0%**	**0,0%**	**,8%**	**,2%**
	*	*-,4*	*-,5*	*-,6*	*-,4*	*-,2*	*1,9*	
10	N	12	20	3	5	0	9	49
	% of the city	**13,8%**	**18,7%**	**2,3%**	**6,6%**	**0,0%**	**7,5%**	**9,1%**
	*	*1,7*	*3,8*	*-3,1*	*-,8*	*-1,4*	*-,7*	
11	N	33	29	14	22	0	30	128
	% of the city	**37,9%**	**27,1%**	**10,9%**	**28,9%**	**0,0%**	**25,0%**	**23,8%**
	*	*3,4*	*,9*	*-4,0*	*1,1*	*-2,5*	*,4*	

12	N	25	15	40	28	9	15	132
	% of the city	**28,7%**	**14,0%**	**31,0%**	**36,8%**	**47,4%**	**12,5%**	**24,5%**
	*	*1,0*	*-2,8*	*2,0*	*2,7*	*2,4*	*-3,5*	
13	N	17	43	72	21	10	65	228
	% of the city	**19,5%**	**40,2%**	**55,8%**	**27,6%**	**52,6%**	**54,2%**	**42,4%**
	*	*-4,7*	*-,5*	*3,5*	*-2,8*	*,9*	*3,0*	
Altogether	N	87	107	129	76	19	120	538
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests			
	Value	df	sig.
Likelihood ratio test	105,995	20	,000

a. 20.0% of cells (2) have an expected count less than 5. The minimum expected count is 0.42.

Crosstab Y.22. The structure of responses to the question: 'How old are you?' compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
13	N	19	0	0	0	0	0	19
	% of the city	**12,4%**	**0,0%**	**0,0%**	**0,0%**	**0,0%**	**0,0%**	**3,0%**
	*	7,9	-2,9	-1,8	-1,6	-1,1	-1,7	
14	N	52	79	28	48	9	49	265
	% of the city	**34,0%**	**40,5%**	**30,1%**	**64,9%**	**23,7%**	**59,8%**	**41,7%**
	*	-2,2	-,4	-2,5	4,3	-2,3	3,5	
15	N	44	39	31	19	11	26	170

	% of the city	**28,8%**	**20,0%**	**33,3%**	**25,7%**	**28,9%**	**31,7%**	**26,8%**
	*	,6	-2,6	1,5	-,2	,3	1,1	
16	N	24	26	7	3	8	7	75
	% of the city	**15,7%**	**13,3%**	**7,5%**	**4,1%**	**21,1%**	**8,5%**	**11,8%**
	*	1,7	,8	-1,4	-2,2	1,8	-1,0	
17	N	12	31	16	2	7	0	68
	% of the city	**7,8%**	**15,9%**	**17,2%**	**2,7%**	**18,4%**	**0,0%**	**10,7%**
	*	-1,3	2,8	2,2	-2,4	1,6	-3,4	
18	N	2	20	11	2	3	0	38
	% of the city	**1,3%**	**10,3%**	**11,8%**	**2,7%**	**7,9%**	**0,0%**	**6,0%**
	*	-2,8	3,0	2,6	-1,3	,5	-2,4	
Altogether	N	153	195	93	74	38	82	635
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests			
	Value	df	sig.
Likelihood ratio test	158,280	25	,000
a. 27.8% of cells (10) have an expected count less than 5. The minimum expected count is 1.14.			

Crosstab P.20. The structure of responses to the question: 'Age' compared with a city

Categories		City					Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
1	N	0	0	2	0	0	2
	% of the city	**0,0%**	**0,0%**	**3,6%**	**0,0%**	**0,0%**	**,7%**
	*	-1,0	-,6	2,9	-,9	-,2	
2	N	0	0	1	0	0	1
	% of the city	**0,0%**	**0,0%**	**1,8%**	**0,0%**	**0,0%**	**,3%**

	*	-,7	-,4	2,0	-,6	-,2	
3	N	2	0	0	2	0	4
	% of the city	**2,0%**	**0,0%**	**0,0%**	**2,6%**	**0,0%**	**1,4%**
	*	,6	-,9	-1,0	1,0	-,3	
4	N	21	3	7	6	0	37
	% of the city	**20,8%**	**6,7%**	**12,5%**	**7,7%**	**0,0%**	**12,8%**
	*	3,0	-1,3	-,1	-1,6	-1,1	
5	N	36	8	13	18	4	79
	% of the city	**35,6%**	**17,8%**	**23,2%**	**23,1%**	**50,0%**	**27,4%**
	*	2,3	-1,6	-,8	-1,0	1,5	
6	N	27	17	19	28	2	93
	% of the city	**26,7%**	**37,8%**	**33,9%**	**35,9%**	**25,0%**	**32,3%**
	*	-1,5	,9	,3	,8	-,4	
7	N	12	11	11	20	0	54
	% of the city	**11,9%**	**24,4%**	**19,6%**	**25,6%**	**0,0%**	**18,8%**
	*	-2,2	1,1	,2	1,8	-1,4	
8	N	3	4	2	4	2	15
	% of the city	**3,0%**	**8,9%**	**3,6%**	**5,1%**	**25,0%**	**5,2%**
	*	-1,3	1,2	-,6	,0	2,6	
9	N	0	2	1	0	0	3
	% of the city	**0,0%**	**4,4%**	**1,8%**	**0,0%**	**0,0%**	**1,0%**
	*	-1,3	2,4	,6	-1,1	-,3	
Altogether	N	101	45	56	78	8	288
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – less than 25, 2 – 25-29, 3 – 30-34, 4 – 35-39, 5 – 40-44, 6 – 45-49, 7 – 50-54, 8 – 55-59, 9 – 60-64

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests			
	Value	df	sig.
Likelihood ratio test	52,377	32	,013
a. 62.2% of cells (28) have an expected count less than 5. The minimum expected count is 0.03.			

* Gender

Table C.14 presents the gender distribution of child respondents across the surveyed cities. Overall, the proportions of girls (45.2%) and boys (48.3%) were relatively balanced. A further 6.5% of respondents identified as other or preferred not to disclose their gender. The gender structure varied across cities.

Table Y.23 presents the gender distribution of youth respondents across the surveyed cities. Overall, girls constituted a slight majority of the sample (51.6%), while boys accounted for 42.5% of respondents. An additional 5.9% identified as other or preferred not to disclose their gender. The gender structure was relatively balanced across most cities.

Table P.21 presents the gender distribution of parents and carers participating in the survey across the five cities. Women constituted the clear majority of respondents, accounting for 75.0% of the total sample, while men represented 24.3%. Only two respondents (0.7%) identified as other or preferred not to disclose their gender. Overall, the results indicate that the parent and carer sample was strongly female-dominated across all participating cities.

Crosstab C.14. The structure of responses to the question: 'What is your gender?' compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	40	46	61	38	10	50	245
	% of the city	**44,9%**	**43,0%**	**47,3%**	**50,0%**	**52,6%**	**41,0%**	**45,2%**
	*	-,1	-,5	,5	,9	,7	-1,1	
2	N	41	43	60	38	9	71	262
	% of the city	**46,1%**	**40,2%**	**46,5%**	**50,0%**	**47,4%**	**58,2%**	**48,3%**
	*	-,5	-1,9	-,5	,3	-,1	2,5	
3	N	8	18	8	0	0	1	35
	% of the city	**9,0%**	**16,8%**	**6,2%**	**0,0%**	**0,0%**	**,8%**	**6,5%**
	*	1,1	4,9	-,1	-2,5	-1,2	-2,9	
Altogether	N	89	107	129	76	19	122	542
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – Girl; 2 – Boy; 3 - Other / Prefer not to say

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	40,412	10	,000

a. 11.1% of cells (2) have an expected count less than 5. The minimum expected count is 1.23.

Crosstab Y.23. The structure of responses to the question: 'What is your gender?' compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	87	101	40	39	19	46	332
	% of the city	**53,7%**	**51,8%**	**43,0%**	**52,7%**	**50,0%**	**56,1%**	**51,6%**
	*	,6	,1	-1,8	,2	-,2	,9	
2	N	61	78	46	35	19	35	274
	% of the city	**37,7%**	**40,0%**	**49,5%**	**47,3%**	**50,0%**	**42,7%**	**42,5%**
	*	-1,5	-,9	1,5	,9	1,0	,0	
3	N	14	16	7	0	0	1	38
	% of the city	**8,6%**	**8,2%**	**7,5%**	**0,0%**	**0,0%**	**1,2%**	**5,9%**
	*	1,7	1,6	,7	-2,3	-1,6	-1,9	
Altogether	N	162	195	93	74	38	82	644
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – Girl; 2 – Boy; 3 - Other / Prefer not to say

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	26,480	10	,003

a. 16.7% of cells (3) have an expected count less than 5. The minimum expected count is 2.24.

Crosstab P.21. The structure of responses to the question: 'What is your gender?' compared with a city

Categories		City					Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
1	N	81	31	45	54	5	216
	% of the city	**80,2%**	**68,9%**	**80,4%**	**69,2%**	**62,5%**	**75,0%**
	*	1,5	-1,0	1,0	-1,4	-,8	
2	N	19	13	11	24	3	70
	% of the city	**18,8%**	**28,9%**	**19,6%**	**30,8%**	**37,5%**	**24,3%**
	*	-1,6	,8	-,9	1,6	,9	
3	N	1	1	0	0	0	2
	% of the city	**1,0%**	**2,2%**	**0,0%**	**0,0%**	**0,0%**	**,7%**
	*	,4	1,3	-,7	-,9	-,2	
Altogether	N	101	45	56	78	8	288
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – Woman; 2 – Man; 3 - Other / Prefer not to say

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	8,354	8	,400

a. 40.0% of cells (6) have an expected count less than 5. The minimum expected count is 0.06.

* Place of residence in the relation to the school

Table C.15 presents the place of residence of child respondents in relation to the location of their school. Overall, more than half of the respondents (53.5%) lived in a different neighbourhood from their school, while 35.1% lived in the same neighbourhood and 11.4% resided outside the city. The distribution varied across cities.

Table Y.24 presents the place of residence of youth respondents in relation to the location of their school. Overall, the majority of respondents (55.8%) lived in a different neighbourhood from their school, while 28.8% lived in the same neighbourhood and 15.4% resided outside the city. Considerable differences were observed between cities.

Table P.22 presents the place of residence of parents and carers in relation to the location of their child's school. Overall, 45.1% of respondents lived in the same neighbourhood as the school, 42.7% lived in a different neighbourhood, and 12.2% resided outside the city. The pattern varied considerably across cities.

Crosstab C.15. The structure of responses to the question: 'Where do you live in the city?' compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	44	24	43	19	6	54	190
	% of the city	**49,4%**	**22,4%**	**33,3%**	**25,0%**	**31,6%**	**44,3%**	**35,1%**
	*	3,1	-3,1	-,5	-2,0	-,3	2,4	
2	N	38	77	60	50	6	59	290
	% of the city	**42,7%**	**72,0%**	**46,5%**	**65,8%**	**31,6%**	**48,4%**	**53,5%**
	*	-2,2	4,3	-1,8	2,3	-2,0	-1,3	
3	N	7	6	26	7	7	9	62
	% of the city	**7,9%**	**5,6%**	**20,2%**	**9,2%**	**36,8%**	**7,4%**	**11,4%**
	*	-1,2	-2,1	3,6	-,7	3,5	-1,6	

Altogether	N	89	107	129	76	19	122	542
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - In the same neighbourhood as the school; 2 - In the different neighbourhood as the school; 3 - Outside the city

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	50,764	10	,000

a. 5.6% of cells (1) have an expected count less than 5. The minimum expected count is 2.17.

Crosstab Y.24. Place of residence compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	58	29	35	23	10	30	185
	% of the city	**35,8%**	**14,9%**	**37,6%**	**31,1%**	**26,3%**	**37,5%**	**28,8%**
	*	2,3	-5,2	2,0	,5	-,4	1,8	
2	N	71	156	27	43	19	42	358
	% of the city	**43,8%**	**80,0%**	**29,0%**	**58,1%**	**50,0%**	**52,5%**	**55,8%**
	*	-3,5	8,2	-5,6	,4	-,7	-,6	
3	N	33	10	31	8	9	8	99
	% of the city	**20,4%**	**5,1%**	**33,3%**	**10,8%**	**23,7%**	**10,0%**	**15,4%**
	*	2,0	-4,8	5,2	-1,2	1,5	-1,4	
Altogether	N	162	195	93	74	38	80	642
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - In the same neighbourhood as the school; 2 - In the different neighbourhood as the school; 3 - Outside the city

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests			
	Value	df	sig.
Likelihood ratio test	99,720	10	,000
a. 0.0% of cells (0) have an expected count less than 5. The minimum expected count is 5.86.			

Crosstab P.22. The structure of responses to the question: 'Where do you live in the city?' compared with a city

Categories		City					Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
1	N	67	6	26	31	0	130
	% of the city	**66,3%**	**13,3%**	**46,4%**	**39,7%**	**0,0%**	**45,1%**
	*	5,3	-4,7	,2	-1,1	-2,6	
2	N	24	37	24	33	5	123
	% of the city	**23,8%**	**82,2%**	**42,9%**	**42,3%**	**62,5%**	**42,7%**
	*	-4,8	5,8	,0	-,1	1,1	
3	N	10	2	6	14	3	35
	% of the city	**9,9%**	**4,4%**	**10,7%**	**17,9%**	**37,5%**	**12,2%**
	*	-,9	-1,7	-,4	1,8	2,2	
Altogether	N	101	45	56	78	8	288
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - In the same neighbourhood as the school; 2 - In the different neighbourhood as the school; 3 - Outside the city

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests			
	Value	df	sig.
Likelihood ratio test	62,257	8	,000

a. 20.0% of cells (3) have an expected count less than 5. The minimum expected count is 0.97.

3.2.1.3. Measures

A different questionnaire was administered for each age group, considering cognitive abilities, response time, and ease of answering. For each age group in each civic lab, the questionnaires were translated from English into the respective native languages, i.e. for Brussels and Ghent – in Dutch and French, for Cologne – in German, for Budapest – in Hungarian, for Matosinhos – in Portuguese, for Toruń – in Polish. Each part of the questionnaire included a mix of single-choice and multiple-choice questions, with the option of open-ended responses. Whenever possible, the questions and answers were randomized. To facilitate better understanding of the content, for children most questions were supplemented with illustrative graphics.

The survey was conducted using the My Mobility and Sense of the City questionnaire, which was divided into three parts. The first part concerned participants' mobility within their city. In this section, participants answered questions about how they travel within their place of residence, e.g., how they reached school on the day of the study (item: How did you come to school this morning?), which modes of transport they used and why they chose them, how they usually commute to school and how often, what they do in their free time, and how they move around the city. The response options included the most common modes of transport (e.g., on foot, by own bicycle, by public transport, by car but someone drives me), as well as types of activities undertaken by children and youth; in the youth version, additional questions addressed feelings associated with specific modes of transport. Children also answered a question about how important it is for them that daily needs are available within walking or cycling distance from their home (response options: not important at all, neither important nor unimportant, very important). They were also asked about the type of city they would like to live in in the future, with regard to possible mobility futures. The second part of the questionnaire concerned the sense of place, focusing on how participants feel in their city and neighborhood. This included items such as: Do you feel 'at home' in the neighborhood where you live / in the neighborhood of your school / in the city overall?. Responses were measured on a three-point scale (weakly, neither weakly nor strongly, strongly). Participants were also asked about their sense of safety in their neighborhood, the

neighborhood of their school, and in the city (options: yes, no, and sometimes yes, sometimes no). The final part of the questionnaire concerned basic sociodemographic characteristics, including age, gender (with other and prefer not to say options), and place of residence. The response options for place of residence were as follows: in the same neighborhood as the school, in a different neighborhood from the school, and outside the city.

3.2.1.4. Procedure

Participants were recruited through primary and secondary schools with which the civic labs collaborated. Due to ethical considerations, information for parents was provided by the researchers via school electronic systems, including all relevant details about the project.

In the schools under a survey, researchers could employ one of three options. The first option, the workshop was conducted, in which, in each class, a link to the survey was distributed (CAWI wersion) along with printed information sheets and paper consent forms. In the second option, for the PAPI version of the questionnaire, within the workshop, the paper version of the questionnaire was distributed among students with the explanation what they should do. In the third option, the link to the survey (CAWI) was sent directly to students and their parents. Regardless of the option, each student completed the questionnaire individually. After completing the survey, if time remained within the class period, researchers conducted short activities combined with a discussion on participants' perceptions of mobility and their immediate surroundings. Three CLs: Cologne, Matosinhos and Toruń, used the codes, which enables researchers to identify a student or students with their parents (carers) from the same household.

3.3. Research results

3.3.1. Children, youth, and parents in urban space: analysis of survey responses across cities

3.3.1.1. Children 10-13 years

3.3.1.1.1. Introduction

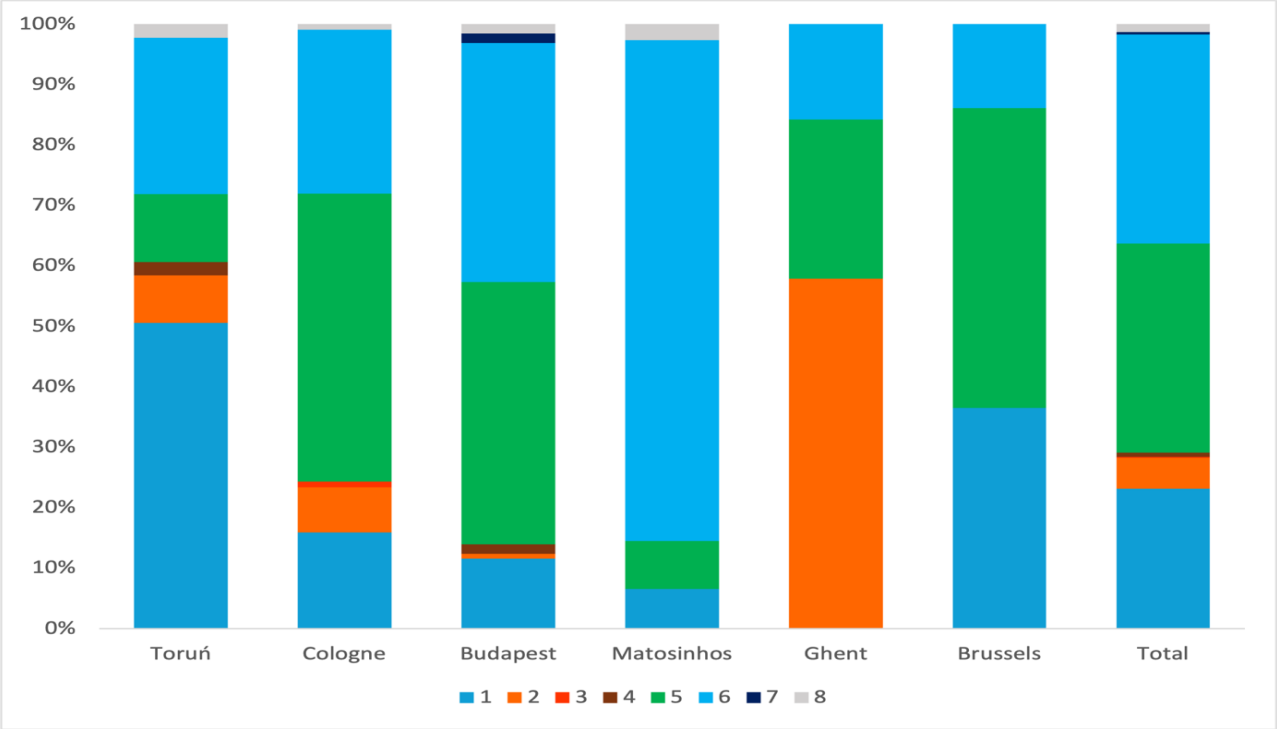
Urban space constitutes an important environment for children's everyday lives, encompassing both journeys to school and activities undertaken after school hours. This section of the empirical material focuses on children's mobility patterns, the factors shaping these practices, the degree of independence in navigating the city, and their relationship with their immediate surroundings.

Particular attention is devoted to differences among the six cities included in the study: Toruń, Cologne, Budapest, Matosinhos, Ghent, and Brussels. This comparison makes it possible to identify the extent to which children's everyday experiences are shaped by local transport infrastructure, mobility patterns within the family, and the social and spatial conditions of urban life.

3.3.1.1.2. From obligation to leisure: forms of urban travel

The first question concerned the mode of transportation used by the study participants—children aged 9 to 13 years (N = 535)—to travel to school on the day of the survey. Considering the combined data from all cities, the most common means of transport were public transportation and travelling by car as a passenger (both accounting for 34.6% of responses). However, the mode of travel to school differed significantly between the compared urban cities ($\chi^2(35) = 264.667$, $p < 0.001$). In Toruń, walking was by far the most common choice (50.6%), whereas in Ghent the majority of children travelled using their own bicycles (57.9%). Public transportation was the dominant mode of travel among children in Brussels (49.6%), Cologne (47.7%), and Budapest (43.4%). Travelling by car as a passenger was reported by as many as 82.9% of surveyed children in Matosinhos; however, it is worth noting that this mode of transport was among the more frequently chosen options across all cities (ranging from 13.9% in Brussels to 39.5% in Cologne). Other means of transport, such as minute-rental bikes, scooters, app-based cars, or other unspecified options, were used by only a few children across the entire sample, indicating that these modes were chosen very rarely.

Figure 98 Figure C.1. The structure of responses to the question: 'How did you come to school this morning?' (% of "Yes" responses in the total number of all responses)



Source: Own elaboration on the basis of the questionnaire survey

Explanation: 1 - On foot; 2 - By own bicycle; 3 - By minute-rental bike (city bike); 4 - By a traditional or electric scooter; 5 - By public transport (e.g., bus, tram, subway); 6 - By car, but someone drives me; 7 - By app-based car (e.g., Uber, Bolt, FreeNow) or by taxi; 8 – Other

Survey participants were also asked about the reasons for choosing a particular mode of transport, with the possibility of selecting up to three out of 13 available options. Across all responses from the analysed cities, the three most frequently indicated reasons were closeness to home (27.4%), speed and convenience (27.0%), and having no alternative choice of transport (20.2%). The frequency of individual responses differed between children from different cities. In Toruń, the most important factors influencing the choice of transport were speed and convenience (42.7%) and the closeness to the school from home (39.3%). Speed and convenience were also the most important factors in Cologne (53.3% of responses), while the second most important factors among children from this city were closeness to a stop/station (40.2%) and the way their friends travelled (30.8%).

In contrast, in Matosinhos the three most important factors were the mode of transport used by parents (47.4%), lack of another choice (38.2%), and weather conditions (34.2%). It should be emphasised that none of the children from Matosinhos selected the response

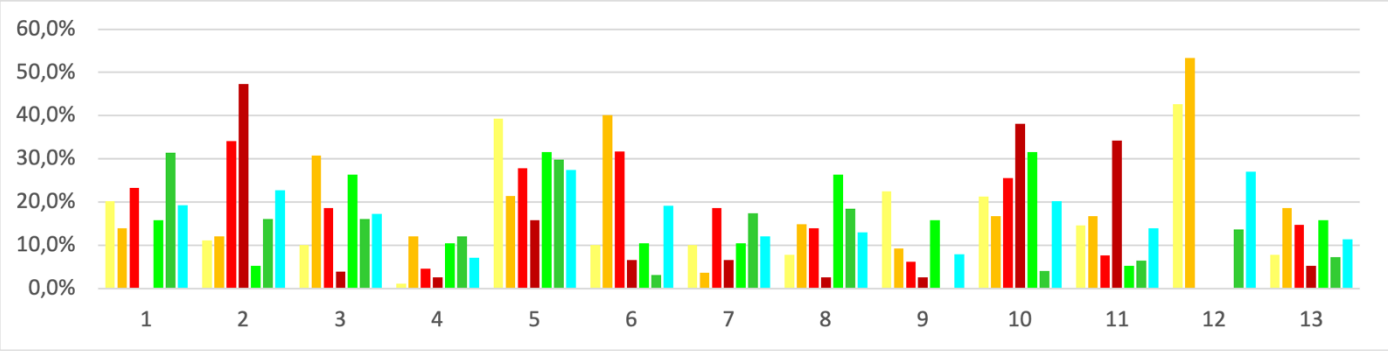
related to independence of mobility, whereas in the other cities this was a relatively important factor (ranging from 14.0% of responses in Cologne to 31.5% in Brussels). At the same time, it was in the Portuguese city that the highest proportion of children travelled to school in the same way as their parents on the day of the survey.

Similar results were observed in Budapest, where children also most frequently travelled in the same way as their parents (47.9%). Their journey to school was additionally associated with proximity to a stop/station (31.8%), closeness to home (27.9%), and a declared lack of alternative choice (25.6%). Lack of another choice, together with closeness to home, were also the most important factors in Ghent (31.6% each). For children surveyed in this city, environmental concern was also important (26.3%), representing the highest percentage among all participating children. A similarly high proportion of responses indicating this reason was also observed among children surveyed in Brussels (18.5%), Cologne (15.0%), and Budapest (14.0%).

Considering the way other people travelled—particularly the travel habits of friends—was especially important for children from Cologne (30.8%) and Ghent (26.3%), while it was of little importance for children from Matosinhos. The belief that "everyone travels this way" had relatively little significance overall, with the highest percentages for this response reported by children in Cologne and Brussels (12.1% each), followed by Ghent (10.5%).

The city of residence was also associated with choosing a mode of transport due to concerns about health and physical fitness. This option was selected as one of the main reasons by nearly one-quarter of children from Toruń and by approximately one in six children from Ghent, whereas in the remaining cities the proportion was considerably lower.

Figure 99 Figure C.2. The structure of responses to the question: 'Why did you travel to school this way?' (multiple choice, % of responses in the total number of all responses)



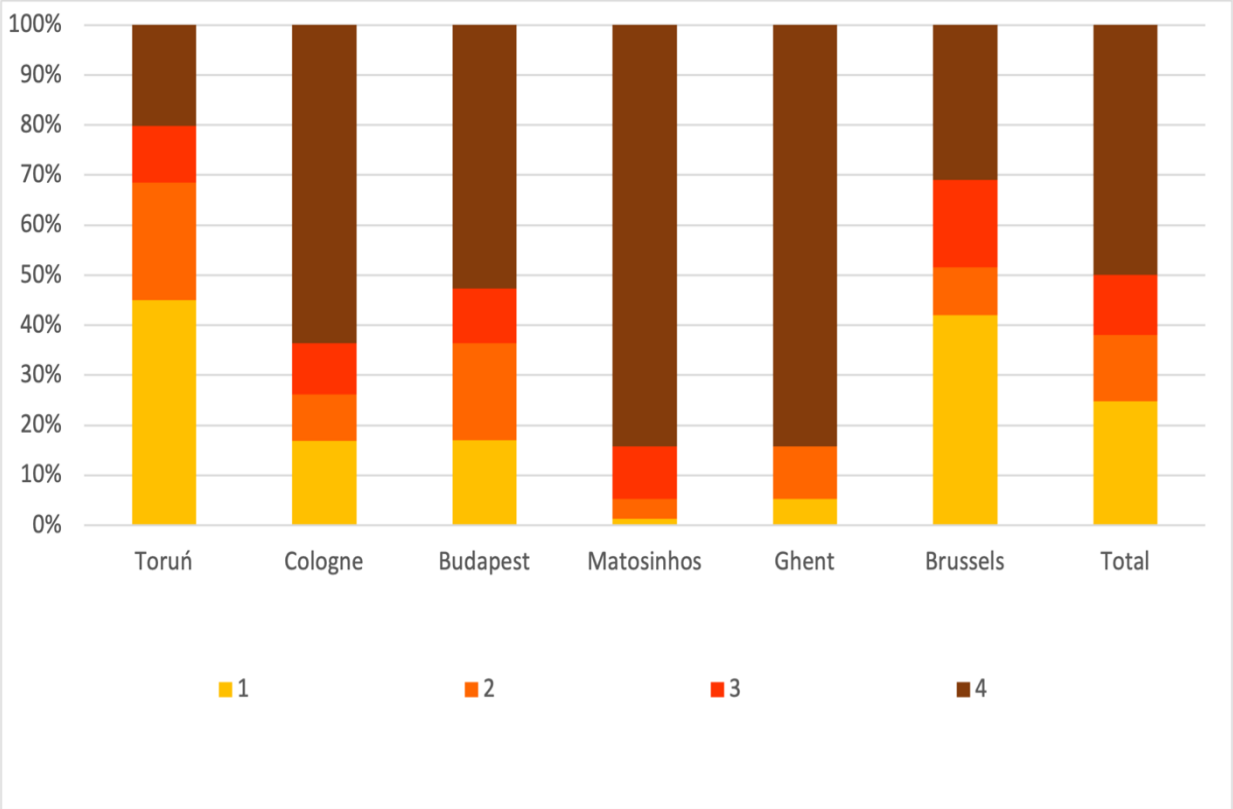
Explanation: 1 - I don't have to wait for anyone; I am independent; 2 - My parents travel this way; 3 - My friends travel this way; 4 - Everyone travels this way here; 5 - It is close to home; 6

- I have a stop nearby (bus, tram, or subway); 7 - I feel safe on the road; 8 - I don't pollute the air; 9 - For health and to stay in good condition; 10 - I have no other choice; 11 - Because of the weather; 12 – It is the fastest, the most convenient way; 13 - Other

Source: Own elaboration on the basis of the questionnaire survey

The declared mode of travelling to school was not the same every day, and the frequency of choosing particular modes of transport also differed among children from the analysed cities. The highest proportion of children walking to school every day was recorded in Toruń (44.9%) and Brussels (42.1%). Nearly one in five children reported walking to school every day in Budapest and Cologne (16.8% and 17.1%, respectively). In these two cities, as well as in Matosinhos and Ghent, the majority of children declared that they never travelled to school on foot. The differences between cities were statistically significant ($\chi^2(20) = 147.128$, $p < 0.001$).

Figure 100 Figure C.3.1. Fig. The structure of responses to the question: 'How do you generally come to school?' (% of answer „On foot")

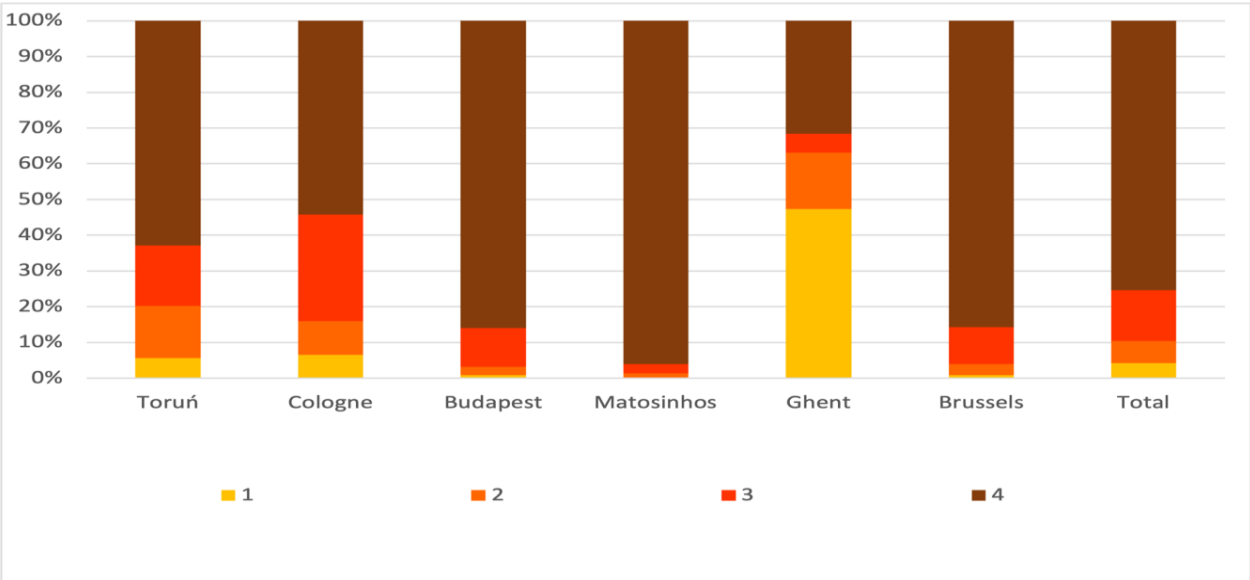


Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never

Source: Own elaboration on the basis of the questionnaire survey

Almost half of the surveyed children from Ghent (47.4%) declared travelling to school by their own bicycle every day, while a further 15.8% reported cycling to school several times a week. This was a distinctive result compared to the other cities, where the dominant response was that children never travelled to school in this way (ranging from 54.2% in Cologne to as many as 96.1% in Matosinhos). It is also worth noting the relatively high proportion of responses among children in Cologne and Toruń, where almost half of the children in Cologne and one-third of the children in the Polish city declared cycling to school at least several times a month. The differences between cities were statistically significant ($\chi^2(15) = 119.388$, $p < 0.001$).

Figure 101 Figure C.3.2. The structure of responses to the question: 'How do you generally come to school?' (% of answer „By own bicycle")

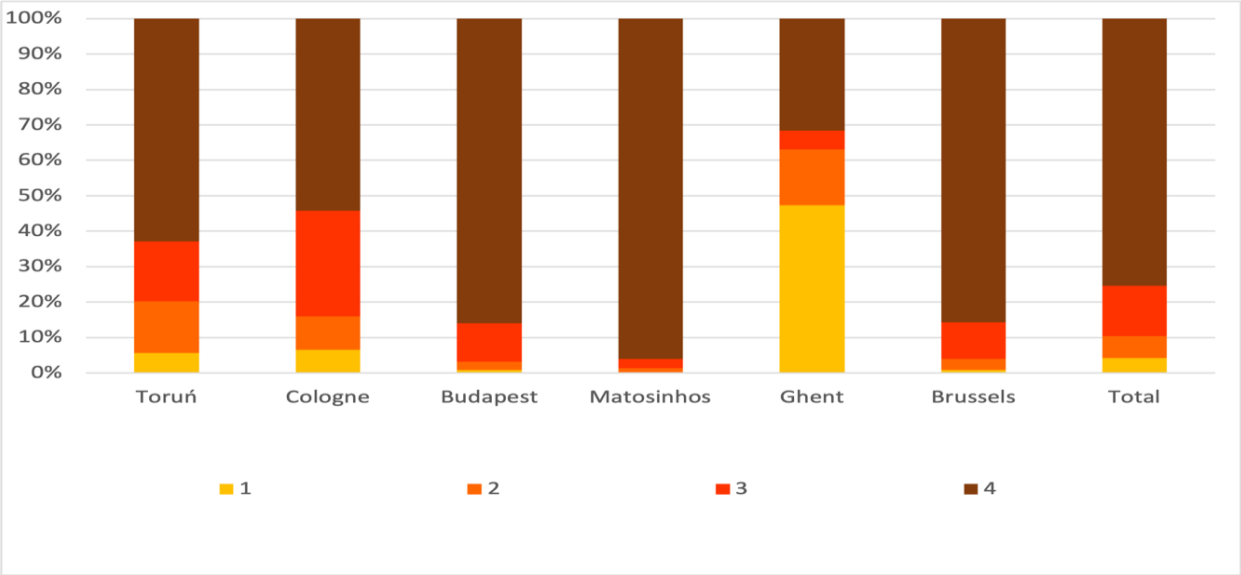


Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never

Source: Own elaboration on the basis of the questionnaire survey

Shared bicycles, scooters (both traditional and electric), and app-based cars were rarely used as modes of transport to school. The vast majority of children reported that they had never travelled to school using these means of transport. Only 18 children out of the total group of 546 respondents who answered this question (4 from Cologne, 5 from Budapest, 1 from Ghent, and 6 from Brussels) declared travelling to school by shared bicycle at least several times a month.

Figure 102 Figure C.3.3. The structure of responses to the question: 'How do you generally come to school?' (% of answer „By city bike (by minute-rental bike)"

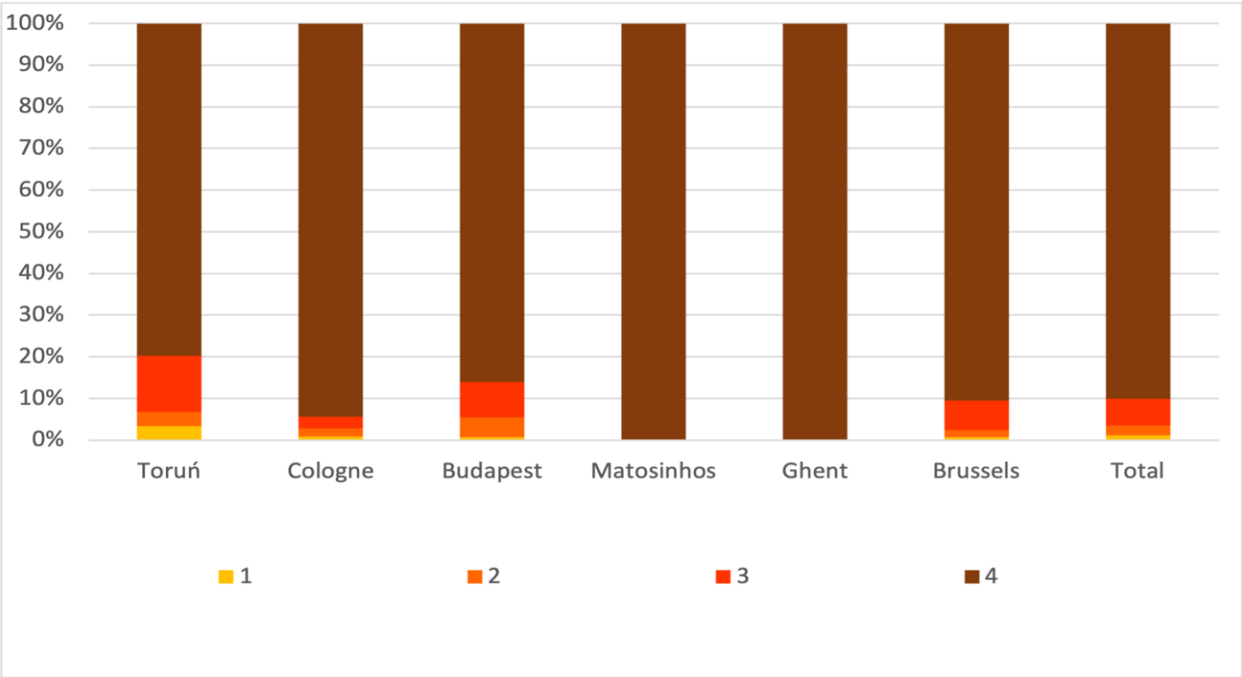


Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 – Never

Source: Own elaboration on the basis of the questionnaire survey

A larger number of children travelled to school by scooter; however, this was still a relatively uncommon mode of transport. Across the entire sample, including children from all surveyed cities, only 9.9% reported travelling to school by scooter at least several times a week. The differences between cities were statistically significant ($\chi^2(15) = 36.242$, $p = 0.002$). The highest proportion of children choosing scooters was recorded in Toruń (20.2%), whereas no children in Matosinhos or Ghent reported using this mode of transport.

Figure 103 Figure C.3.4. The structure of responses to the question: 'How do you generally come to school?' (% of answer „By a traditional or electric scooter")

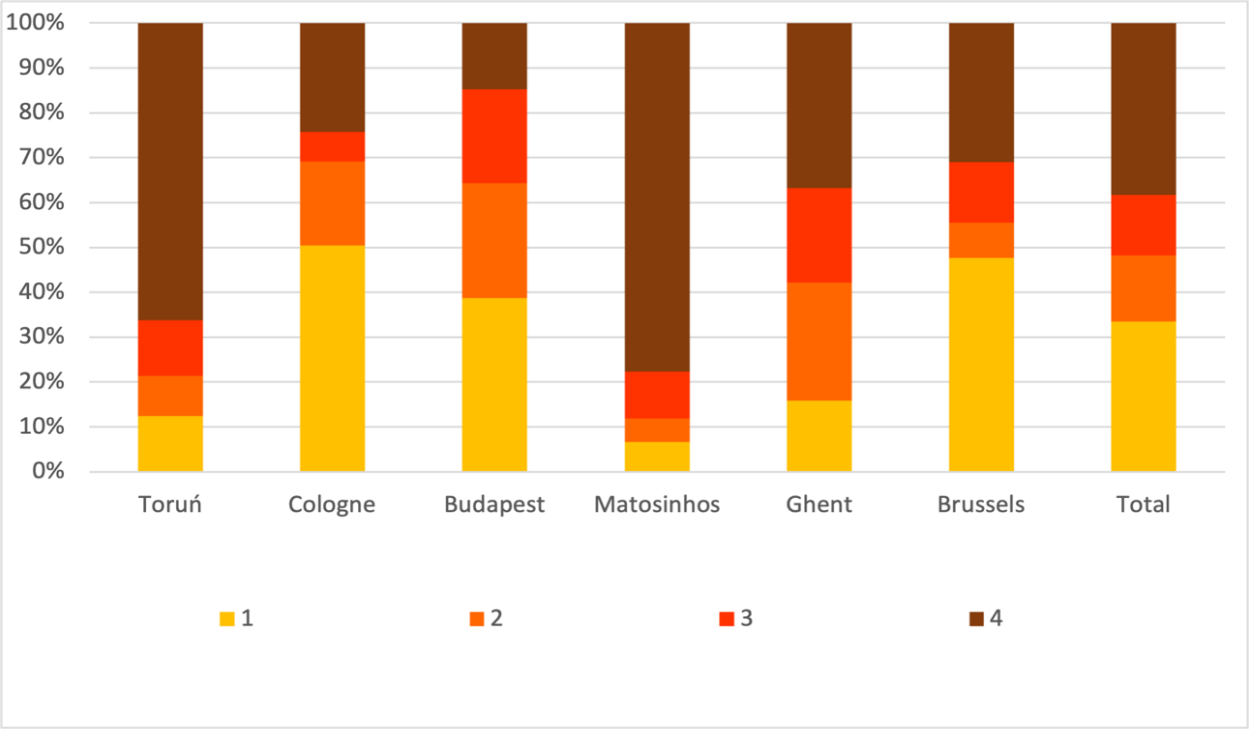


Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never

Source: Own elaboration on the basis of the questionnaire survey

Children in the analysed cities used public transportation much more frequently. Averaged across all cities, the results indicate two common patterns of behaviour reported by approximately one-third of the students. On the one hand, 33.5% of the surveyed children travelled to school by public transportation every day; on the other hand, 38.3% reported that they never used this mode of transport. Children from different cities differed significantly in their declared frequency of public transportation use ($\chi^2(15) = 164.020$, $p < 0.001$). Approximately half of the students travelled to school by public transportation every day in Cologne and Brussels (50.5% and 47.6%, respectively). The highest proportion of children using public transportation to travel to school at least several times a month was recorded in Budapest (85.3%), while the lowest was observed in Matosinhos (22.4%).

Figure 104 Figure C.3.5. The structure of responses to the question: 'How do you generally come to school?' (% of answer „By public transport (e.g., bus, tram, subway)"

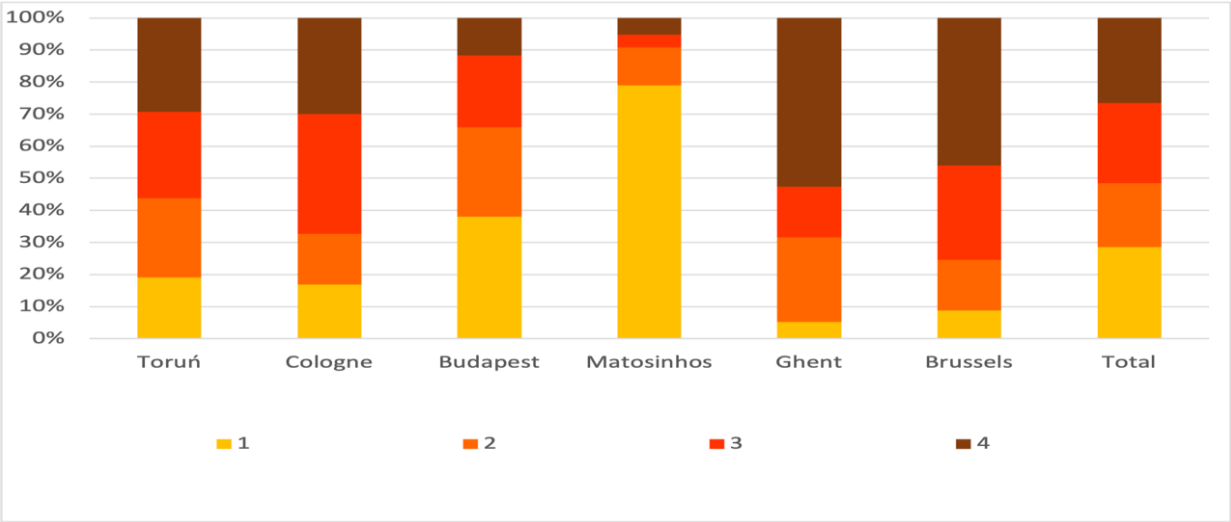


Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never

Source: Own elaboration on the basis of the questionnaire survey

The relatively low use of public transportation in Matosinhos may have been associated with the high proportion of children travelling to school by car as passengers in this city—as many as 78.9% of surveyed children reported travelling to school in this way every day. Nearly two-thirds of the surveyed children in Budapest (65.9%) and almost half of the children in Toruń (43.8%) travelled by car as passengers at least several times a week. Completely different results were observed in the two Belgian cities—both in Ghent and Brussels, approximately half of the students aged 9–13 years reported that they had never travelled to school in this way. In comparison with the other cities, the results obtained in Cologne suggested a less prominent role of this mode of transport: 37.4% of children travelled in this way several times a month, while 29.9% reported never travelling to school by car as passengers . The differences between cities were statistically significant ($\chi^2(20) = 181.285$, $p < 0.001$).

Figure 105 Figure C.3.6. The structure of responses to the question: 'How do you generally come to school?' (% of answer „By car, but someone drives me")

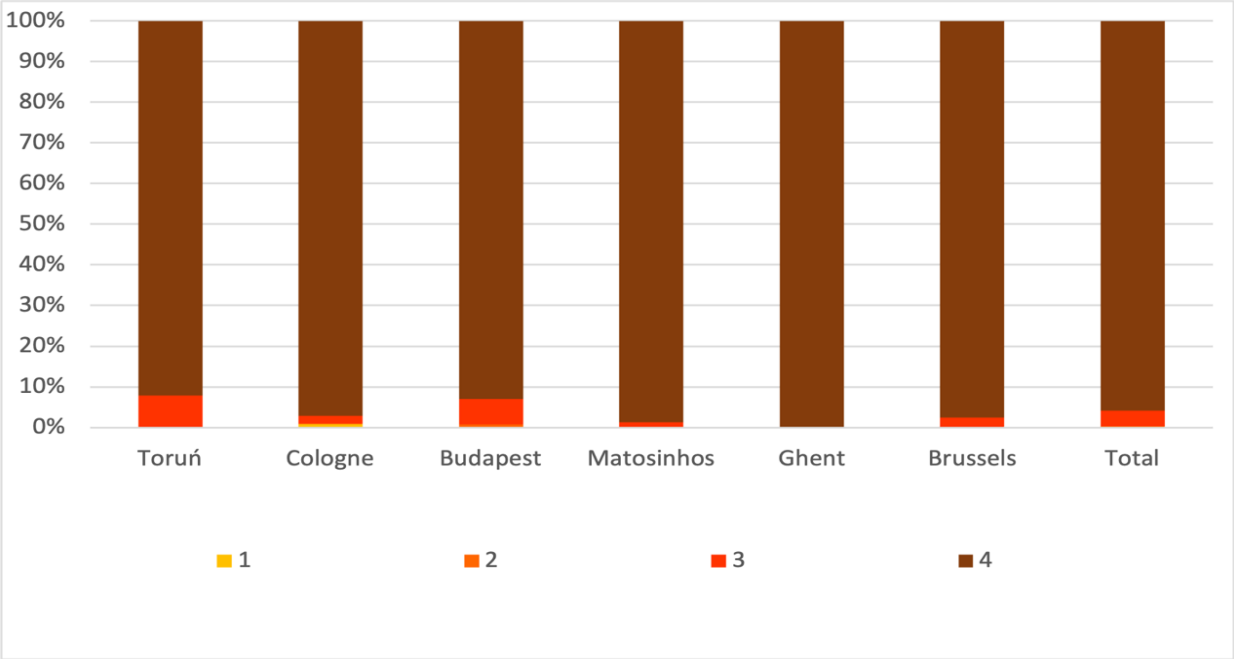


Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never

Source: Own elaboration on the basis of the questionnaire survey

Only 4.2% of the surveyed children reported travelling to school by app-based car or taxi at least several times a month, and the differences between cities were not statistically significant ($\chi^2(15) = 16.291$, $p = 0.363$).

Figure 106 Figure C.3.7. The structure of responses to the question: 'How do you generally come to school?' (% of answer „By app-based car or by taxi")

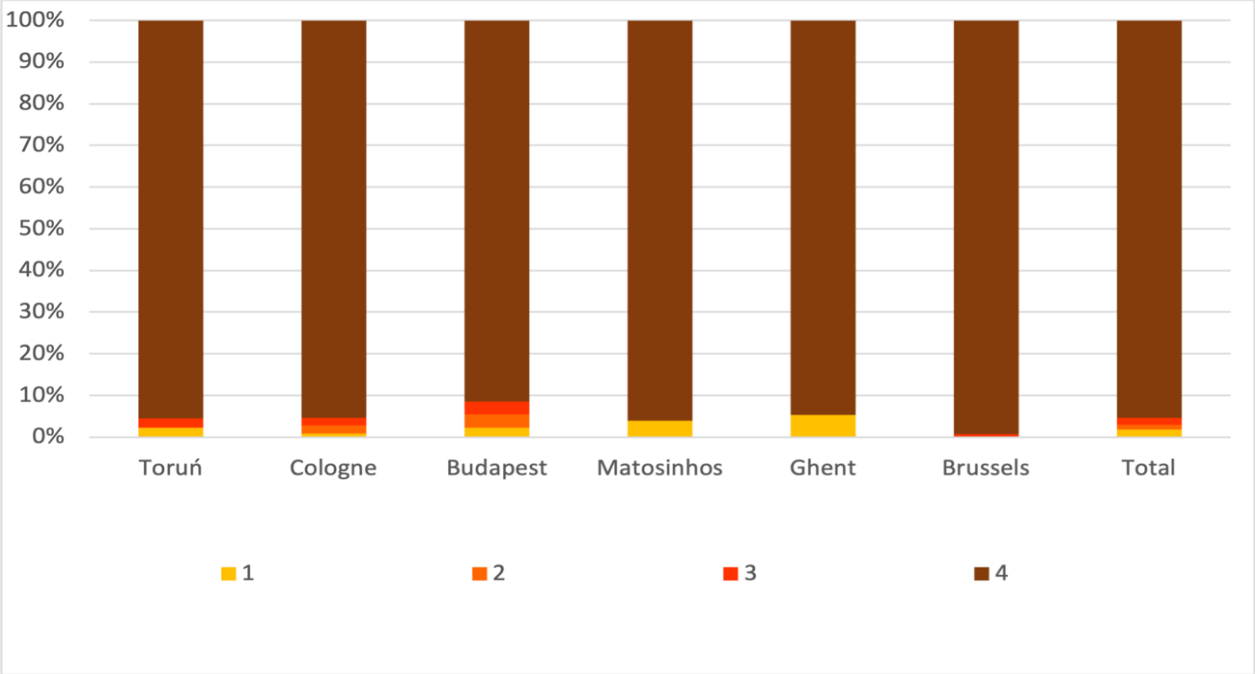


Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never

Source: Own elaboration on the basis of the questionnaire survey

The vast majority of children in all cities, ranging from 91.5% of surveyed children in Budapest to 99.2% in Brussels, reported that they never travelled to school using means of transport other than those listed above. The differences between cities were at the level of a statistical trend ($\chi^2(15) = 23.788$, $p = 0.069$).

Figure 107 Figure C.3.8. The structure of responses to the question: 'How do you generally come to school?' (% of answer „Other")

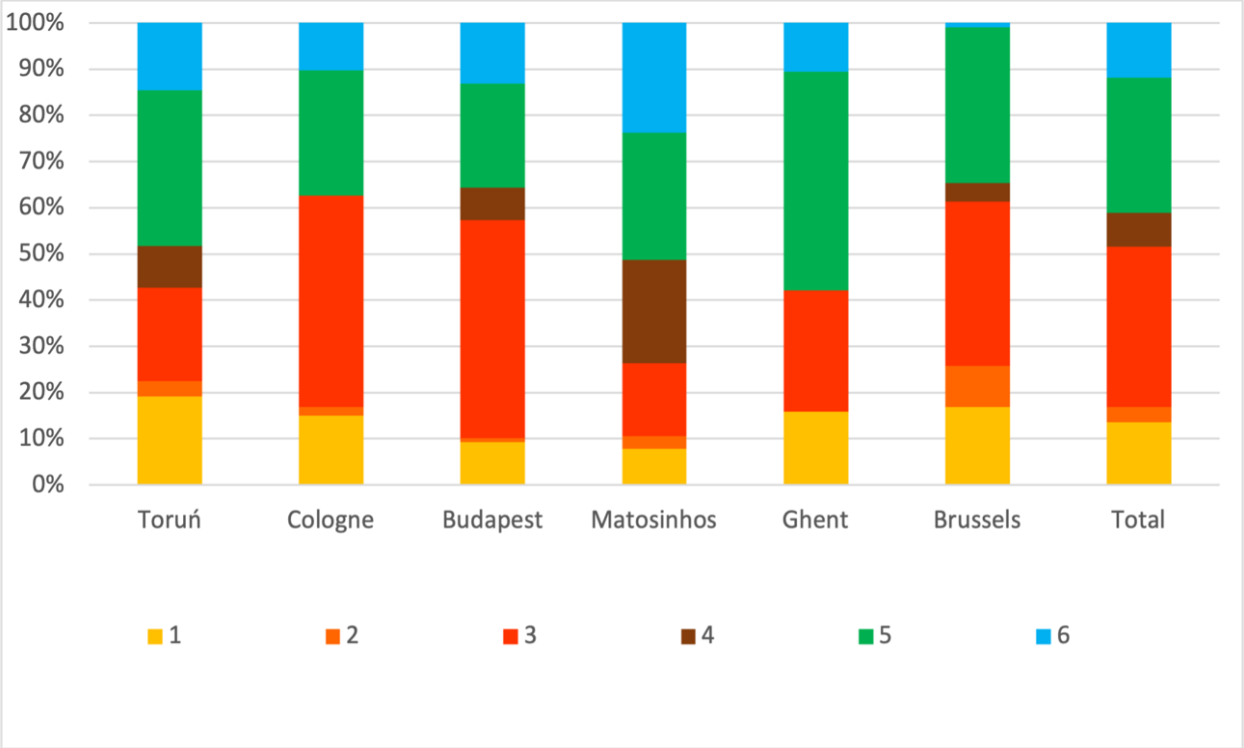


Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never

Source: Own elaboration on the basis of the questionnaire survey

The surveyed children were asked what they most often did after school, and the results for the entire sample differed depending on the reported ways of spending time. More than one-third of the children usually engaged in their hobbies after school (34.7%). A slightly smaller proportion of children spent their time at home (29.2%). Visiting friends or spending time with them was reported by 13.6% of the children, while participation in extracurricular activities was declared by 7.6% of respondents. The statistical analysis of responses from children in different cities was statistically significant ($\chi^2(25) = 110.568$, $p < 0.001$). Compared with the other cities, a relatively higher proportion of children from Cologne, Budapest, and Brussels pursued their hobbies outside the home (ranging from 35.6% to 47.3%). It is also worth noting that nearly one in four surveyed children in Matosinhos (22.4%) attended extracurricular activities, which represents a high proportion compared with children in the other cities. At the same time, in the Portuguese city, fewer children pursued their hobbies outside the home (15.8%) in comparison with the other cities.

Figure 108 Figure C.4. The structure of responses to the question: 'What do you do most often after school?' (% of answer)



Explanation: 1 - I visit friends or spend time with them; 2 - I visit relatives/family or spend time with them; 3 - I go to hobbies (such as sports, a library, a cinema); 4 - I participate in extracurricular activities; 5 - I spend time at home; 6 - Other

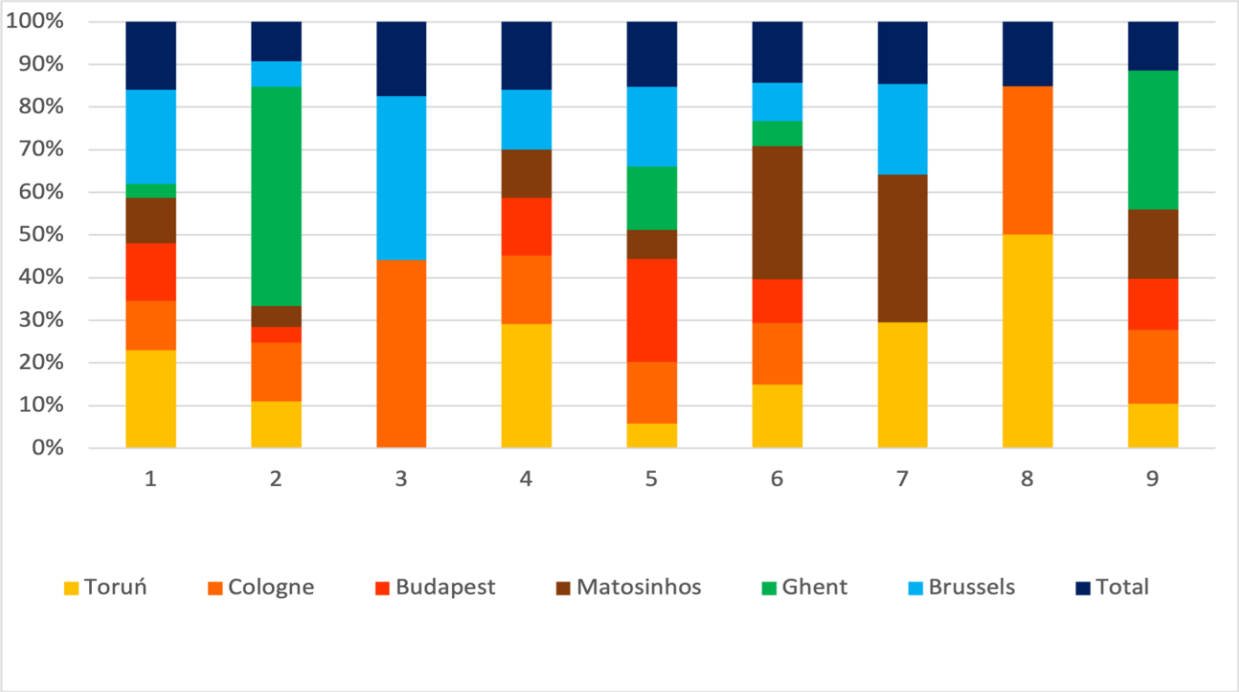
Source: Own elaboration on the basis of the questionnaire survey

The modes of transport used by the surveyed children to travel to the places they most frequently visited after school were partly similar to the ways in which they travelled to school. Three common and three less frequent modes of transport could be identified. The most frequently used modes were public transportation (32.4% of respondents), travelling by car as a passenger (26.0%), and walking (25.6%). In contrast, travelling by own bicycle, scooter, or app-based car service/taxi after school activities was reported by between 7.6% and 0.6% of the surveyed children, respectively. A statistically significant difference was also observed between the analysed cities ($\chi^2(40) = 154.843$, $p < 0.001$). Once again, the responses of children from Ghent stood out from those of children in the other cities. In the Belgian city, as many as 42.1% of children travelled to places visited after school by their own bicycle, whereas in the other cities this proportion was considerably lower—the second highest proportion, observed in Cologne, was only 11.2%. It is worth noting, however, that a substantially smaller proportion of children in Ghent

walked to the places they visited after school (only 5.3%; the second lowest result was recorded in Matosinhos, with 17.1% of children).

Public transportation was most frequently chosen by children in Budapest (more than half of respondents), as well as in Brussels, Ghent, and Cologne (approximately one-third of children in these cities). In Toruń, the two most common ways of travelling after school were walking and travelling by car as a passenger. In Matosinhos, we once again observed the dominance of individual car transport, with 56.6% of surveyed children travelling as passengers by car to places visited after school.

Figure 109 Figure C.5. The structure of responses to the question: 'How do you move to the place you visit most often after school?' (% of answer)



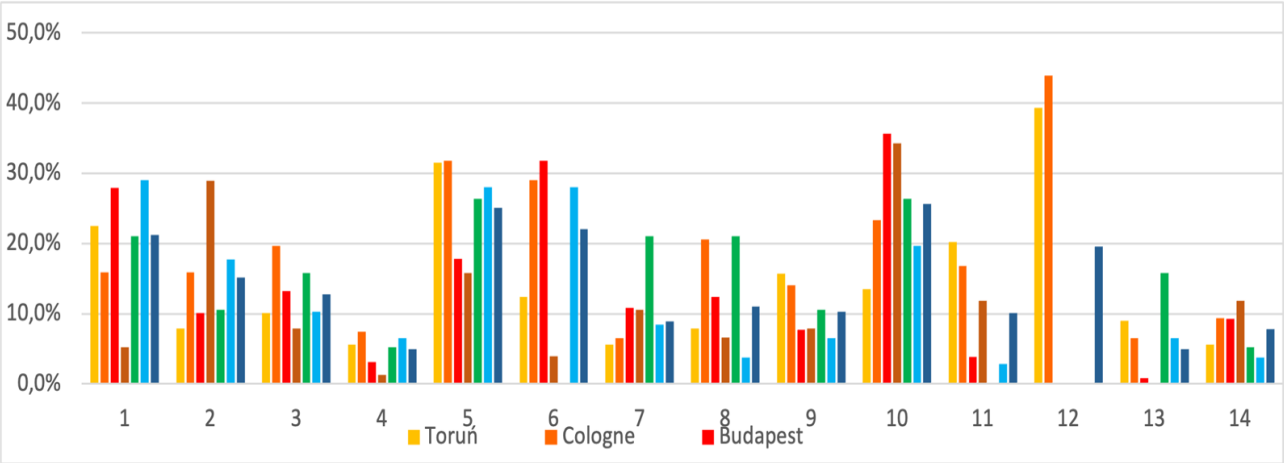
Explanation: 1 - On foot; 2 - By own bicycle; 3 - By minute-rental bike (city bike); 4 - By a traditional or electric scooter; 5 - By public transport (e.g., bus, tram, subway); 6 - By car, but someone drives me; 7 - By app-based car (e.g., Uber, Bolt, FreeNow) or by taxi; 8 - Not applicable, I don't travel; 9 - Other

Source: Own elaboration on the basis of the questionnaire survey

When travelling to various places after school using different modes of transport, the surveyed children reported a range of reasons for choosing a particular means of transportation. Across the entire sample, a similar proportion of children selected a mode

of transport because of a lack of other options (25.6% of responses), closeness to home (25.0%), or closeness to a public transportation stop/station (22.0%). The largest proportion of children in Toruń (39.3%) and Cologne (43.9%) chose a mode of transport because it was the fastest and most convenient option. In the remaining cities, the most frequently reported reason was the lack of an alternative transport option in Budapest (35.7%) and Matosinhos (34.2%), while in Ghent the most common reasons were lack of another choice and closeness to home (both 26.3% of responses). In Brussels, the most frequently reported reasons, occurring at a similar level of frequency, were independence, closeness to home, and closeness to a stop/station (ranging from 28.0% to 29.0% of responses). Compared with children from the other cities, road safety was a relatively important factor for children from Ghent when choosing a mode of transport (21.1%). For these children, as well as for children from Cologne, environmental concern was equally important, being indicated by approximately one-fifth of respondents. Indicating that parents travelled in this way as a reason for choosing a mode of transport was most common in Matosinhos (28.9% of responses), whereas the highest proportion of responses related to travelling in the same way as friends was recorded in Cologne (19.6%).

Figure 110 Figure C.6. The structure of responses to the question: 'Why do you travel this way to the place you visit most often after school?' (multiple choice, % of answer)



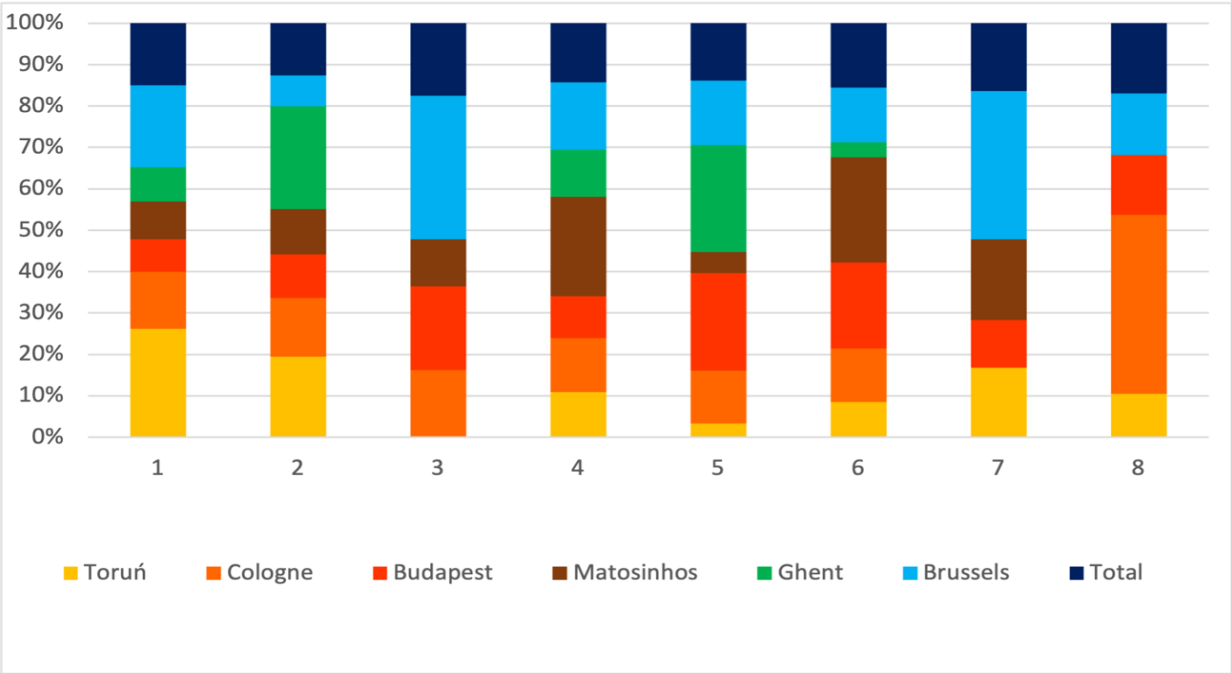
Explanation: 1 - I don't have to wait for anyone; I am independent; 2 - My parents travel this way; 3 - My friends travel this way; 4 - Everyone travels this way here; 5 - It is close to home; 6 - I have a stop nearby (bus, tram, or subway); 7 - I feel safe on the road; 8 - I don't pollute the air; 9 - For health and to stay in good condition; 10 - I have no other choice; 11 - It depends on the weather; 12 - Not applicable, I don't travel; 13 - Other

Source: Own elaboration on the basis of the questionnaire survey

Children do not always independently decide how they travel around the city. If they could decide for themselves, nearly one in four would choose travelling by their own bicycle (24.0%), travelling by car as a passenger (22.6%), or walking (19.3%). More children than those who actually used this mode of transport would choose to travel by scooter (13.2%), with the highest proportion of preferences for this mode recorded in Matosinhos (22.4%).

In contrast, the average proportion of children preferring public transportation was lower than the actual level of its use—only 14.1% of children selected this option. Shared bicycles and app-based car services/taxis were not preferred modes of transport, with only 2.0% and 1.1% of children, respectively, choosing either of these options. The differences between responses provided by children from different cities were statistically significant ($\chi^2(35) = 112.941$, $p < 0.001$). Walking was the most popular response among children in Brussels (25.6%), while travelling by personal bicycle would be chosen by almost half of the children in Ghent (47.4%), one-third of the children in Toruń (37.1%), and 27.1% of children in Cologne. It is worth emphasising that children from Toruń selected walking almost equally often (33.7%). For children from Matosinhos and Budapest, the preferred mode of travel would be travelling by car as a passenger (36.8% and 30.2% of respondents, respectively).

Figure 111 Figure C.7. The structure of responses to the question: 'If you could choose, how you would like to move around the city?' (% of answer)



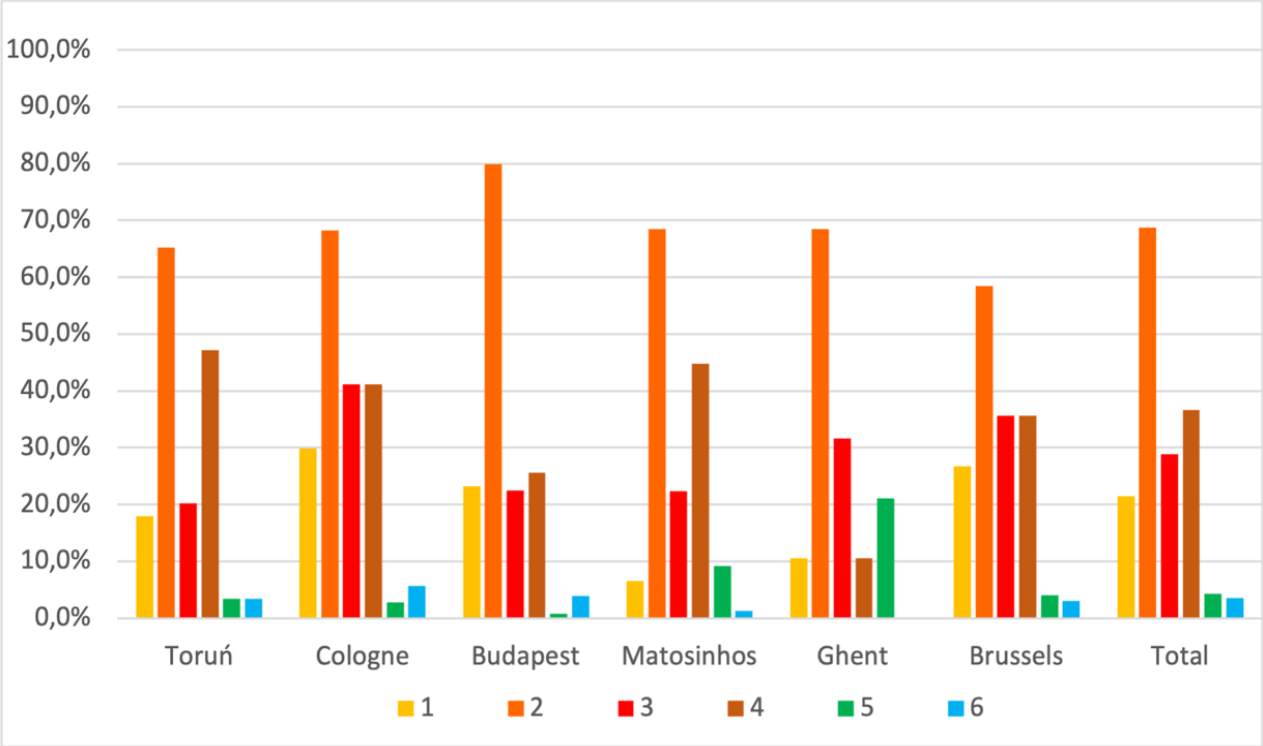
Explanation: 1 - On foot; 2 - By own bicycle; 3 - By minute-rental bike (city bike); 4 - By a traditional or electric scooter; 5 - By public transport (e.g., bus, tram, subway); 6 - By car, but someone drives me; 7 - By app-based car (e.g., Uber, Bolt, FreeNow) or by taxi; 8 - Other

Source: Own elaboration on the basis of the questionnaire survey

3.2.1.1.3. Making urban space familiar through social interaction

Children's exploration of their immediate neighbourhood may depend on whom they most enjoy doing it with. In the context of the neighbourhood surrounding their place of residence, children most often preferred exploring the area with friends (68.7%), which was also the most frequently reported response across all analysed cities. The next highest proportions of children preferred exploring their neighbourhood with adults (36.7%), with siblings (28.8%), or alone (21.5%). Only 4.2% of children reported that they did not enjoy exploring the area around their place of residence. In Toruń and Matosinhos, the second highest proportion of responses referred to exploring the neighbourhood with adults (47.2% and 31.6%, respectively). In Cologne and Brussels, identical proportions of children reported enjoying exploration with siblings and with adults (41.1% each in Cologne and 35.6% each in Brussels). In Ghent, the second most preferred option was exploring with siblings (31.6%); however, this city also recorded a higher-than-average proportion of children who did not enjoy exploring their immediate neighbourhood (21.1%). Children from Budapest most frequently indicated that they enjoyed exploring their place of residence with friends (79.8%) compared with children from the other cities. Approximately one-quarter of the surveyed children from this city also reported enjoying exploration with adults, siblings, or alone.

Figure 112 Figure C.8.1. The structure of responses to the question: 'With whom do you most like to explore: The neighbourhood of your place of residence' (multiple choice, % of answer)

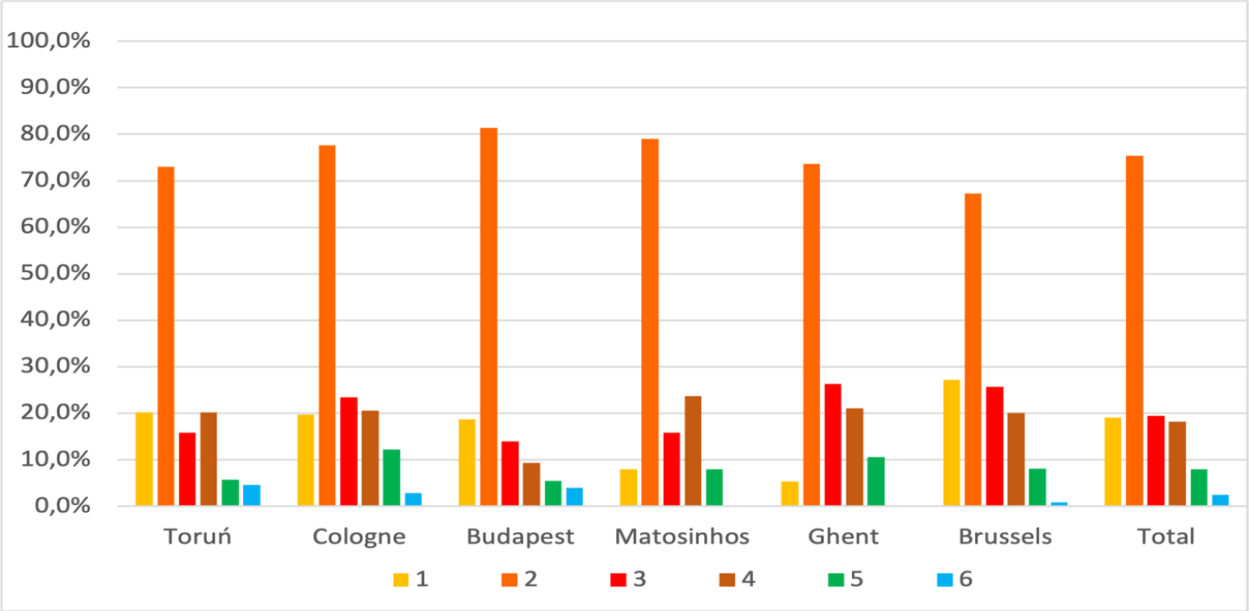


Explanation: 1 – Alone; 2 - With peers; 3 - With siblings; 4 - With adults (parents, grandparents); 5 - I don't like exploring this neighbourhood; 6 - In another way

Source: Own elaboration on the basis of the questionnaire survey

Results similar to those concerning children's exploration of the area surrounding their place of residence were obtained for the question regarding exploration of the area around their school. The main difference between the responses to these two questions was the generally higher proportion of children indicating friends as the preferred companions for exploring the school surroundings (the average across all cities was 75.4%). The highest proportion of this response was recorded among children in Budapest (81.4%), while the lowest was observed in Brussels (67.2%). In Toruń, Cologne, and Brussels, between 15.7% and 27.2% of children indicated a preference for exploring the area around the school with adults, with siblings, or alone. In this context, the responses of children from Budapest stood out, as only one in ten children reported enjoying exploration of the school surroundings with adults. Similarly distinctive were the results from Matosinhos and Ghent, where only 7.9% and 5.3% of surveyed children, respectively, reported liking to explore the school area without the company of others.

Figure 113 Figure C.8.2. The structure of responses to the question: 'With whom do you most like to explore (multiple choice): The neighbourhood of your school' (multiple choice, % of answer)



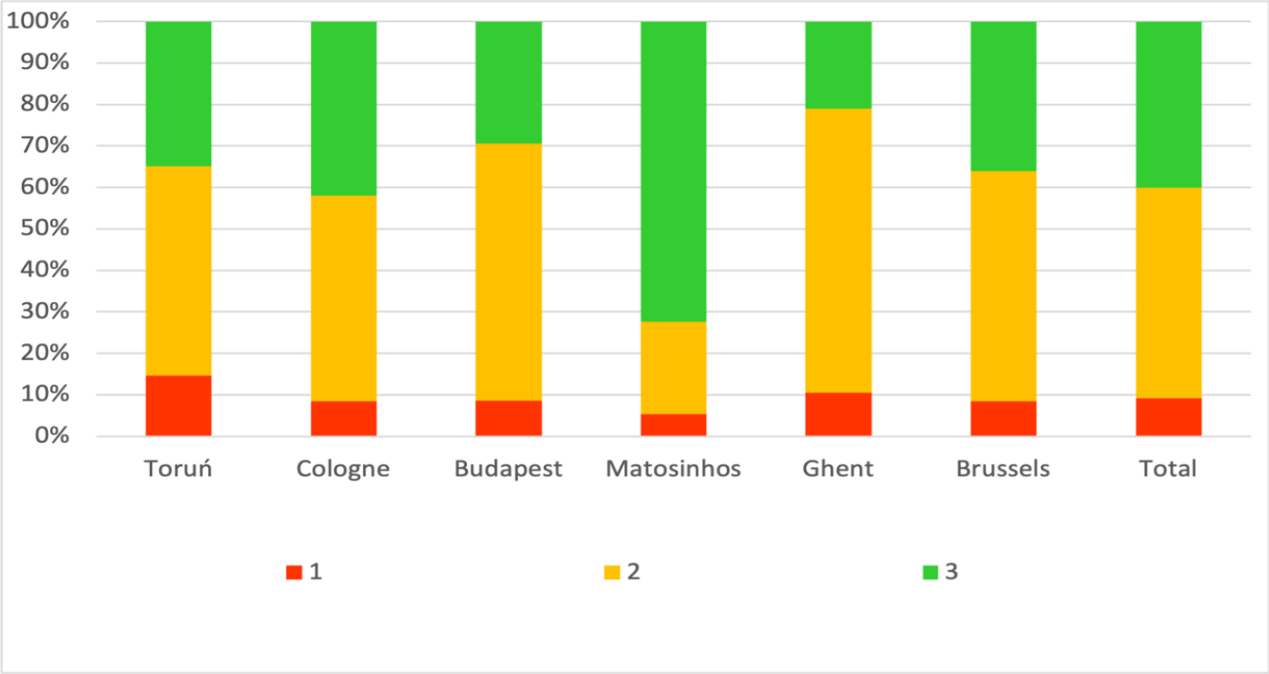
Explanation: 1 – Alone; 2 - With peers; 3 - With siblings; 4 - With adults (parents, grandparents); 5 - I don't like exploring this neighbourhood; 6 - In another way

Source: Own elaboration on the basis of the questionnaire survey

3.2.1.1.4. Urban aspirations and visions of the future city

In the context of the theory of the 15-minute city, for approximately half of the children the possibility of reaching places important to them on foot or by bicycle was neither important nor unimportant. For 40.1% of the surveyed children, this was very important, whereas for 9.1% it was not important at all. The distribution of responses differed significantly between children from different cities ($\chi^2(10) = 47.273$, $p < 0.001$), particularly in Matosinhos and Budapest. In the Portuguese city, as many as 72.4% of the surveyed children stated that the closeness of places important to them was very important, while only 22.4% indicated that they were indifferent to this issue, which clearly distinguished Matosinhos from most of the other cities. In Budapest, only 29.5% of children stated that this was very important to them, whereas as many as 62.0% reported that it was neither important nor unimportant. It is also worth noting the higher-than-average proportion of children in Toruń (14.6%) for whom this issue was not important at all.

Figure 114 Figure C.9. The structure of responses to the question: 'How important is it for you that daily needs (school, shops, places to spend free time) are available within walking or cycling distance from your home?' (% of answer)



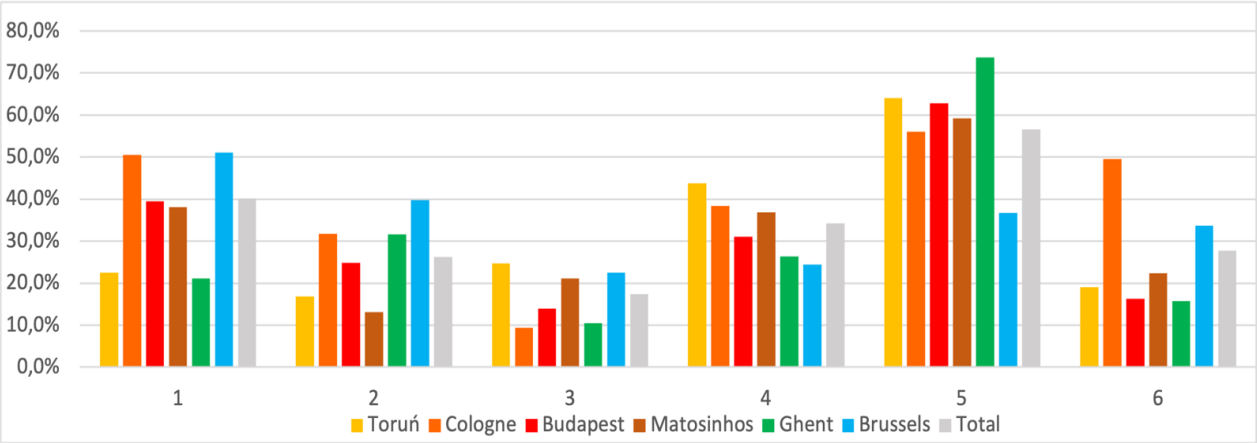
Explanation: 1 - Not important at all; 2 - Neither important nor unimportant; 3 - Very important

Source: Own elaboration on the basis of the questionnaire survey

With reference to the previous question, children were also asked how they would like their city to look in the future in terms of mobility. The option receiving the highest proportion of responses was the vision of important places being located close by and surrounded by large amounts of greenery—56.6% of the surveyed children selected this option, making it the most popular choice in all cities except Brussels. The second most popular response referred to a city with electric cars (40.2%), followed by a city well suited for cycling and scooter use (34.2%). Responses related to fast public transportation and public transit systems, as well as flying taxis and drones, received similar proportions of responses (27.7% and 26.3%, respectively). The least popular option was a city in which the dominant mode of mobility would involve sharing vehicles instead of owning them (17.4%). Children from the analysed cities differed in their level of preference for the proposed visions of future mobility. In Brussels, the most preferred vision was a city with electric cars, selected by half of the surveyed children, similarly to Cologne. Almost 40% of children in Budapest and Matosinhos also selected this option, compared with just over 20% in Toruń and Ghent. A city dominated by fast public transportation was selected by approximately one-third of children in Cologne, Ghent, and Brussels, but by only 16.9% of

children in Toruń and 13.2% in Matosinhos. Responses related to vehicle sharing could be divided into three groups: in Toruń, Matosinhos, and Brussels, approximately one in four or one in five children selected this option; in Budapest, approximately one in seven children did so; while in Cologne and Ghent the proportion was closer to one in ten. Scooters and bikes were more popular, ranging from 43.0% of children selecting this option in Toruń to 24.5% in Brussels. Flying vehicles were most popular in Cologne, where every second child selected this option, and in Brussels, where one-third of children believed that this should represent the future of urban mobility.

Figure 115 Figure C.10. The structure of responses to the question: 'What version of the city would you like to live in when you are a grown up?' (multiple choice – up to 3 options, % of answer)



Explanation: 1 - Cool Future Cars – Cars run on electricity and might even drive themselves; 2 - Fast Bus & Train – Buses and trains come often, are quick, and take you everywhere; 3 - Sharing Instead of Owning – Cars, bikes, or scooters are shared with others; 4 - Fun on Bikes & Scooters – Lots of people ride bikes, scooters, or skateboards; 5 - Everything Close & Lots of Nature – You can walk to most places, with lots of trees and parks around; 6 - Flying in the City – Flying taxis and delivery drones move people and stuff quickly through the air

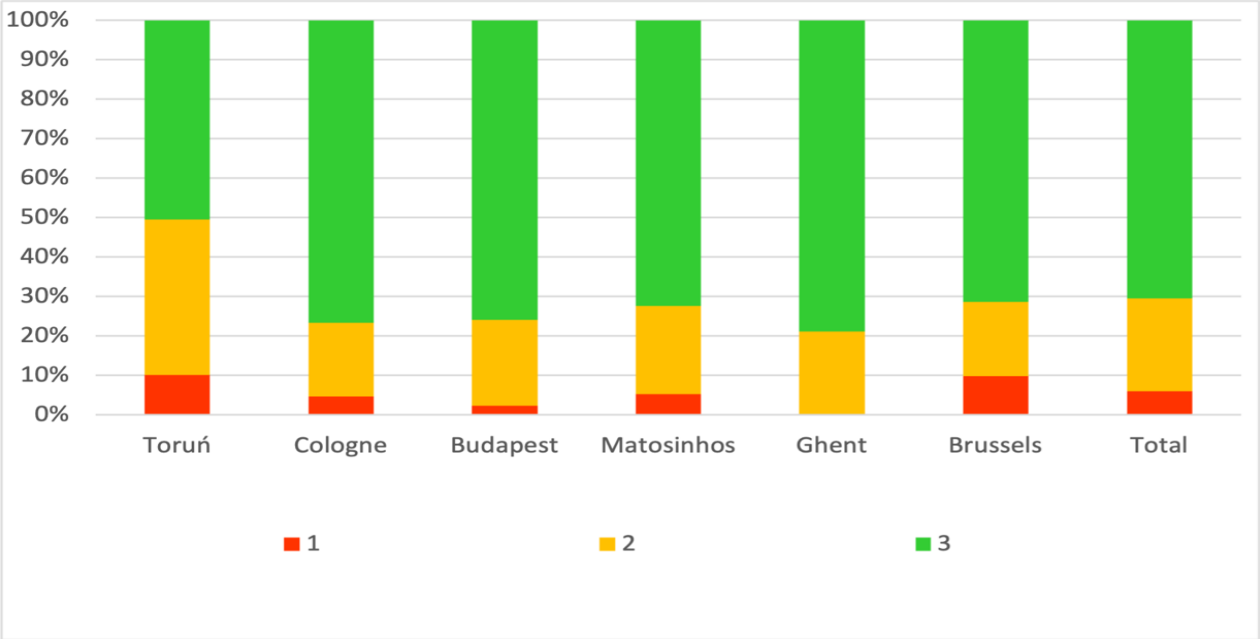
Source: Own elaboration on the basis of the questionnaire survey

3.2.1.1.5. A sense of place and a sense of safety

One of the key elements of the study was the assessment of young people's sense of place and sense of security in urban space. In the context of a sense of place, The vast majority of children—70.5% of all surveyed respondents—felt “at home” in the area surrounding their place of residence. The response “Neither weakly nor strongly” was selected by one

in four children, while 6.0% of children reported that they did not feel this way in the location referred to in the question. Statistical differences between responses from the different cities were significant ($\chi^2(10) = 28.175$, $p = 0.002$). Only half of the children from Toruń felt at home in their immediate neighbourhood, which was a markedly lower result compared with the other cities, where approximately three-quarters of children reported feeling this way. In Toruń, as well as in Brussels, one in ten children did not feel at home in the area surrounding their place of residence. The proportion of responses indicating "Neither weakly nor strongly" was also highest in Toruń, where nearly 40% of surveyed children selected this answer, suggesting a weaker sense of attachment to their neighbourhood compared with children from the other cities. In the remaining cities, the proportion of ambiguous responses ranged from 18.7% in Cologne to 22.4% in Matosinhos.

Figure 116 Figure C.11.1. The structure of responses to the question: 'Do you feel "at home": A. in the neighbourhood where you live?' (% of answer)



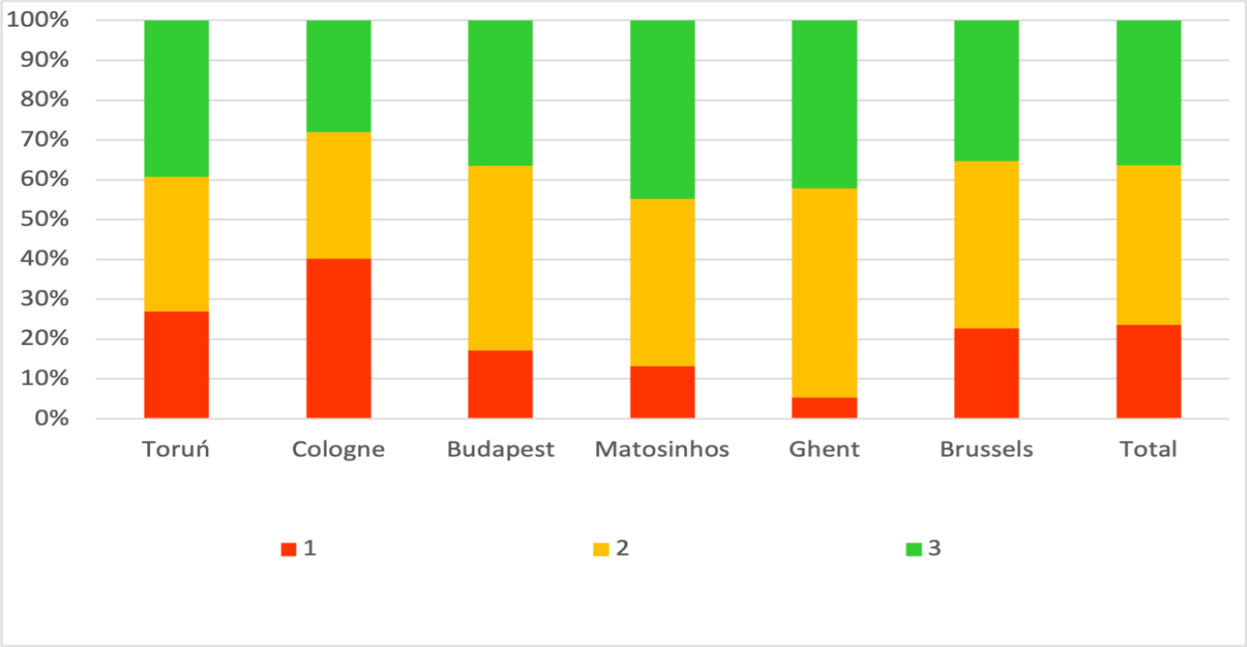
Explanation: 1 – Weakly; 2 - Neither weakly nor strongly; 3 - Strongly

Source: Own elaboration on the basis of the questionnaire survey

The results concerning feeling "at home" in the area surrounding the school were generally less positive than those related to the neighbourhood around the place of residence. Only 36.4% of the surveyed children responded positively to this question, while 40.1% selected the answer "Neither weakly nor strongly". In addition, a higher proportion of children reported that they did not feel this positive sense of belonging in

the area around their school (23.6%). Statistically significant differences in the distribution of responses between children from different cities were observed ($\chi^2(10) = 30.540$, $p < 0.001$). These differences were particularly visible in Cologne, where as many as 40.2% of children reported not feeling at home in the area surrounding their school and only 28.0% of surveyed children from this city confirmed this positive feeling in that location. The most favourable results, reflected in the lowest proportion of negative responses, were reported by children from Ghent. Relatively similar distributions of response frequencies were observed in the remaining cities.

Figure 117 Figure C.11.2. The structure of responses to the question: 'Do you feel "at home": B. in the neighbourhood of your school?' (% of answer)



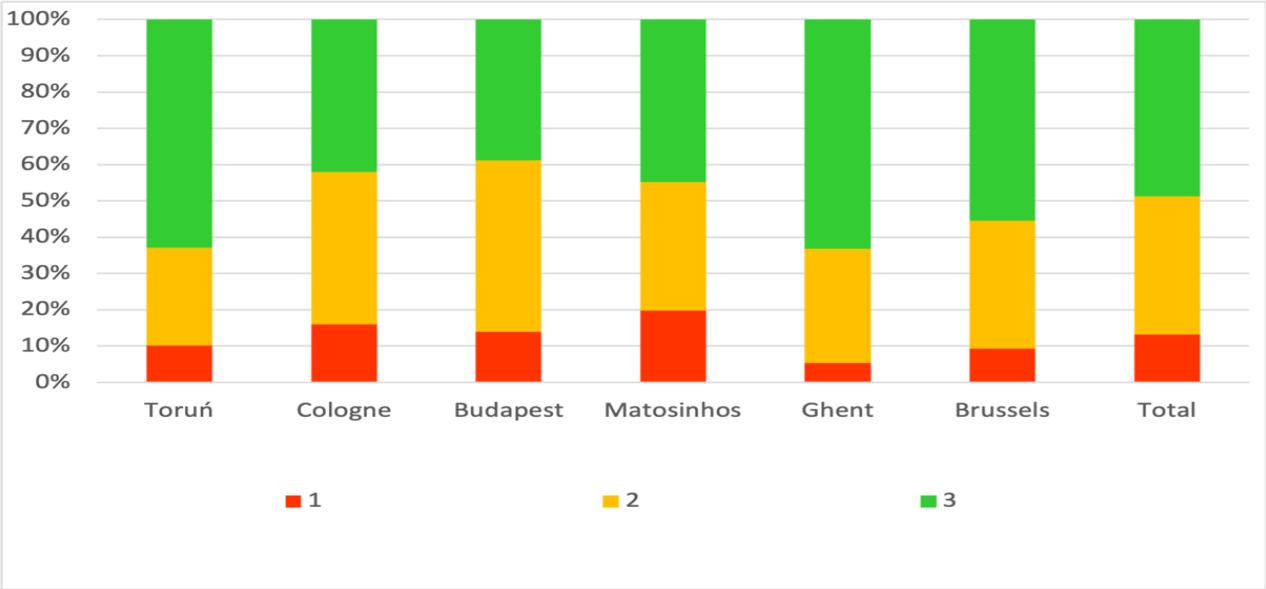
Explanation: 1 – Weakly; 2 - Neither weakly nor strongly; 3 - Strongly

Source: Own elaboration on the basis of the questionnaire survey

The final space in relation to which we asked children whether they felt comfortable was the city in which they lived as a whole. Nearly half of the surveyed children confirmed that they felt positively about their city. The proportion of children who did not clearly indicate whether they felt "at home" in their city amounted to 38.0%. Interestingly, the proportion of children expressing negative feelings towards their city was lower (13.2%) than the proportion reporting such feelings in relation to the area surrounding their school. Responses also differed significantly between the analysed cities with regard to this assessment ($\chi^2(10) = 22.387$, $p = 0.013$). The greatest differences between cities were

observed in the responses of children from Toruń and Ghent, where approximately two-thirds of surveyed children declared positive feelings towards their city. A relatively high proportion of positive responses was also recorded in Ghent (55.5%). The highest proportion of negative attitudes towards the urban environment was observed in Matosinhos, where one in five children reported such feelings.

Figure 118 Figure C.11.3. The structure of responses to the question: 'Do you feel "at home": C. generally in the entire city, do you feel it is your city?' (% of answer)

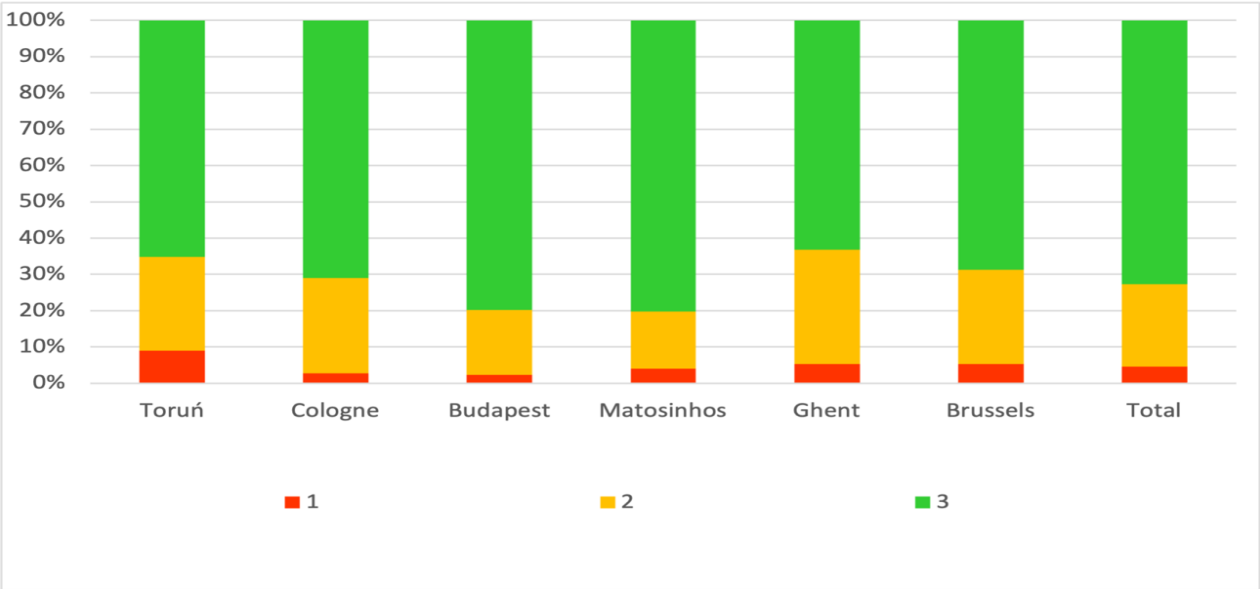


Explanation: 1 – Weakly; 2 - Neither weakly nor strongly; 3 - Strongly

Source: Own elaboration on the basis of the questionnaire survey

In turn, a sense of safety in the area surrounding their place of residence was declared by 72.7% of all surveyed children, with the highest proportion recorded in Matosinhos (approximately four out of five children). The response "Sometimes yes, sometimes no" was selected by 22.7% of children, while only 4.5% stated that they did not feel safe in the area around their place of residence—the highest proportion of such responses was recorded in Toruń. The differences between cities were not statistically significant ($\chi^2(10) = 13.708$, $p = 0.187$).

Figure 119 Figure C.12.1. The structure of responses to the question: 'Do you feel safe: A. in the neighbourhood where you live?' (% of answer)

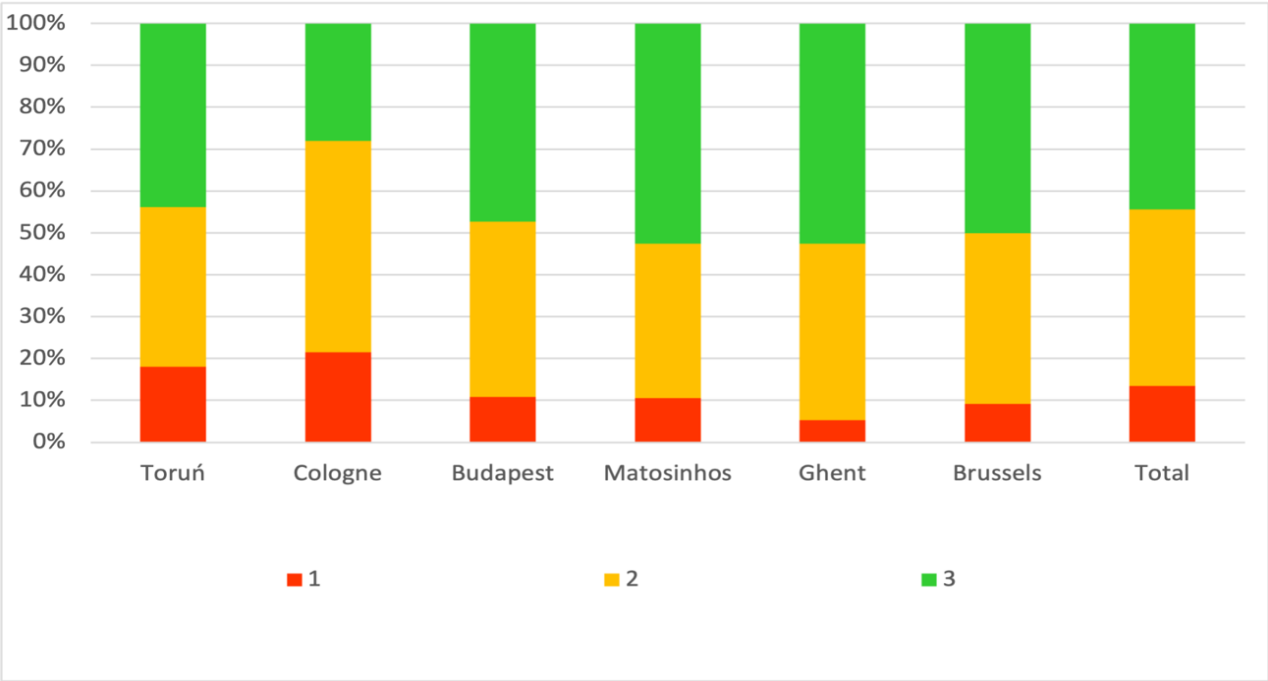


Explanation: 1 – No; 2 - Sometimes yes, sometimes no; 3 - Yes

Source: Own elaboration on the basis of the questionnaire survey

Less positive results regarding the sense of safety were obtained for the area surrounding the schools attended by the children. Fewer than half of the students (44.4%) indicated that they felt safe in this area, while a similar proportion of students (42.1%) stated that they sometimes felt safe and sometimes did not. The differences between cities were statistically significant ($\chi^2(15) = 25.383$, $p = 0.045$). Approximately one in five children from Cologne and Toruń stated that they did not feel safe in the area surrounding their school, and these results were considerably higher than the overall average of 13.5% for this response category. At the same time, Cologne recorded the lowest proportion of children declaring that they felt safe—only 28.0%. Compared with the other cities, where the proportion of positive responses ranged from 43.8% in Toruń to 52.6% in Matosinhos, this result is particularly noteworthy. Moreover, in Cologne, as many as half of the children selected the response „Sometimes yes, sometimes no" in the context of their sense of safety. The proportions of individual responses in the remaining cities did not differ substantially from the overall averages.

Figure 120 Figure C.12.2. The structure of responses to the question: 'Do you feel safe: B. in the neighbourhood of your school?'(% of answer)

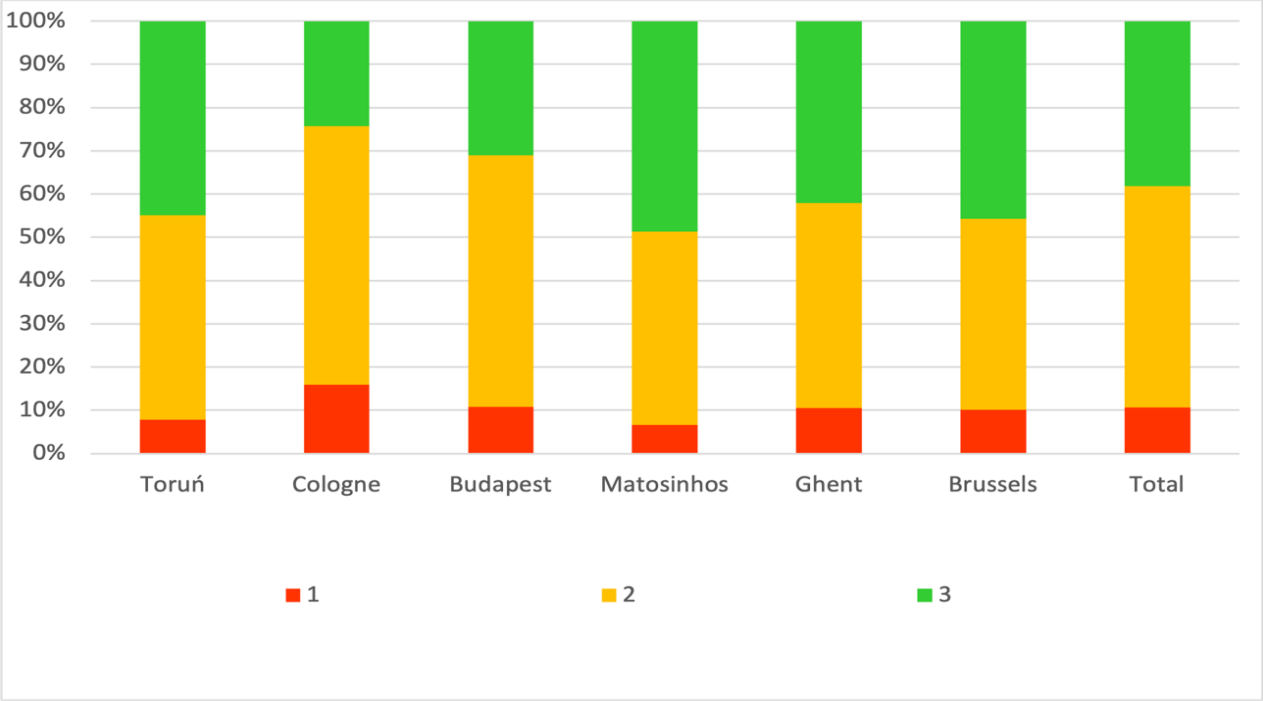


Explanation: 1 – No; 2 - Sometimes yes, sometimes no; 3 - Yes

Source: Own elaboration on the basis of the questionnaire survey

Considering the sense of safety within the city as a whole, the surveyed children reported lower levels of safety compared with the other analysed locations. Half of the surveyed children stated that they felt safe in the city only sometimes, with the highest proportion of this response recorded in Cologne (59.8%), which clearly distinguished this city from the others. Cologne also recorded both the lowest proportion of declarations of feeling safe in the city (approximately one in four surveyed children) and the highest proportion of declarations indicating a complete lack of safety (15.9% of respondents). The analysis revealed statistically significant differences between cities ($\chi^2(10) = 22.194$, $p = 0.014$), with this difference being primarily associated with the lower sense of safety in the city reported by children from Cologne compared with children from the other analysed cities.

Figure 121 Figure C.12.3. The structure of responses to the question: 'Do you feel safe: C. generally in your city?'(% of answer)



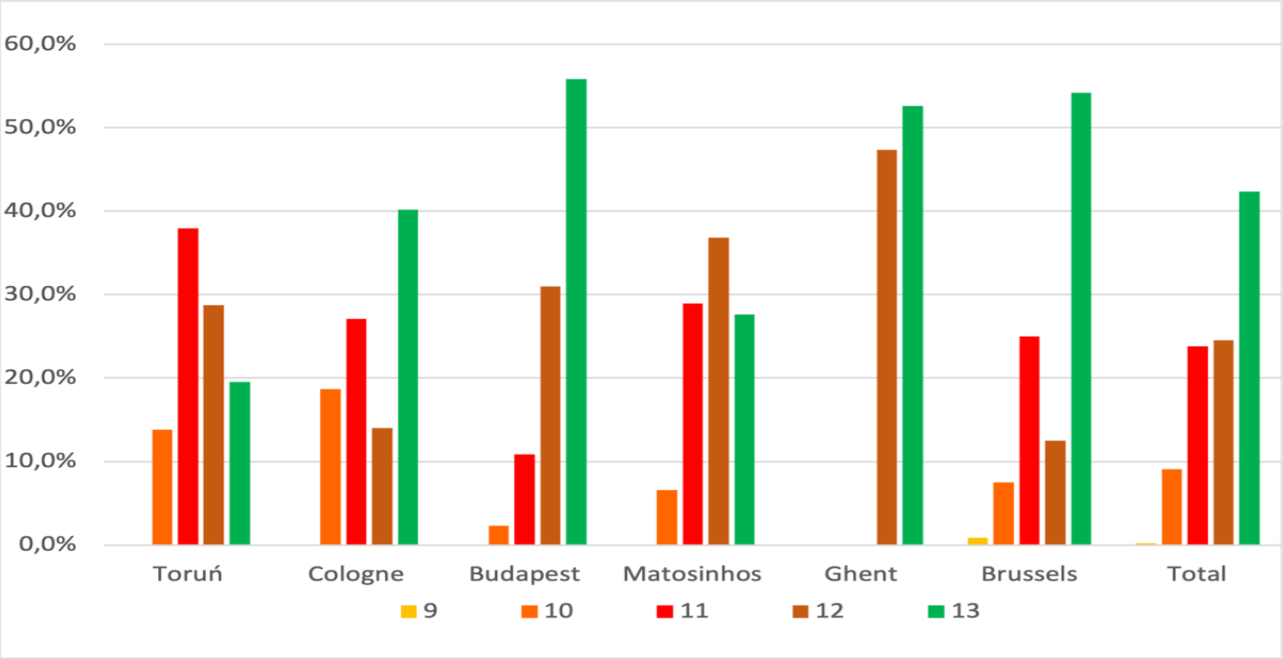
Explanation: 1 – No; 2 - Sometimes yes, sometimes no; 3 - Yes

Source: Own elaboration on the basis of the questionnaire survey

3.2.1.1.6. General characteristics of respondents

The study included children aged from 9 years (one child in Brussels) to 13 years, with the largest proportion of participants—42.4%—being 13 years old at the time of the study. Approximately one-quarter of the participants were aged 11 or 12 years, while around one in ten children was 10 years old. Statistically significant differences between cities were observed with regard to the age of the participants ($\chi^2(20) = 105.995$, $p < 0.001$). In Cologne, there was a higher proportion of 10-year-old children (18.7%) compared with the other cities. In particular, the proportion of 10-year-olds in Budapest (2.3%) was markedly lower than the overall average. The highest proportion of 11-year-olds was recorded in Toruń (37.9% of the sample in this city). Twelve-year-olds constituted a high proportion of the sample in four cities: Ghent, Matosinhos, Budapest, and Toruń (ranging from 28.7% to 47.4%). In three cities—Budapest, Ghent, and Brussels—more than half of the participants were 13 years old. Within this age group, the lowest proportions of children participating in the study were recorded in Toruń (19.5%) and Matosinhos (27.6%).

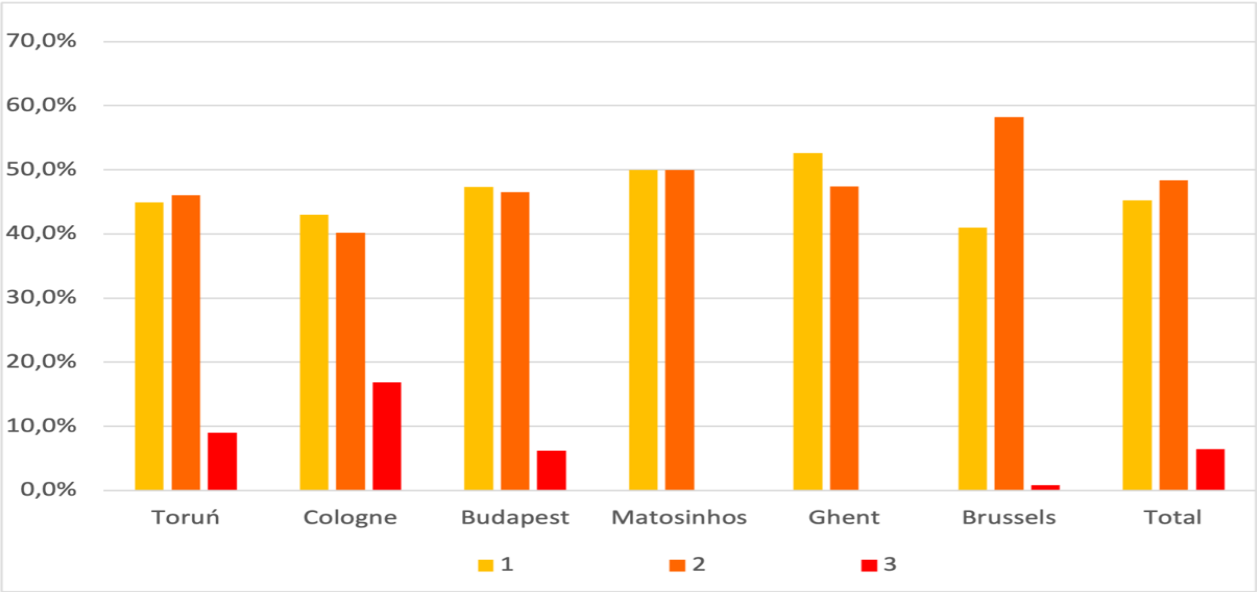
Figure 122 Figure C.13. The structure of responses to the question: 'How old are you?' (% of answer)



Source: Own elaboration on the basis of the questionnaire survey

With regard to gender, 45.2% of the overall sample were girls, 48.3% were boys, and 6.5% of the children indicated another gender identity or preferred not to disclose their gender. Differences in the distribution of these groups across the analysed cities were statistically significant ($\chi^2(10) = 40.412$, $p < 0.001$). These differences were primarily associated with the high proportion of boys participating in the study in Brussels and, conversely, the relatively lower proportion of boys in Cologne (40.2%).

Figure 123 Figure C.14. The structure of responses to the question: 'What is your gender?' ' (% of answer)

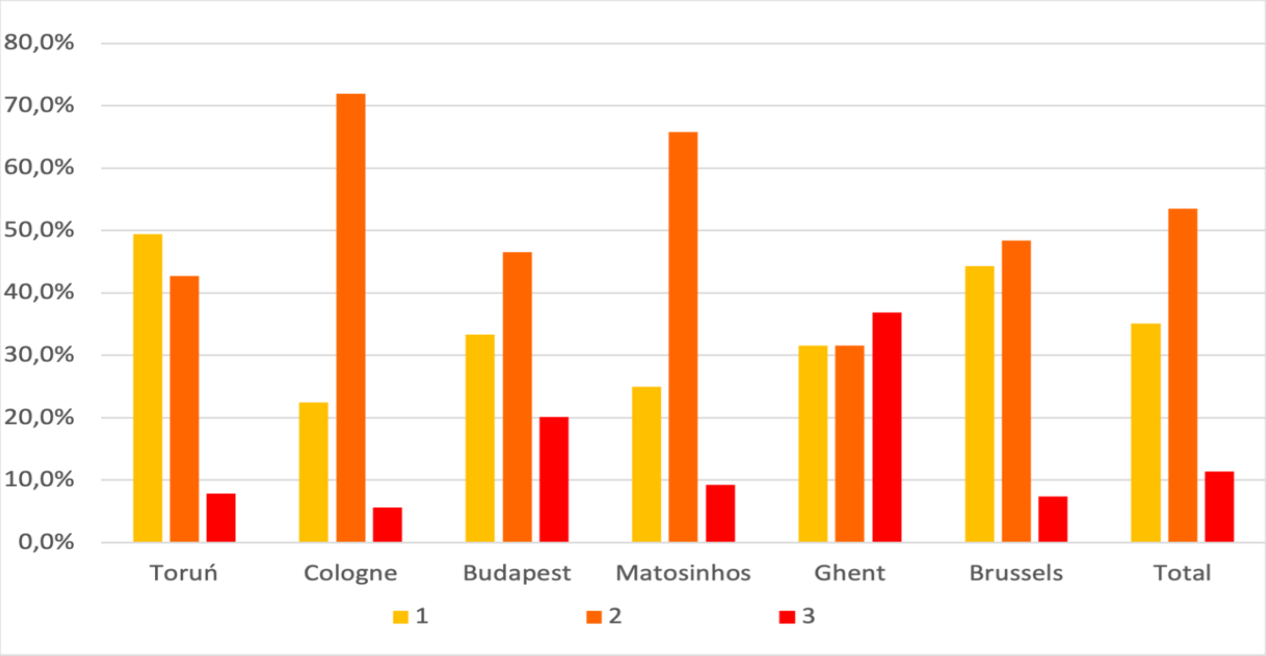


Explanation: 1 – Girl; 2 – Boy; 3 - Other / Prefer not to say

Source: Own elaboration on the basis of the questionnaire survey

Most of the children who participated in the study (53.5% of responses) lived in a different neighbourhood from their school, but within the same city. Approximately one-third of the children lived in the same neighbourhood as their school, while 11.4% lived outside the city in which they attended school. With regard to place of residence, the samples of children differed significantly between the analysed cities ($\chi^2(10) = 50.762$, $p < 0.001$). Nearly half of the surveyed children from Toruń and Brussels lived in the same neighbourhood as their school, compared with only around one-quarter of surveyed children in Cologne and Matosinhos. The highest proportions of children living in a different neighbourhood within the same city as their school were observed in Cologne (72.0%) and Matosinhos (65.8%), while substantially lower proportions than the overall average were recorded in Toruń (42.7%) and Ghent (31.6%). The highest proportion of surveyed children living outside the city in which they attended school was recorded in Ghent (36.8%) and Budapest (approximately one in five children). In the remaining cities, this proportion ranged from 5.6% in Cologne to 9.2% in Matosinhos.

Figure 124 Figure C.15. The structure of responses to the question: 'Where do you live in the city? ' (% of answer).



Explanation: 1 - In the same neighbourhood as the school; 2 - In the different neighbourhood as the school; 3 - Outside the city

Source: Own elaboration on the basis of the questionnaire survey

3.2.1.1.7. Summary for children (10–13 years)

The empirical material collected in the study enables a multidimensional diagnosis of children's mobility patterns in urban space, their sense of place, and their perceptions of safety. The findings indicate that children's everyday travel behaviours are primarily shaped by parental arrangements, infrastructural conditions, and spatial proximity, while their independent mobility remains limited and highly context-dependent.

Key tendencies

Mobility patterns and transport choices

Children's journeys to school are strongly structured by adult decisions and local transport systems. Across the entire sample, public transport and being driven by car are the most common modes of travel (each 34.6%), although substantial variation exists between cities. Walking is particularly important in Toruń, while cycling is the dominant mode in Ghent, reflecting a strongly developed cycling culture. Public transport plays a central role in Brussels, Cologne, and Budapest, whereas Matosinhos is characterised by a pronounced dominance of car-based mobility, with most children travelling as passengers. Transport choices are primarily explained by proximity to home, speed and convenience, and lack of alternative options. In several cities, additional factors such as parental routines, environmental awareness, and peer behaviour also play a role. Overall, independent decision-making in transport choice is limited.

Everyday mobility and activity patterns

Children's mobility extends beyond school journeys and includes after-school travel, which broadly mirrors morning patterns. Public transport, walking, and car travel remain the dominant modes of movement, while cycling after school is particularly characteristic of Ghent. After school, children most often engage in hobbies or remain at home, while a smaller proportion spends time with friends or participates in organised activities. The choice of transport to after-school destinations is similarly structured by convenience, proximity, and accessibility.

Social appropriation of urban space

Urban space is primarily experienced through peer interaction. Friends constitute the dominant social reference group in all cities when exploring both residential neighbourhoods and school surroundings. Exploration with siblings and adults is also important, particularly in younger age groups, while independent exploration remains limited. The school environment is more strongly associated with peer-based exploration than the residential neighbourhood.

Sense of place and safety

Children generally report a strong sense of attachment to their immediate residential environment, while their connection to school surroundings is weaker. The city as a whole occupies an intermediate position between these two spatial scales. A clear spatial gradient is observed: the strongest sense of belonging is associated with the neighbourhood of residence, while the weakest is linked to school environments. Toruń stands out as the city with the lowest level of neighbourhood attachment, whereas Ghent and Toruń show relatively stronger city-level identification. Perceptions of safety follow a similar spatial pattern, with the highest levels reported in residential areas and lower levels in school surroundings and the city as a whole. Safety near home is generally high

across all cities, while safety around schools is significantly lower and more differentiated between contexts. The lowest levels of perceived safety are observed in Cologne, particularly in relation to school surroundings and the wider city. Matosinhos consistently records the highest levels of perceived safety near home.

Urban aspirations and future city visions

Children express a strong preference for accessible, green, and compact urban environments. The most frequently chosen vision is a city where essential services are close to home and surrounded by green spaces. Electric cars and cycling-friendly cities are also popular, while fast public transport and technologically advanced solutions (such as flying vehicles) receive moderate support. Shared mobility systems are the least preferred model overall. City-specific differences indicate that Matosinhos places particularly strong emphasis on proximity and accessibility, whereas Budapest shows comparatively weaker prioritisation of this dimension. Brussels and Cologne demonstrate higher interest in technological and electric mobility solutions.

Characteristics of the analysed urban environments

Brussels: A public transport– and walking-oriented city with diversified mobility patterns and relatively balanced levels of independence and social interaction in space.

Budapest: A public transport–oriented environment with strong parental involvement in children's mobility. Independent travel is limited, while safety perceptions at home are relatively positive.

Cologne: A large urban environment combining strong public transport use with walking, but characterised by comparatively lower perceived safety, especially in school and city contexts.

Ghent: A highly bicycle-oriented city where cycling constitutes the dominant everyday mobility practice, strongly supporting children's autonomy in movement.

Matosinhos: A car-dependent environment characterised by extensive parental transport of children and limited independent mobility, combined with high perceived safety at home.

Toruń: A mixed-mobility context where walking plays an important role. Children show relatively higher independence in spatial exploration but weaker attachment to school environments.

3.3.1.2. Youth 14-18 years

3.3.1.2.1. Introduction

Urban space constitutes a natural environment for the young people participating in the study, where they carry out their everyday activities, build peer relationships, and develop their independence. The primary objective of the analyses undertaken is to provide a multidimensional assessment of young people's mobility patterns within this space, as well as to evaluate their degree of attachment to it and their sense of safety in their immediate surroundings. The empirical material collected through the survey makes it possible to identify clear and, in many cases, statistically significant differences among the six urban environments under comparison: Budapest, Brussels, Cologne, Ghent, Matosinhos, and Toruń,.

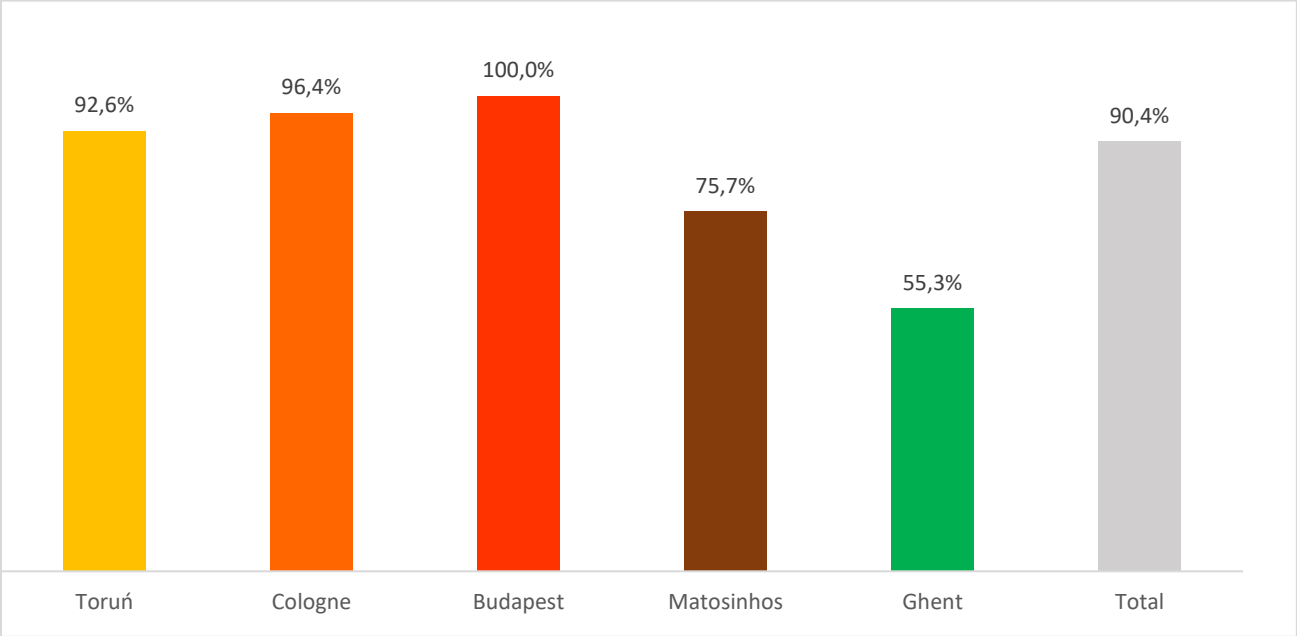
3.3.1.2.2. Daily mobility patterns in the context of the 15mC

The analysis began with an examination of the everyday mobility patterns of the surveyed young people within urban space, taking into account the prevalence of public transport use as well as alternative modes of travel, such as cycling, scooter use, and walking. These issues are closely related to the concept of the 15mC. The empirical material reveals clear and statistically significant differences in mobility behaviours across the cities under comparison, reflecting their specific infrastructural characteristics and cultural contexts.

An overwhelming majority (90.4%) of the young people participating in the study reported using public transport in their daily lives. However, the prevalence of using public transport modes such as metro systems, buses, and trams differed significantly across the surveyed cities ($\chi^2(4) = 75.385$, $p < 0.001$). Public transport was most commonly used by young people in Budapest and Cologne, somewhat less frequently in Toruń, considerably less often in Matosinhos, and least frequently in Ghent, where only around half of respondents reported using it on a daily basis.

These differences can be partly explained by the specific characteristics of the cities under comparison. Budapest and Cologne are the largest urban areas in the sample, which naturally increases the need to rely on public transport. In the case of Budapest, the widespread use of collective transport is additionally supported by its highly developed public transport infrastructure.

Figure 125 Figure Y.2. The structure of responses to the question: 'Do you use public transport (e.g., bus, tram, subway)?' (% of "Yes" responses in the total number of all responses)



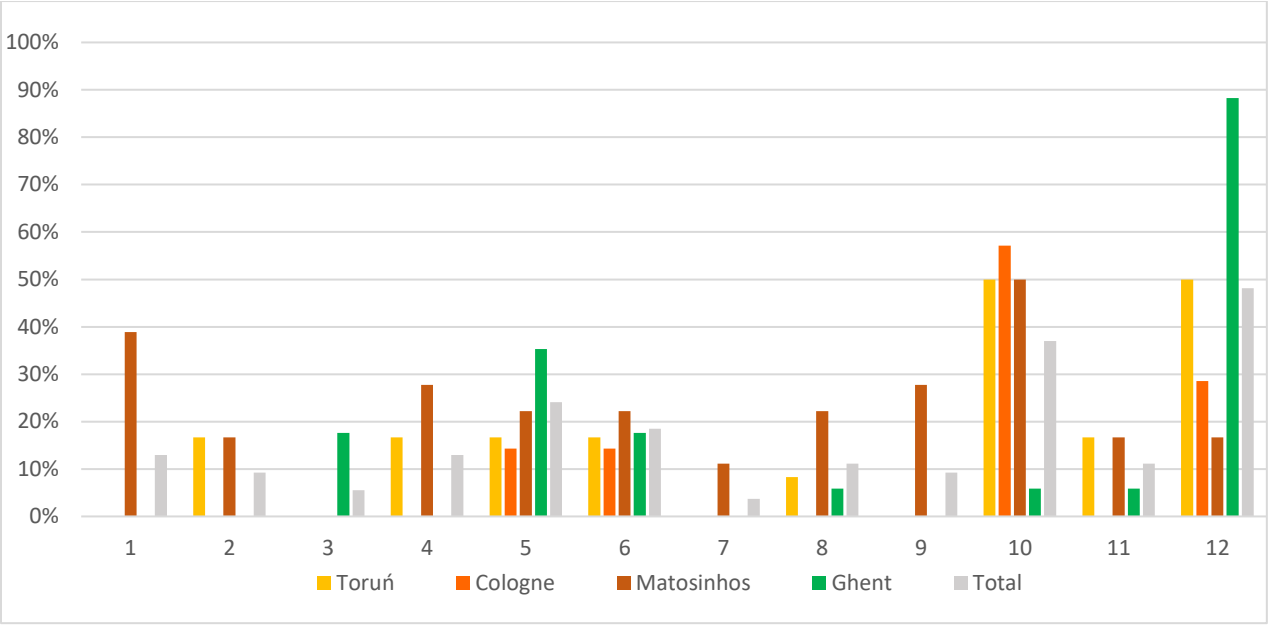
Source: Own elaboration on the basis of the questionnaire survey

The primary reason why young people choose means of transport other than public transport (excluding the "other" category) is their perception that alternative modes are more attractive and provide greater convenience and privacy (37%), which can be partly attributed to the characteristics of the surveyed population (Figure 2.2). The functioning of public transport itself also appears to discourage its use among young people. The most frequently reported drawbacks included excessively long travel times (24.1%), lack of punctuality (18.5%), the absence of stops near the place of residence (13.0%), low comfort levels (11.0%), and infrequent services (9.3%). Thus, the decision not to use public transport is shaped primarily by young people's personal preferences, reinforced by perceived shortcomings of the public transport system.

Place of residence only marginally differentiates the reasons for not using public transport. In contrast to respondents from the other cities, young people from Matosinhos more frequently pointed to the lack of public transport stops near their homes, difficulties in using public transport, and a lack of perceived safety. The latter two reasons are most likely related to the relatively young age of the respondents from Matosinhos, among whom as many as 65% were fourteen years old. By contrast, teenagers from Ghent were much less likely than their peers from the other cities to justify their non-use of public transport by a preference for alternative modes of transport that offer greater convenience and privacy. The remaining differences in the reasons given for

not using public transport were not statistically significant. Furthermore, the differences discussed above should be interpreted with caution due to the failure to meet certain assumptions required for the application of the statistical tests.

Figure 126 Figure Y.2. The structure of responses to the question: 'What are the main reasons why you DO NOT use public transport?' (multiple choice, 100% = respondents who do not use the public transport)



Explanation: 1 - Lack of stops or lines nearby; 2 - Too low frequency of services; 3 - It is too expensive; 4 - I do not know how it works; 5 - Long travel time; 6 – Unpunctuality; 7 - Unfavorable weather conditions; 8 - Lack of comfort, crowding; 9 - Lack of feeling safe; 10 - I prefer other, more private and comfortable means of transport; 11 - My parents' recommendation; 12 - Other

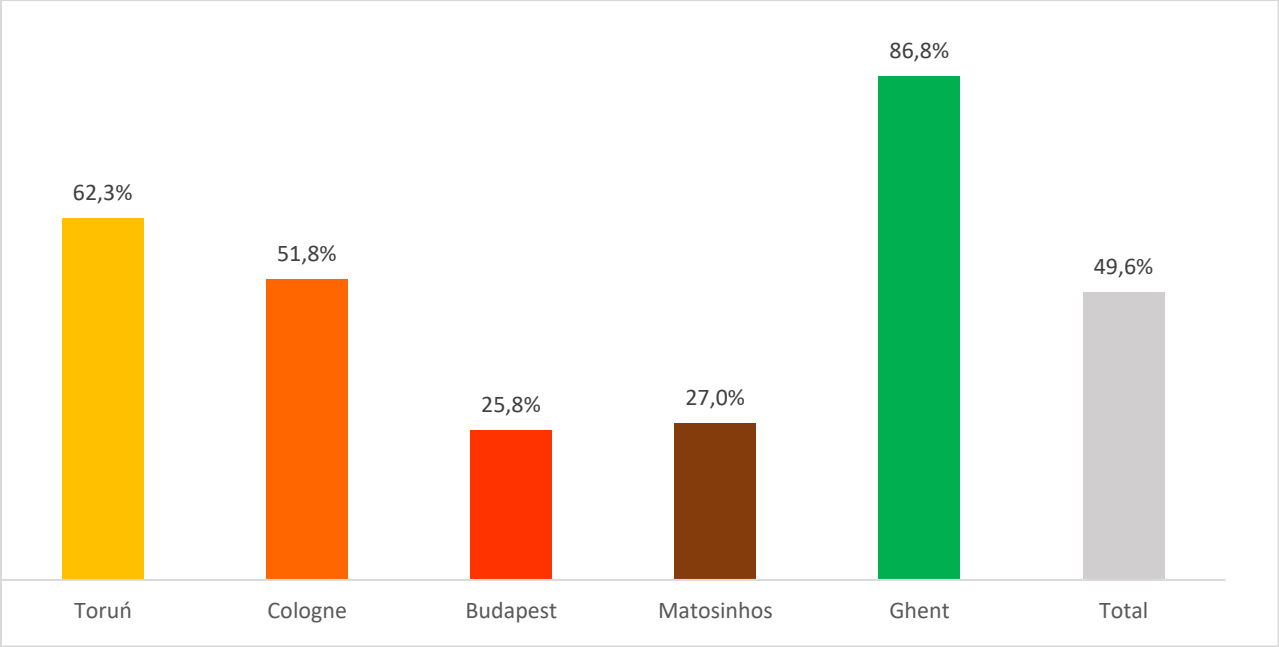
Source: Own elaboration on the basis of the questionnaire survey

Approximately half (49.6%) of all young people participating in the study reported using a bicycle or scooter. Clear differences in the prevalence of this mode of transport were observed across the surveyed cities ($\chi^2(4) = 72.228$, $p < 0.001$). The highest proportion of young people using a bicycle or scooter was recorded in Ghent, which was also the city with the lowest share of youth using public transport. This finding reflects the specific characteristics of the Belgian city, where the city centre is largely closed to car traffic and cycling has become one of the few viable alternatives to motorised transport. Toruń was the second city where a clear majority (62.3%) of young people reported using a bicycle or scooter. The growing network of cycling infrastructure developed in recent years has

undoubtedly contributed to the increasing popularity of this mode of transport by making cycling around the city more convenient and safer.

In contrast, the lowest proportions of young people using bicycles or scooters were recorded in Budapest and Matosinhos. The limited popularity of these modes among the younger generation in the Hungarian capital is understandable given that all respondents from Budapest reported using public transport. This is facilitated by the city's extensive metro system and well-developed tram network. The size of the city is also an important factor, as travelling longer distances by bicycle or scooter would require considerable time. In Matosinhos, where the use of public transport was lower than in the overall sample (although not as low as in Ghent), the relatively infrequent use of bicycles and scooters may be associated with the absence of a well-established cycling culture.

Figure 127 Figure Y.3. The structure of responses to the question: 'Do you travel by bicycle or scooter?' (% of "Yes" responses in the total number of all responses)



Source: Own elaboration on the basis of the questionnaire survey

The most frequently cited reason for not using a bicycle or scooter was young people's personal preferences regarding how they move around urban space (61%). When choosing between a two-wheeled, environmentally friendly mode of transport and alternatives such as public transport or private cars, young people tended to favour the latter options. This explanation was common across all surveyed cities.

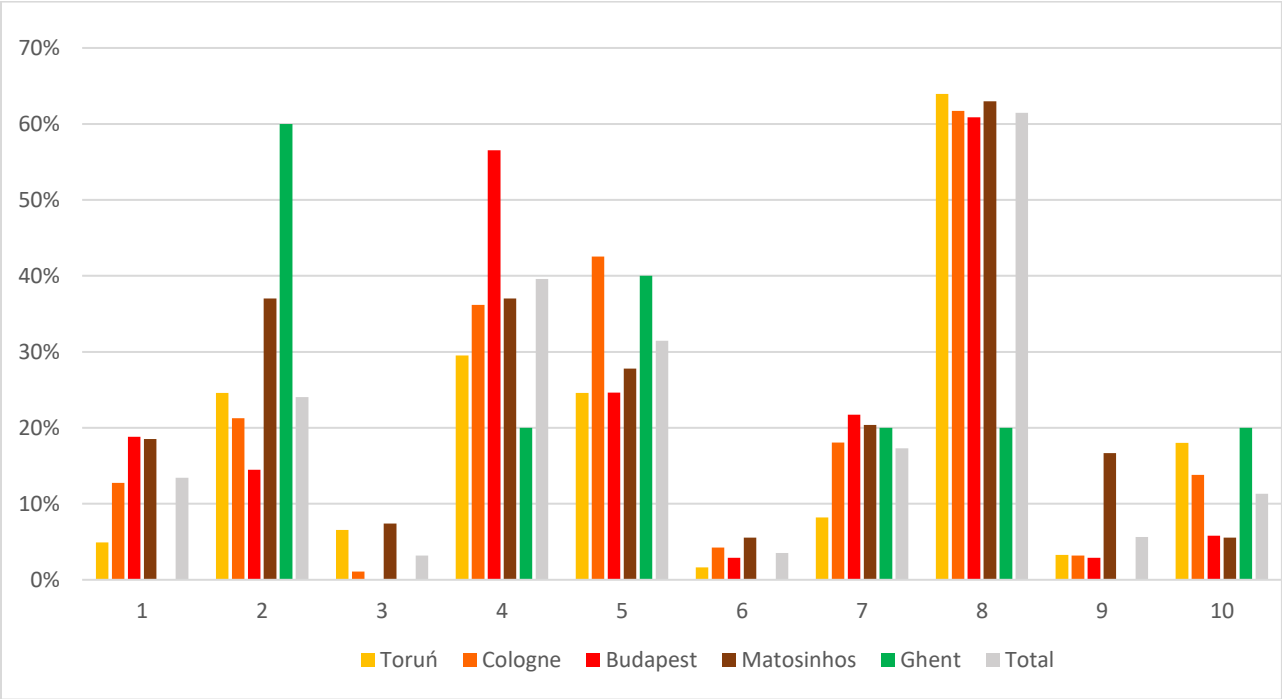
The second most important factor discouraging the use of bicycles and scooters was the length of travel distances, which would require a considerable investment of time to cover (40%). Clear differences emerged between the cities in this regard. This justification was mentioned most frequently by young people in Budapest (57%), which is understandable given the size of the city. By contrast, long travel times were cited much less often by respondents from Toruń, a relatively smaller city where even longer journeys can generally be completed without substantial time costs.

Nearly one-third (31%) of respondents identified unfavourable weather conditions as a reason for not using bicycles, and opinions on this issue were similar across all cities. Furthermore, almost one-quarter (24%) of the surveyed youth indicated that they did not use a bicycle or scooter simply because they did not own one. Interestingly, two cities differed markedly and statistically significantly from the others in this respect: Budapest and Matosinhos. In Budapest, the proportion of respondents explaining their non-use of bicycles or scooters by a lack of ownership was the lowest (15%). This suggests that young people in the Hungarian capital generally have access to these modes of transport, but perceive them as less functional and less attractive within a large urban area that offers well-developed alternative transport options.

In contrast, respondents from Matosinhos relatively often stated that they did not own a bicycle or scooter, which directly limited their use of these environmentally friendly modes of transport. It is difficult to determine conclusively whether the high proportion of young people without access to bicycles reflects the absence of a well-developed cycling culture or a lack of infrastructure supporting this form of mobility. Nevertheless, both Budapest and Matosinhos displayed a tendency for respondents to more frequently justify their non-use of bicycles and scooters by referring to an insufficiently developed cycling infrastructure and a lack of dedicated cycling paths.

Among the other reasons cited by young people for not using bicycles or scooters were concerns about safety (17%), parental restrictions (6%), health limitations (3.5%), and a lack of cycling skills. The latter explanation was reported somewhat more frequently by respondents from Matosinhos.

Figure 128 Figure Y.4. The structure of responses to the question: 'What are the main reasons why you DO NOT travel by bicycle or scooter' (multiple choice, 100% = respondents who do not travel by bicycle or scooter)

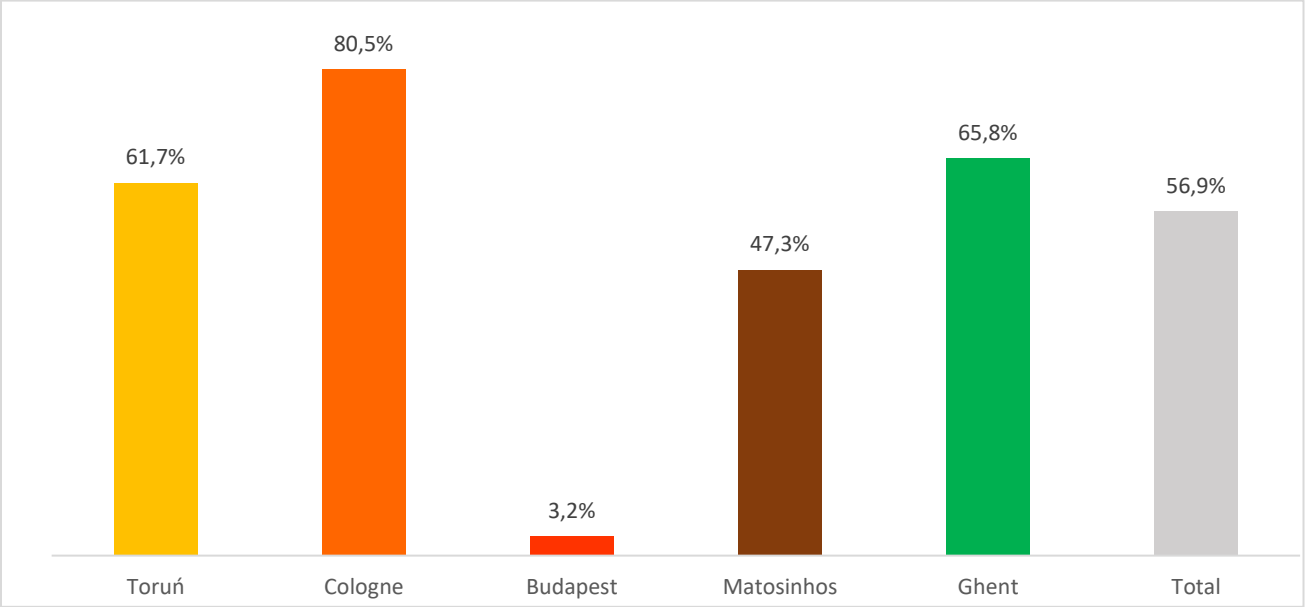


Explanation: 1 - Lack of bike paths or bike parking; 2 - I do not have a bicycle/a scooter; 3 - I cannot ride a bicycle/a scooter; 4 - Long travel time; 5 - Unfavorable weather conditions; 6 - Health limitations; 7 - Lack of feeling safe; 8 - I prefer other, more comfortable means of transport; 9 - My parents' recommendation; 10 – Other

Source: Own elaboration on the basis of the questionnaire survey

More than half (57%) of the young people participating in the study reported covering considerable distances on foot. This activity varied significantly across the surveyed cities ($\chi^2(4) = 182.603$, $p < 0.001$). Young residents of Budapest reported almost no walking as a means of moving around the city, which is likely linked to established mobility patterns supported by the city's highly developed public transport network. In contrast, the highest proportion of young people travelling on foot was recorded in Cologne. Given the size of the city, this finding may appear somewhat surprising and suggests that walking remains an important component of everyday mobility among young residents despite the availability of alternative transport options.

Figure 129 Figure Y.5. The structure of responses to the question: 'Do you walk the entire route?' (% of "Yes" responses in the total number of all responses)



Source: Own elaboration on the basis of the questionnaire survey

The most important reason why a substantial proportion of young people (over 40%) do not travel on foot within urban space is the amount of time such journeys would require. This explanation was provided by three-quarters (77%) of respondents who do not regularly walk, and was particularly common among young people living in Budapest. Once again, the size of the city and the availability of alternatives to walking—most notably public transport—appear to play a crucial role.

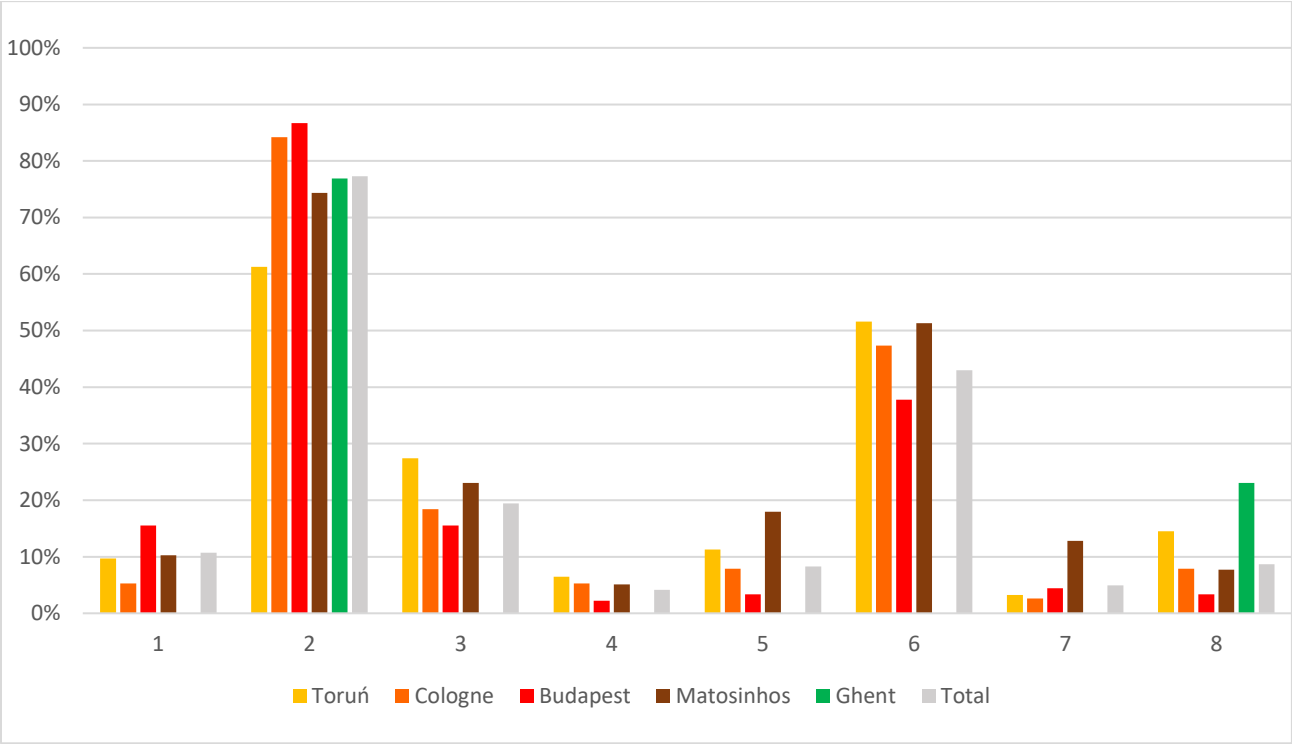
In contrast, respondents from Toruń were the least likely among all surveyed groups to justify their limited walking activity by referring to excessive travel times. Another frequently cited reason for not walking as part of everyday mobility was a preference for other, more convenient means of transport, such as public transport (43%). Interestingly, this explanation was not mentioned at all by young people from Ghent, who were also the least likely to use public transport among the cities under comparison.

Other reasons for not walking included unfavourable weather conditions (19%) and the absence of pavements or pedestrian infrastructure enabling safe access to destinations (11%). By contrast, parental restrictions (5%) and health-related limitations (4%) were only rarely mentioned.

Most of these reasons did not vary significantly between cities. An exception was the lack of perceived safety while walking in urban space, which was reported by 8% of

respondents. This concern was expressed most frequently by young people from Matosinhos and least frequently by those from Budapest. The observed difference is likely related to the comparatively younger age structure of respondents from the Portuguese city. As noted earlier, concerns about safety and parental restrictions were also among the reasons given by young people from Matosinhos for not using bicycles or scooters. This pattern suggests a stronger degree of parental concern for children's safety in Matosinhos than in the other surveyed cities, most likely reflecting the younger age of the respondents.

Figure 130 Figure Y.6. The structure of responses to the question: 'What are the main reasons why you DO NOT walk the entire route' (multiple choice, 100% = respondents who do not walk the entire route)



Explanation: 1 - Lack of sidewalks; 2 - It is too far to walk; 3 - Unfavorable weather conditions; 4 - Health limitations; 5 - Lack of feeling safe; 6 - I prefer other, more comfortable means of transport; 7 - My parents' recommendation; 8 – Other

Source: Own elaboration on the basis of the questionnaire survey

3.3.1.2.3. From obligation to leisure: forms of urban travel

The next part of the report focuses on the spatial dimension of mobility, with particular attention paid to daily journeys to educational institutions and travel undertaken during leisure time. The choice of transport mode—from public transport,

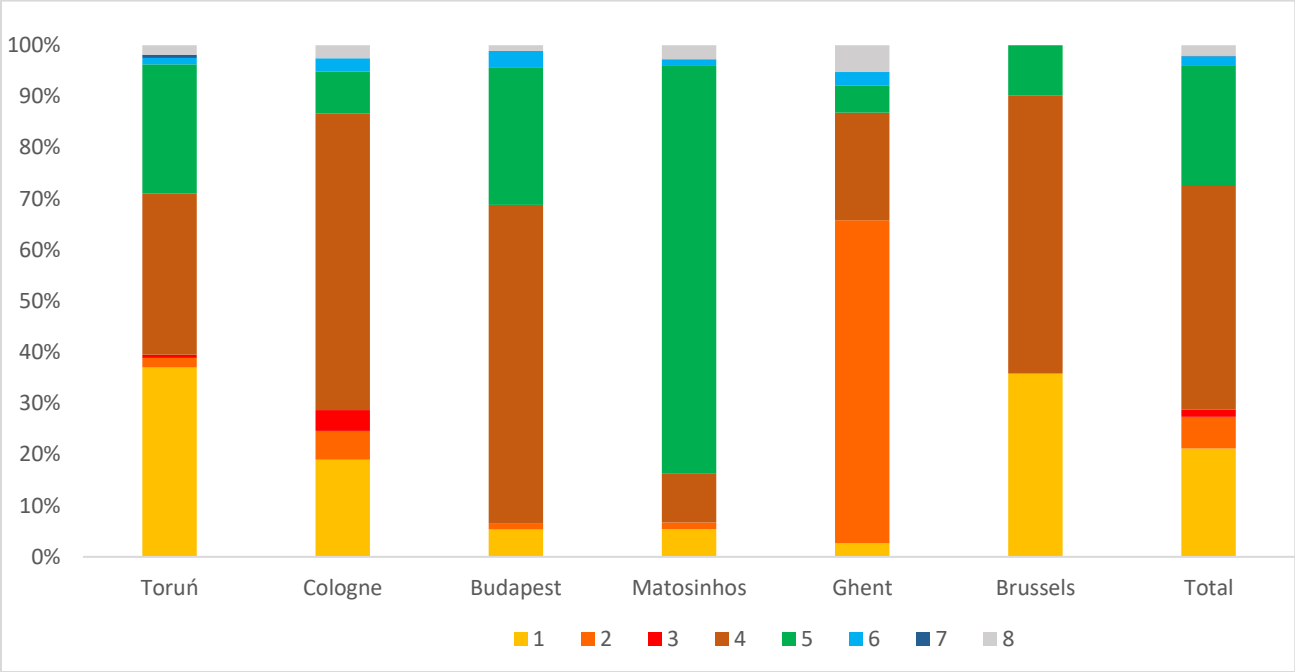
walking, and cycling to being driven by adults—is considered here as the outcome of a range of social and infrastructural factors. The empirical material reveals significant differences among the urban environments under comparison, making it possible to assess the extent to which young people's daily travel choices result from their own autonomous decisions and the extent to which they are shaped by external constraints.

The analysis begins with an examination of how young people travelled to school on the day the survey was conducted. The most frequently reported mode of transport was public transport (44%), followed by travelling by car driven by an adult (24%), walking (21%), and cycling on a personal bicycle (6%). In contrast, independently driving a car, using a scooter, or travelling by ride-hailing services ordered through a mobile application were reported only rarely, accounting for no more than 2% of all responses.

Clear differences can be observed between the surveyed cities with regard to how young people travelled to school on the day of the survey. Budapest stands out as a city where the vast majority of young people commute to school either by public transport or by car. In Brussels and Cologne, by contrast, walking constitutes a prominent mode of travel alongside the widespread use of public transport. In Toruń, students travelled to school on foot, by public transport, and by car in broadly similar proportions.

Compared with these four cities, Matosinhos and Ghent display distinct mobility profiles. In Matosinhos, the car was by far the most important means of transport used by students to reach school on the day of the survey, whereas in Ghent the bicycle played a dominant role. These differences largely confirm the patterns identified earlier in the analysis, highlighting Budapest as a city where public transport dominates everyday mobility, Ghent as a city characterised by a highly developed cycling culture, and Matosinhos as an urban environment in which the car remains the predominant mode of transport.

Figure 131 Figure Y.7. The structure of responses to the question: 'How did you come to school this morning?'



Explanation: 1 - On foot; 2 - By own bicycle; 3 - By a traditional or electric scooter; 4 - By public transport (e.g., bus, tram, subway); 5 - By car, but someone drives me; 6 - By car and I drive; 7 - By app-based car (e.g., Uber, Bolt, FreeNow) or by taxi; 8 - Other

Source: Own elaboration on the basis of the questionnaire survey

When explaining their choice of transport mode for travelling from home to school on the day of the survey, young people most frequently referred to the short travel time required and the convenience of the selected mode (31%). Other commonly cited reasons included the proximity of the school to the family home (30%), the presence of a public transport stop near the place of residence (26%), and the availability of alternative travel options (20%). Respondents also indicated that their travel choices reflected the mobility habits of their parents or friends (16% each), as well as prevailing weather conditions (13%).

Interestingly, reasons reflecting environmental awareness occupied only a marginal place in young people's explanations of how they travelled to school (7%), as did concerns for health and physical fitness (8%), which could potentially be addressed through walking or cycling.

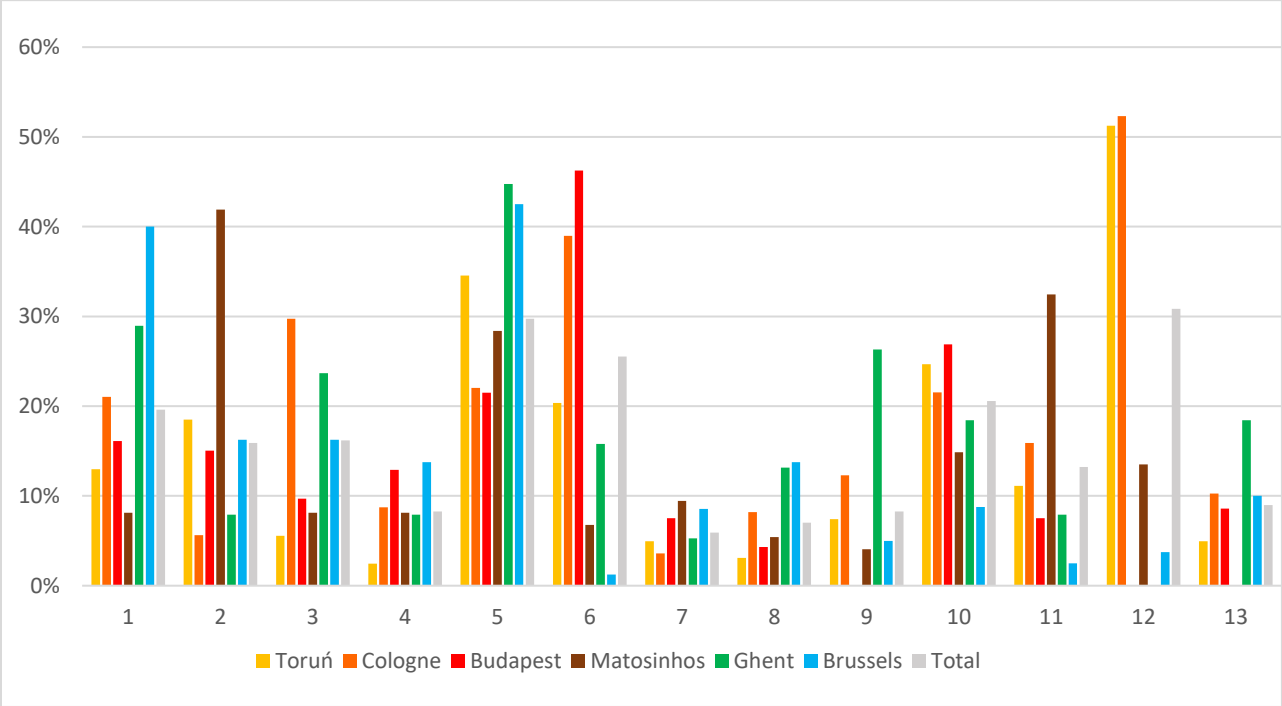
In Budapest, where young people make extensive use of public transport, the primary reason for choosing this mode was the proximity of public transport stops to their homes.

In Brussels, where young people commonly travel to school either by public transport or on foot, respondents more frequently than in the other cities referred to the short distance between home and school. They also more often emphasised independence and, more than any other group in the study, expressed the belief that their chosen mode of travel was environmentally friendly.

In Ghent, the city's well-established cycling culture was clearly reflected in the responses. Young people frequently justified their travel choices by referring to cycling as a social norm, while also highlighting its benefits for health and physical fitness. A different mobility norm characterising Matosinhos was likewise evident in the explanations provided by respondents who predominantly travelled to school by car. This mode of transport was perceived as typical of parental travel behaviour, although it may also limit young people's independence to some extent. Notably, weather conditions were relatively often cited in Matosinhos as a reason for travelling by car.

In Toruń and Cologne, the use of public transport or cars (and, in the case of Toruń, walking as well) was justified primarily by the ability to reach school quickly. In Cologne, respondents additionally referred to the influence of peer norms and the spatial proximity of the school to the family home when explaining their choice of transport mode.

Figure 132 Figure Y.8. The structure of responses to the question: 'Why did you travel to school this way?' (multiple choice, %)



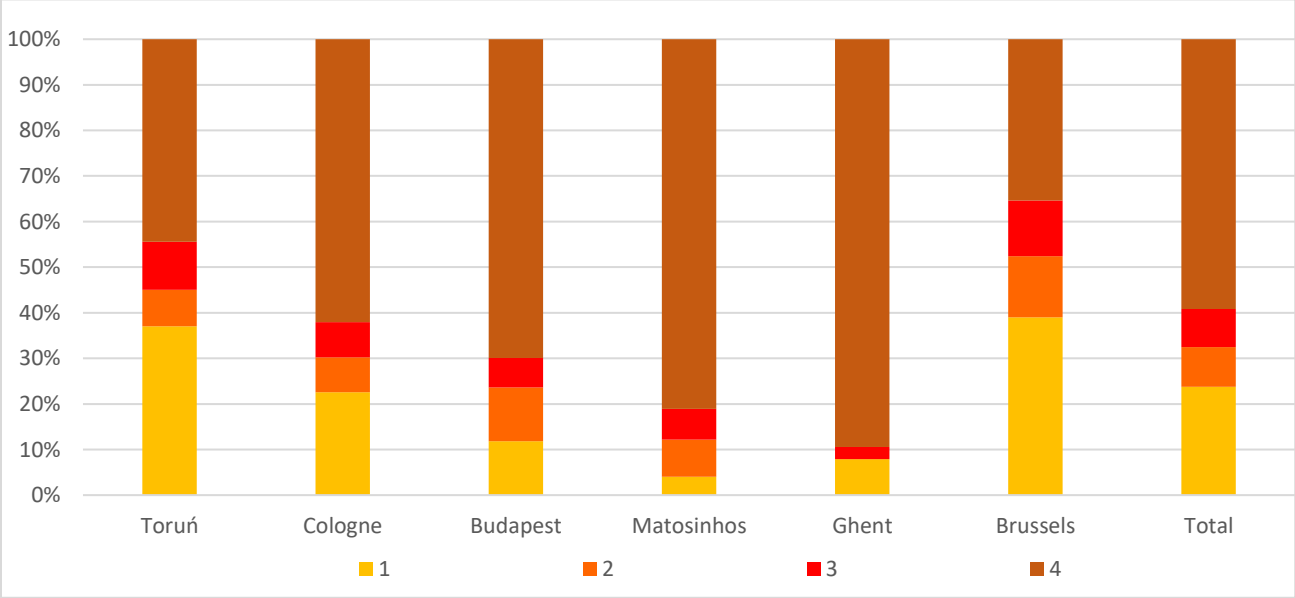
Explanation: 1 - I don't have to wait for anyone; I am independent; 2 - My parents travel this way; 3 - My friends travel this way; 4 - Everyone travels this way here; 5 - It is close to home; 6 - I have a stop nearby (bus, tram, or subway); 7 - I feel safe on the road; 8 - I don't pollute the air; 9 - For health and to stay in good condition; 10 - I have no other choice; 11 - Because of the weather; 12 - It is the fastest, the most convenient way; 13 - Other

Source: Own elaboration on the basis of the questionnaire survey

This raises the question of whether the modes of travel to school observed on the day of the survey represent incidental choices or reflect more stable mobility patterns among young people in the cities under comparison. Figure X presents respondents' answers regarding the frequency with which they travel from home to school on foot. The differences between the surveyed cities are substantial and statistically significant ($\chi^2(15) = 90.684$, $p < 0.001$).

Walking to school is most common among young people in Brussels and Toruń, where as many as 39% and 37% of respondents, respectively, reported doing so on a daily basis. In contrast, respondents from Ghent, Matosinhos, and Budapest were significantly more likely to indicate that they never travel from home to school on foot. These findings suggest that walking forms an important component of everyday school mobility in Brussels and Toruń, whereas in the other cities alternative modes of transport play a more prominent role in daily journeys to educational institutions.

Figure 133 Figure Y.9.1. The structure of responses to the question: 'How do you generally come to school?' On foot



Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never

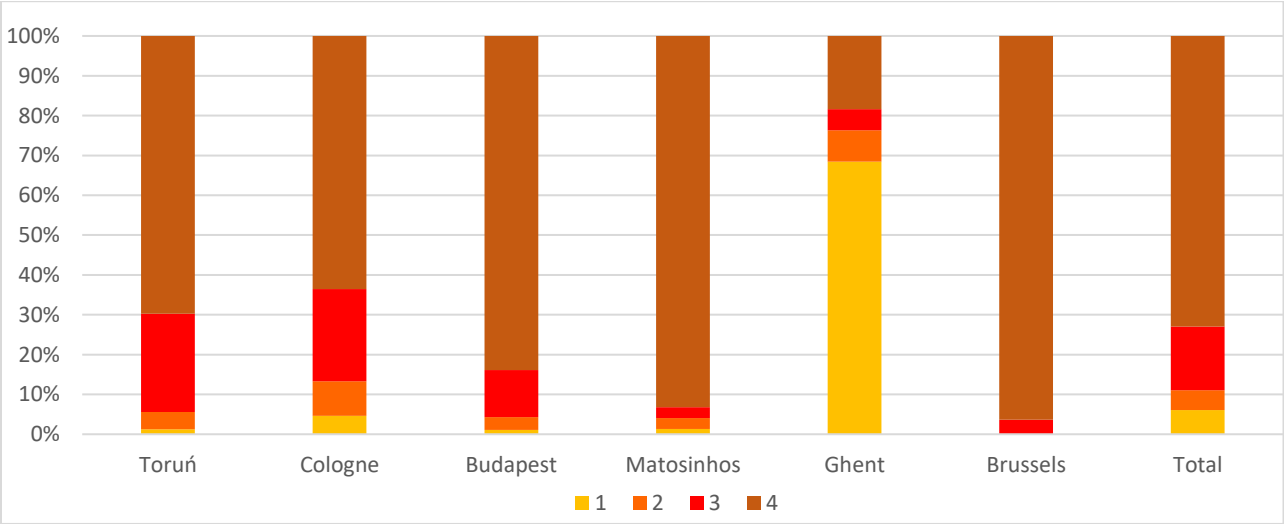
Source: Own elaboration on the basis of the questionnaire survey

A similarly distinctive pattern emerges in responses concerning the frequency with which young people typically travel by their own bicycle. Once again, Ghent stands out as a city characterised by a highly developed cycling culture, a finding already highlighted in the previous analyses ($\chi^2(15) = 199.694$, $p < 0.001$). As many as 68% of young residents of this Belgian city reported that cycling is part of their daily routine.

Young people in Toruń and Cologne use bicycles considerably less frequently. In both cities, nearly one-quarter of respondents indicated that they cycle several times a month. By contrast, Brussels, Matosinhos, and Budapest displayed significantly higher proportions of young people who do not use bicycles at all compared with the overall sample. Such declarations were made by 96% of respondents in the Belgian capital, 84% in the Hungarian capital, and 93% in the Portuguese city.

These findings further reinforce the conclusion that Ghent is distinguished by a strong cycling culture, while bicycles play a much less prominent role in the everyday mobility practices of young people in Brussels, Budapest, and Matosinhos.

Figure 134 Figure Y.9.2. The structure of responses to the question: 'How do you generally come to school?' By own bicycle



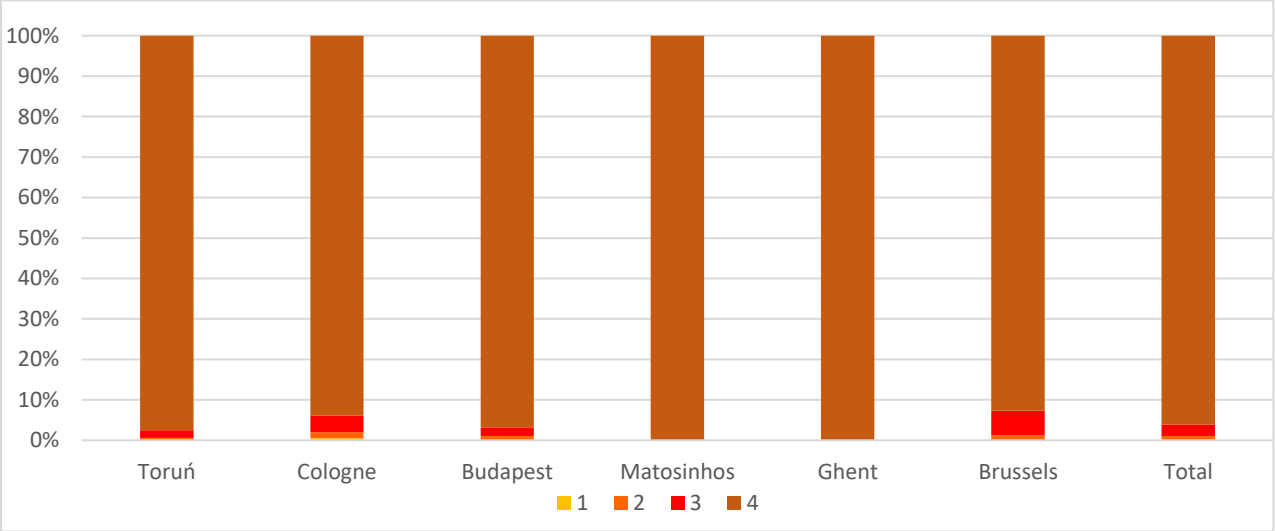
Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never

Source: Own elaboration on the basis of the questionnaire survey

While 27% of the surveyed young people reported using their own bicycle with varying frequency, the use of bicycles rented through popular mobile applications was reported by fewer than 4% of respondents. Importantly, no significant differences were observed among the cities with regard to the frequency of using this mode of transport.

For young people, bicycle-sharing schemes appear to play only a marginal role in everyday urban mobility. The reasons for this limited interest are difficult to determine conclusively. Financial considerations may be one contributing factor. However, a more plausible explanation may be that the requirement to return a rented bicycle to a designated docking station, which is not necessarily located near the final destination, is perceived as an inconvenience that reduces the attractiveness and flexibility of this mode of transport.

Figure 135 Figure Y.9.3. The structure of responses to the question: 'How do you generally come to school?' By city bike (by minute-rental bike)



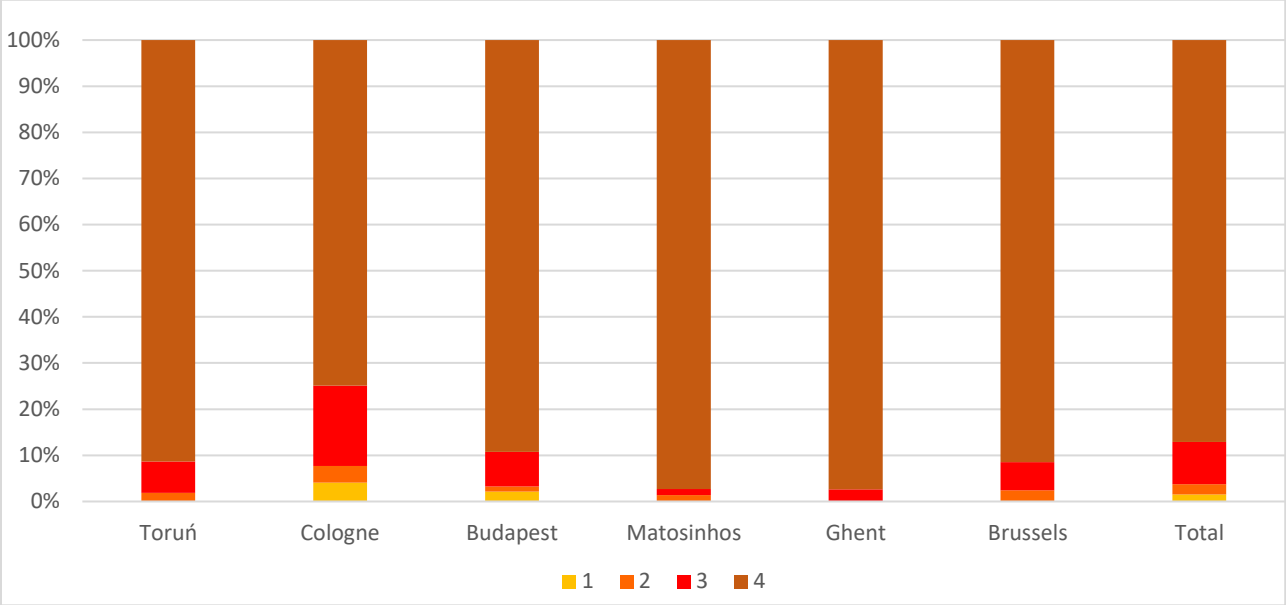
Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never

Source: Own elaboration on the basis of the questionnaire survey

Only 13% of the surveyed young people reported using a traditional or electric scooter, and in most cases this mode of transport is used only a few times per month. Differences between the cities are generally limited; however, Cologne shows a somewhat distinct pattern, where the proportion of respondents using scooters is approximately twice as high as in the overall sample (25%), a difference that is statistically significant ($\chi^2(15) = 199.694$, $p < 0.001$).

Despite this local variation, scooter use remains a marginal component of everyday mobility among young people across all surveyed cities.

Figure 136 Figure Y.9.4. The structure of responses to the question: 'How do you generally come to school?' By a traditional or electric scooter



Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never

Source: Own elaboration on the basis of the questionnaire survey

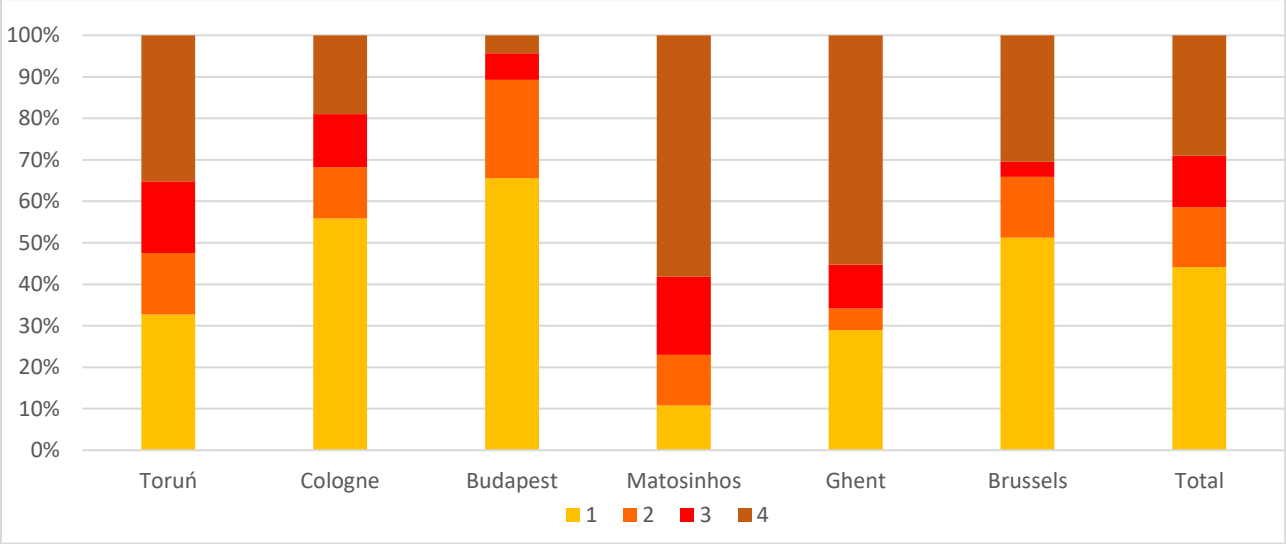
Clear differences between the surveyed cities can be observed in responses concerning the frequency of using public transport ($\chi^2(15) = 137.328$, $p < 0.001$). Overall, nearly three-quarters of the young respondents reported using public transport, while for 44% it constitutes a daily mode of travel (Figure 2.9.5).

As indicated in the previous analyses, Budapest is the city with the highest level of daily public transport use, reported by 66% of young people. In Brussels and Cologne—two other large cities included in the study—more than half of young respondents reported using public transport on a daily basis. In Toruń, slightly more than one-third of young people indicated daily use of public transport.

The lowest levels of public transport use were recorded in Matosinhos and Ghent. In Matosinhos, only around one in ten respondents reported using public transport every day. In Ghent, the corresponding share was 29%. In the first of these cities, the dominant mode of travel to school on the day of the survey was the car, while in the second it was the bicycle. Previous analyses have also shown that cycling constitutes a key mode of

transport among young people in Ghent, which helps explain the relatively low reliance on public transport in this city.

Figure 137 Figure Y.9.5. The structure of responses to the question: 'How do you generally come to school?' By public transport (e.g., bus, tram, subway)



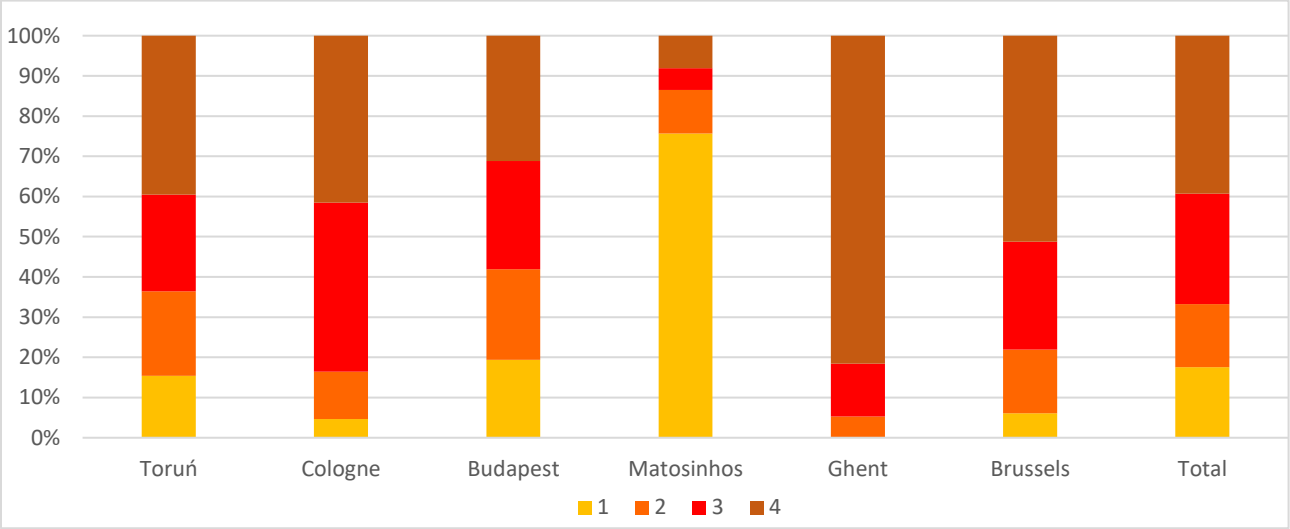
Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never

Source: Own elaboration on the basis of the questionnaire survey

Car travel, in which young people act as passengers, is also a frequently used mode of transport for travelling from home to school. For 18% of respondents, it constitutes a daily means of commuting, while a further 15% report using it several times a week. The results of previous analyses confirm clear differences between the surveyed cities in the extent to which car use is employed for school travel ($\chi^2(15) = 220.041$, $p < 0.001$).

As many as 76% of young people in Matosinhos commute to school by car on a daily basis, with a further 11% doing so several times a week. In contrast, this mode of transport is not used at all by 82% of respondents in Ghent and 51% in Brussels. Relatively infrequent use of being driven to school is also observed among young people in Cologne, where more than 42% do not use this form of transport at all, and for a further 42% it occurs only a few times per month.

Figure 138 Figure Y.9.6. The structure of responses to the question: 'How do you generally come to school?' By car, but someone drives me

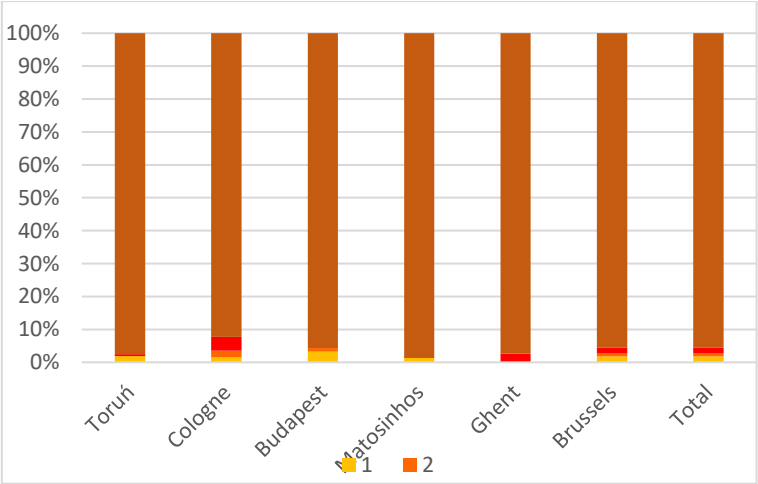


Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never

Source: Own elaboration on the basis of the questionnaire survey

In contrast, the surveyed young people generally do not commute to school by driving a car themselves, which is explained by the young age of the study population. As many as 96% of respondents reported that they never travel to school in this way.

Figure 139 Figure Y.9.7. The structure of responses to the question: 'How do you generally come to school?' By car and I drive

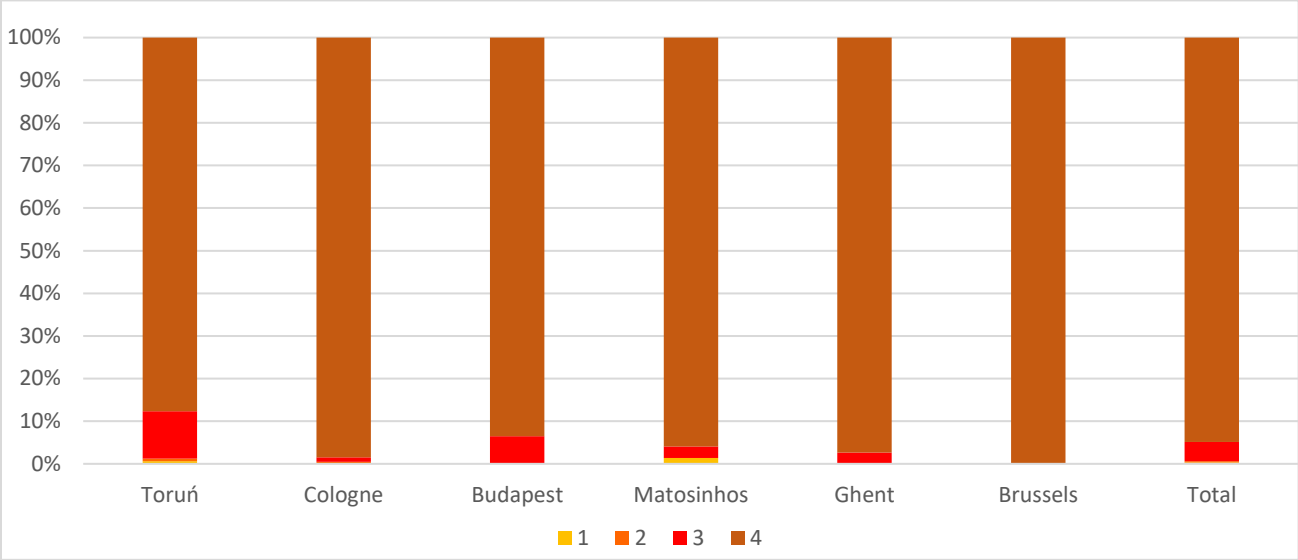


Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never

Source: Own elaboration on the basis of the questionnaire survey

A very similar pattern is observed in relation to travelling to school using a hired car (e.g. via widely used applications such as Bolt or Uber). Here, as many as 95% of respondents stated that they do not use this type of transport for their journey to school.

Figure 140 Figure Y.9.8. The structure of responses to the question: 'How do you generally come to school?' By app-based car (e.g., Uber, Bolt, FreeNow) or by taxi



Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never

Source: Own elaboration on the basis of the questionnaire survey

The above findings regarding the ways in which young people usually commute to school are largely consistent with the results of the previously presented analyses. Ghent is the city where cycling clearly dominates as the primary mode of transport among young people. Budapest, with its well-developed public transport system and the proximity of transport stops, strongly encourages the use of collective transport. In Matosinhos, a substantial proportion of young people are driven to school by their parents. In Toruń, Brussels, and Cologne, this mode of transport is also clearly visible in the results, although it is not as prevalent as in the Portuguese city.

In Cologne, young people frequently use public transport (although less often than in Budapest) and relatively often cycle as well (although the scale of bicycle use remains significantly lower than in Ghent). In Brussels and Toruń, walking is a common mode of commuting to school, alongside the use of public transport. Overall, these three cities—Brussels, Toruń, and Cologne—are characterised by a clear diversity in school commuting

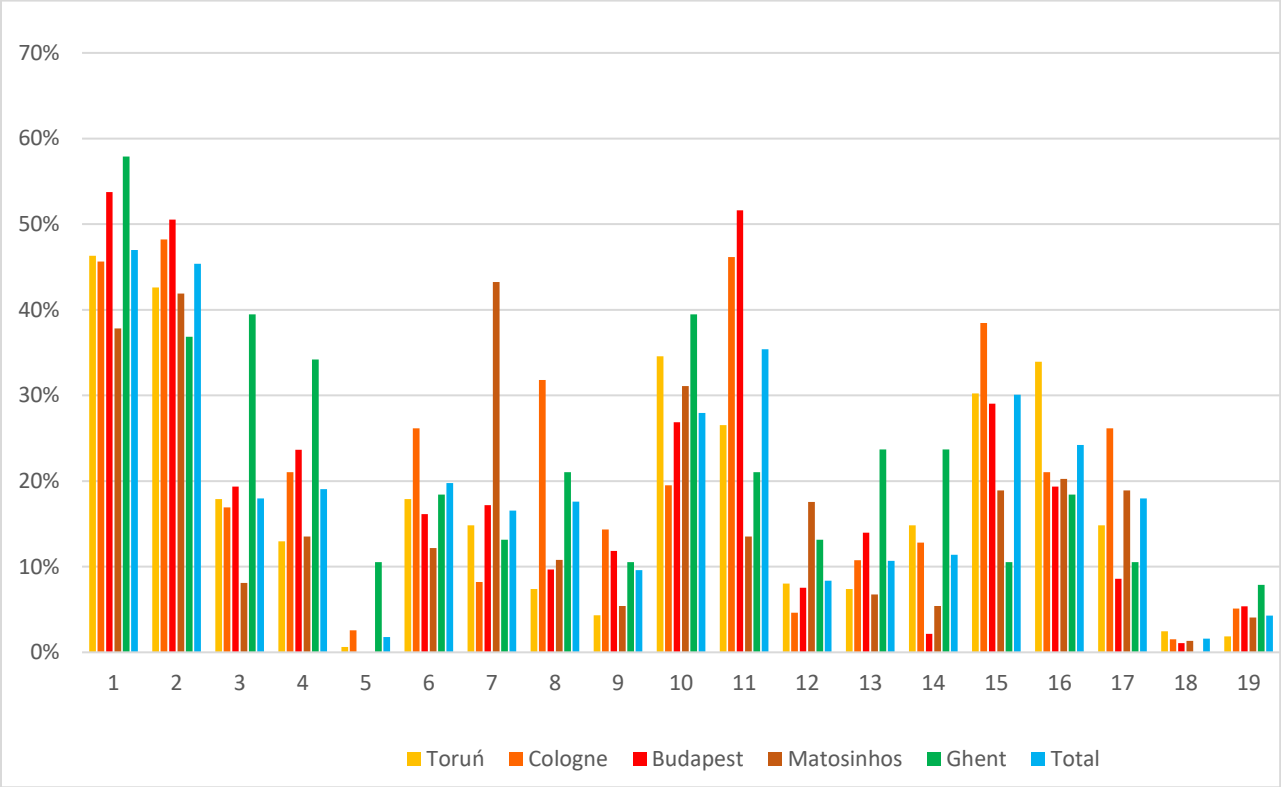
patterns, with walking, public transport, and private car use being the most frequently reported modes of travel.

The analysis of the reasons underlying young people's travel choices to school (taking into account statistically significant differences between the surveyed contexts) indicates that these explanations are largely embedded in the dominant mobility patterns of each city.

Budapest, with its highly developed public transport network, is a city that strongly encourages its use. Hungarian youth more frequently than their peers in other cities point to the proximity of public transport stops to their place of residence as a key factor shaping their mobility choices. In Ghent, where cycling is the dominant mode of transport, young people more often than respondents in other cities emphasise financial benefits, convenience, environmental awareness, as well as health and fitness considerations. They also more frequently perceive cycling as a socially "fashionable" or normative way of moving around the city. However, this comes at a cost, as cycling precludes other activities during travel, which were more often indicated by young people using other modes of transport in the remaining cities. Interestingly, this opportunity to engage in alternative activities during travel (e.g., studying, listening to music, watching films) was also mentioned less frequently than in the overall sample by respondents from Matosinhos, where young people are most often driven to school by their parents. In this context, parental mobility patterns constitute the primary justification for school travel by car among Portuguese youth. If the car is the dominant mode of transport for parents, it naturally becomes the default option for children as well. However, in Matosinhos this mode of mobility appears to be driven less by choice and more by necessity. This is reflected in the very low proportion of young respondents who indicate proximity of public transport stops as a relevant factor. Safety concerns, more frequently raised in Matosinhos than in other cities, are also likely to play an important role.

In Toruń and Cologne, where school commuting patterns are the most diverse, with a clear prevalence of walking, car use, and public transport, the underlying justifications differ. In the case of Polish respondents, schools are generally located closer to the place of residence than in Cologne, which directly reflects differences in the spatial scale of the cities. By contrast, German respondents more often emphasise the proximity of public transport stops and the possibility of using travel time for other activities. For young people in Cologne, the fact that their peers travel in a similar way is also significant, as this represents a broadly shared social norm. In Toruń, however, the reported commuting patterns are more often perceived as a necessity resulting from a lack of alternative options. This likely reflects the fact that a substantial proportion of school-aged youth in Toruń reside in suburban areas, which significantly limits their mobility choices.

Figure 141 Figure Y.10. The structure of responses to the question: 'Why do you get to to school every day in the chosen above way?' (multiple choice, %)



Explanation: 1 - It is the fastest way; 2 - It is the most comfortable way; 3 - It is the cheapest way; 4 - I travel when I want; 5 - It is trendy; 6 - I don't have to wait for anyone, I am independent; 7 - My parents travel this way; 8 - My friends travel this way; 9 - Everyone travels this way here; 10 - It is close to home; 11 - I have a stop nearby (bus, tram, or subway); 12 - I feel safe on the road; 13 - I don't pollute the air; 14 - For health and to stay in good condition; 15 - I can do smth (e.g., studying, listening to music, talking to others) during the journey; 16 - I have no other choice; 17 - It depends on the weather; 18 - Not applicable, I don't travel; 19 - Other

Source: Own elaboration on the basis of the questionnaire survey

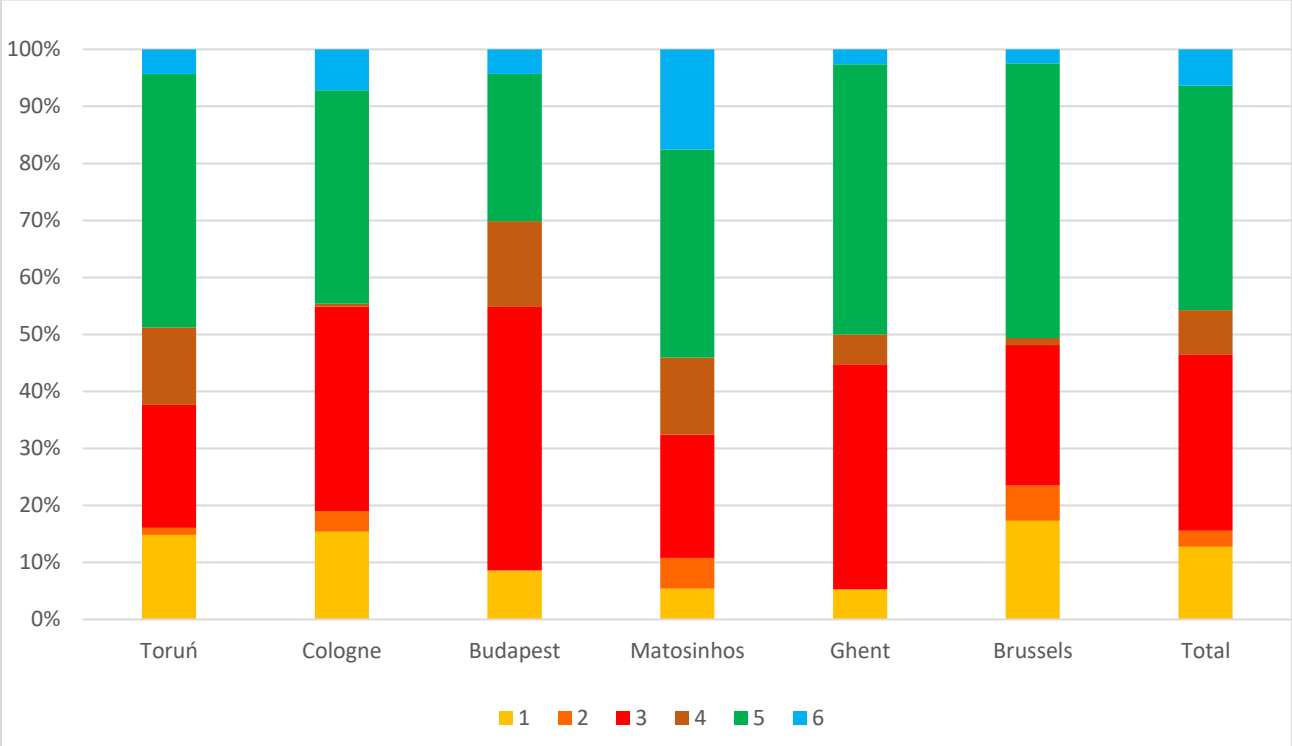
Young people participating in the study most often spend their leisure time at home or pursuing their hobbies outside the home. Slightly more than one in ten respondents meet with friends during their free time, while 8% spend their afternoons on additional extracurricular activities, which can only partly be considered a form of leisure.

Clear differences are observed between the cities. Hungarian youth spend their free time at home significantly less often than their peers, with nearly half of respondents from Budapest reporting that they pursue their interests and passions outside the home after

school ($\chi^2(25) = 107.846$, $p < 0.001$). Young people in Budapest also more frequently participate in extracurricular activities, similarly to their peers in Matosinhos and Toruń. In contrast, respondents from Toruń spend their free time on hobbies less often than the overall sample.

Young people from Cologne and Brussels are the least likely to participate in extracurricular activities compared with the other surveyed cities.

Figure 142 Figure Y.11. The structure of responses to the question: 'What do you do most often after school?'



Explanation: 1 - I visit friends or spend time with them; 2 - I visit relatives/family or spend time with them; 3 - I go to hobbies (such as sports, a library, a cinema); 4 - I participate in extracurricular activities; 5 - I spend time at home; 6 – Other

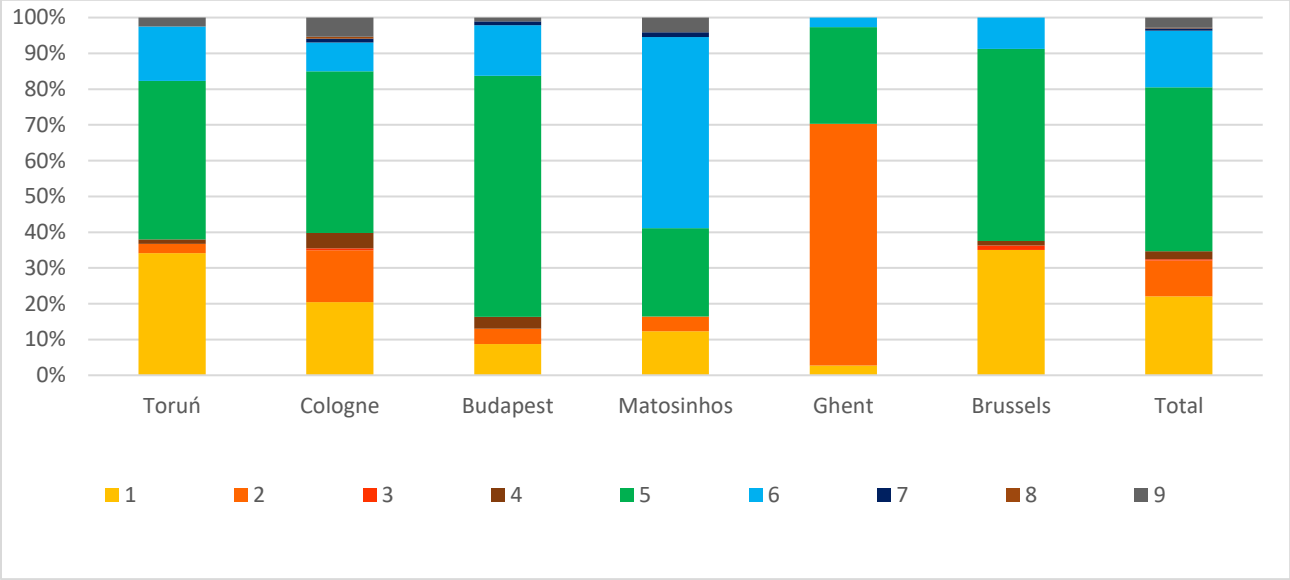
Source: Own elaboration on the basis of the questionnaire survey

In general terms, the ways in which young people travel to the places where they most frequently spend their free time after school are largely similar to those observed in relation to their journeys from home to school on the day of the survey. The most commonly used mode of transport is public transport, used by 45% of respondents (compared with 44% for the school commute), followed by walking at 22% (21% for the school commute), and travelling as a car passenger at 15% (24% for the school commute).

While parents invest considerable time in transporting children to school, their involvement appears to be lower in the context of post-school leisure mobility. In this context, young people more frequently use bicycles (10%).

As in the case of school commutes, similar cross-city patterns can be observed in relation to journeys to leisure destinations. In Budapest, public transport constitutes the dominant mode of travel, whereas in Ghent cycling plays the leading role. In Matosinhos, young people predominantly rely on parental car transport to reach their leisure destinations after school. By contrast, in Brussels, Cologne, and Toruń, walking—alongside the use of public transport—remains a key mode of reaching places where leisure time is spent.

Figure 143 Figure Y.12. The structure of responses to the question: 'How do you move to the place you visit most often after school?'



Explanation: 1 - On foot; 2 - By own bicycle; 3 - By minute-rental bike (city bike); 4 - By a traditional or electric scooter; 5 - By public transport (e.g., bus, tram, subway); 6 - By car, but someone drives me; 7 - By app-based car (e.g., Uber, Bolt, FreeNow) or by taxi; 8 - Not applicable, I don't travel; 9 - Other

Source: Own elaboration on the basis of the questionnaire survey

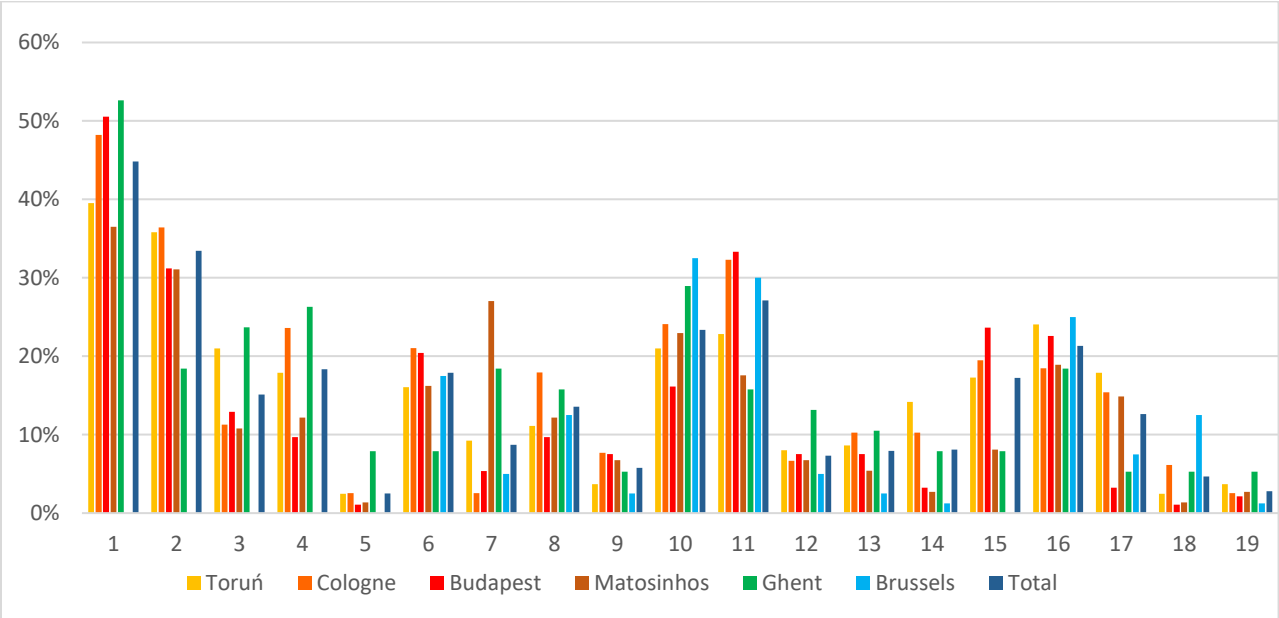
Among the reasons given for how young people travel to after-school leisure destinations, the most frequently indicated factor is that the chosen mode of transport is the fastest (45%), followed by convenience (35%). In both cases, respondents' views are highly consistent across cities, suggesting that time efficiency and comfort constitute the primary criteria guiding mobility choices irrespective of place of residence.

Proximity of a bus stop to the place of residence is identified by 27% of respondents as a key factor supporting the use of public transport. This factor operates in opposite directions in different contexts: in Cologne it facilitates public transport use, whereas in Matosinhos its absence limits it. Other reasons, such as the short distance between home and destination (23%) and the lack of alternative transport options (21%), are reported at similar levels across all cities. Likewise, independence (18%), conformity with peer travel patterns (14%), and the perception that a given mode represents a socially accepted norm (6%) are also mentioned with comparable frequency across the surveyed locations.

Respondents from Toruń more often than those from other cities indicate cost as a key factor, which is consistent with the relatively high share of walking in this city. Young people in Cologne emphasise the freedom associated with their chosen mode of transport, a contrast to Budapest, where public transport users must adhere to fixed timetables and schedules. In Matosinhos and Ghent, respondents more frequently report that their mobility patterns mirror those of their parents, although this translates into different modes of transport in each case—cars in Matosinhos and bicycles in Ghent.

Relatively less importance is attached to safety (7%), environmental concerns (8%), and health and physical fitness (8%) as motivations for travel choices. At the same time, 17% of respondents highlight the possibility of engaging in other activities during travel. This justification is notably less common among Portuguese youth, who report it significantly less frequently (8%).

Figure 144 Figure Y.13. The structure of responses to the question: 'Why do you move this way to the place you visit most often after school?' (multiple choice, %)



Explanation: 1 - It is the fastest way; 2 - It is the most comfortable way; 3 - It is the cheapest way; 4 - I travel when I want; 5 - It is trendy; 6 - I don't have to wait for anyone, I am independent; 7 - My parents travel this way; 8 - My friends travel this way; 9 - Everyone travels this way here; 10 - It is close to home; 11 - I have a stop nearby (bus, tram, or subway); 12 - I feel safe on the road; 13 - I don't pollute the air; 14 - For health and to stay in good condition; 15 - I can do smth (e.g., studying, listening to music, talking to others) during the journey; 16 - I have no other choice; 17 - It depends on the weather; 18 - Not applicable, I don't travel; 19 – Other

Source: Own elaboration on the basis of the questionnaire survey

A further question concerns whether, given full choice, young people would select different modes of transport than those they currently use in everyday mobility. Only one in four respondents stated that, if possible, they would most prefer to use public transport. Notably, this share is considerably lower than the proportions reported for actual daily travel to school and leisure destinations, where public transport is indicated almost twice as often.

Walking is the second most preferred option (16%), although this is also slightly below its reported frequency in school commuting and leisure travel (22% and 21%, respectively). In the case of being driven by car, preferences are broadly aligned with actual experience, with 15% of respondents indicating this option both as a preferred and commonly used mode in leisure contexts.

By contrast, cycling is more frequently indicated as a preferred mode (16%) than its reported use in either school journeys (10%) or leisure travel (6%). Electric or traditional scooters also attract notable interest, despite their marginal role in everyday mobility, with 8% of respondents selecting this option. The strongest preference, however, concerns the possibility of driving a car independently, chosen by 15% of respondents.

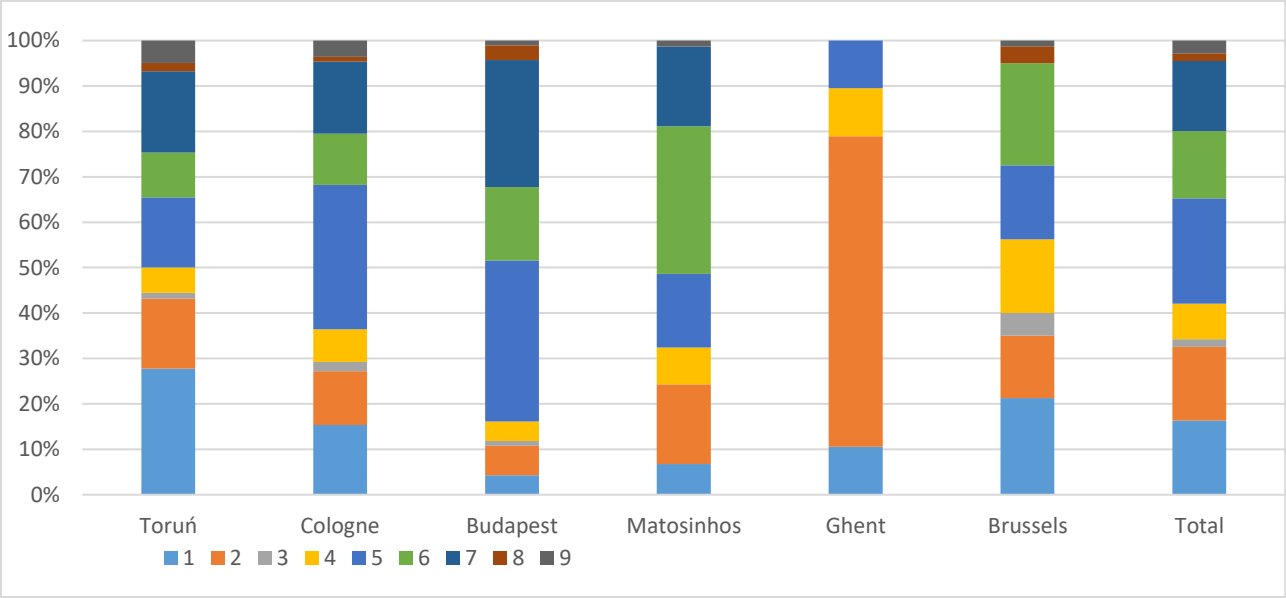
Preferences across cities appear strongly shaped by everyday mobility experiences. In Budapest, where public transport dominates daily travel, young people clearly express a preference for this mode, while also showing interest in driving a car themselves. In Ghent, cycling is the dominant preference, alongside a relatively strong interest in scooters. In Matosinhos, preferences reflect current mobility patterns, with the car—as a passenger and, to some extent, as a driver—emerging as the most frequently indicated option, alongside cycling and scooter use, which may suggest a desire for greater independence.

In Toruń, walking is the most frequently preferred mode, which is consistent with the city's relatively small scale and the accessibility of destinations. Cycling and scooter use are also

commonly indicated. In Cologne, public transport remains the most preferred option, but young people also express a relatively strong preference for independent car use and walking.

In Brussels, respondents would most often prefer walking or travelling as car passengers. It is noteworthy that in both Belgian cities (Brussels and Ghent), driving a car is not among the preferred modes of transport. This may reflect the perceived disadvantages of car use in Belgium, particularly traffic congestion, which likely reduces its attractiveness as a mode of independent mobility.

Figure 145 Figure Y.14. The structure of responses to the question: 'If you could choose, how you would like to move around the city?'



Explanation: 1 - On foot; 2 - By own bicycle; 3 - By minute-rental bike (city bike); 4 - By a traditional or electric scooter; 5 - By public transport (e.g., bus, tram, subway); 6 - By car, but someone drives me; 7 - By app-based car (e.g., Uber, Bolt, FreeNow) or by taxi; 8 - Not applicable, I don't travel; 9 – Other

Source: Own elaboration on the basis of the questionnaire survey

3.3.1.2.4. Making urban space familiar through social interaction

One of the key elements of the study concerned the question of with whom young people most frequently explore both the immediate and the broader urban environment. The

figure presents responses relating specifically to the exploration of the neighbourhood surrounding the place of residence.

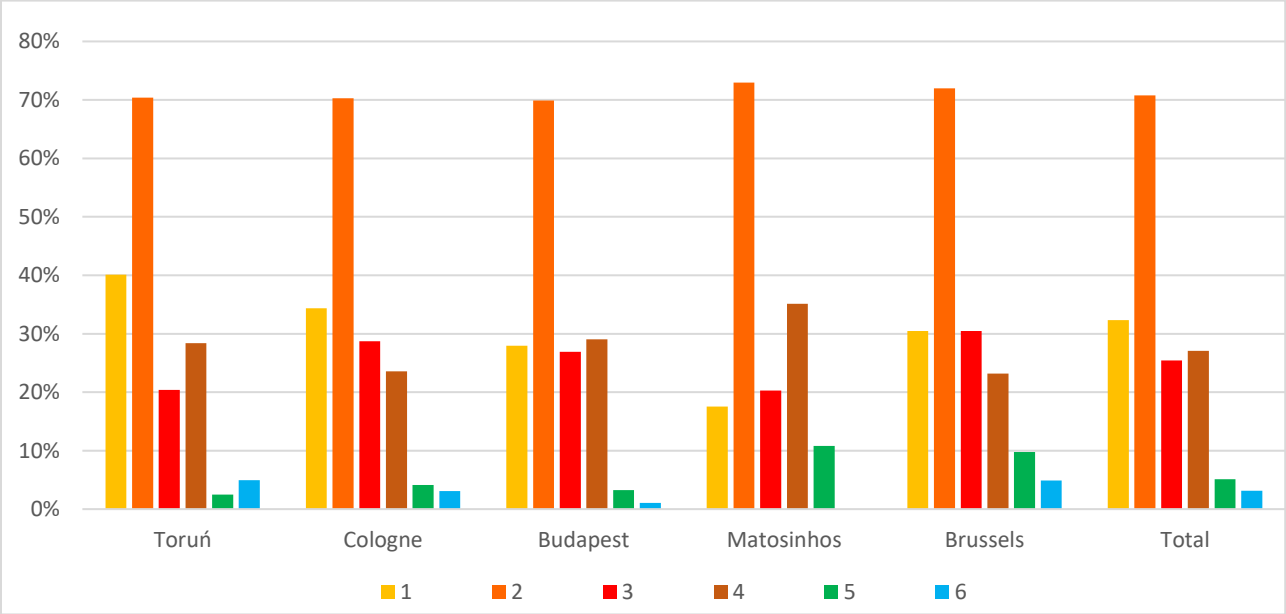
As expected, the largest proportion of respondents indicated that they most often discover their local surroundings with friends (71%). Peers thus constitute the primary companions for exploring the nearest urban space, and this pattern is consistent across all surveyed cities. The second most common mode of exploration is independent walking, reported by 32% of respondents. However, statistically significant differences can be observed between cities in this respect ($\chi^2(4) = 13.880$, $p < 0.01$).

The highest proportion of solitary exploration is recorded among young people in Toruń, where as many as 40% reported that they most often explore their immediate surroundings alone. In Brussels, Budapest, and Cologne, the proportion is similar to that observed in the overall sample, whereas significantly fewer respondents in Matosinhos report exploring their neighbourhood independently (17%), which may be linked to the relatively younger age of this group.

Adult family members (parents and grandparents) accompany 27% of respondents during neighbourhood walks, while siblings are indicated by 25%. In both cases, no meaningful differences between cities are observed.

Only 5% of respondents stated that they do not like exploring their neighbourhood. Slightly higher proportions were recorded in Matosinhos (11%) and Brussels (10%), and lower in Toruń (3%) and Budapest (3%). These differences should be interpreted with caution due to violations of assumptions required for statistical testing. A marginal share of respondents (3%) indicated alternative forms of neighbourhood exploration not included in the questionnaire.

Figure 146 Figure Y.15. The structure of responses to the question: 'With whom do you most like to explore (multiple choice): The neighbourhood of your place of residence'



Explanation: 1 – Alone; 2 - With peers; 3 - With siblings; 4 - With adults (parents, grandparents); 5 - I don't like exploring this neighbourhood; 6 - In another way

Source: Own elaboration on the basis of the questionnaire survey

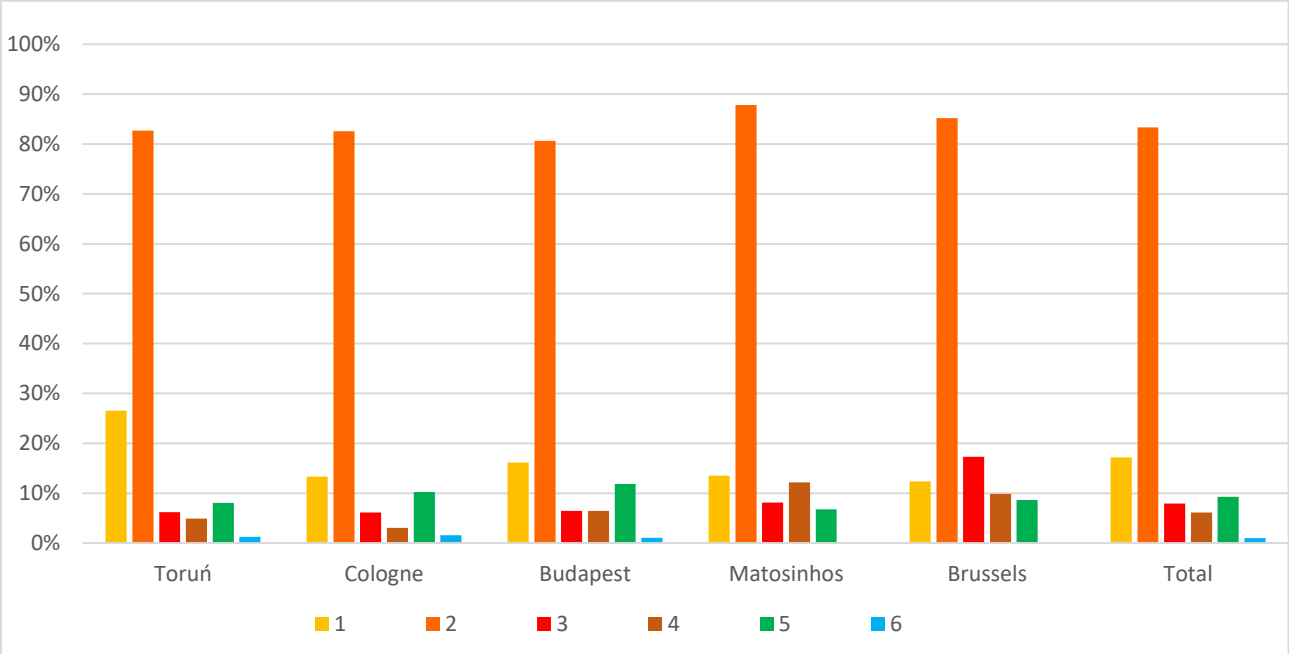
A similar pattern is observed with regard to the exploration of a more distant urban space, namely the area surrounding the school attended by the respondents. Here as well, friends are the most frequently indicated companions for discovering the school environment (83%), and this proportion is consistent across all surveyed cities. The second most common mode of exploration is solitary activity, although its prevalence is considerably lower than in the case of the immediate residential environment (17%). This form of independent exploration is again somewhat more characteristic of young people in Toruń ($\chi^2(4) = 13.287$, $p = 0.01$).

Siblings and adults are less frequently indicated as companions in exploring the school surroundings (9% and 6%, respectively). While no significant differences between cities are observed in the case of siblings, statistically significant variation appears in relation to adults ($\chi^2(4) = 9.653$, $p < 0.05$), with such responses occurring more often among young people in Matosinhos (12%) and less frequently in Cologne (3%).

Attention is drawn to the almost twofold higher proportion of respondents who declared that they do not like exploring the area around their school (9%) compared with the analogous indicator for the neighbourhood of their home. This pattern is consistent

across all cities. This relatively greater reluctance may reflect the fact that school environments are not necessarily perceived as attractive leisure spaces for young people. It may also indicate a more general lack of interest in exploring the surroundings of the school during free time.

Figure 147 Figure Y.16. The structure of responses to the question: 'With whom do you most like to explore (multiple choice): The neighbourhood of your school'



Explanation: 1 – Alone; 2 - With peers; 3 - With siblings; 4 - With adults (parents, grandparents); 5 - I don't like exploring this neighbourhood; 6 - In another way

Source: Own elaboration on the basis of the questionnaire survey

Preferences regarding the exploration of the city in which young people live show a slightly different pattern. As in the case of the home neighbourhood and the school environment, respondents most frequently report exploring their city with friends (80%). However, statistically significant differences can be observed between the surveyed cities in this respect ($\chi^2(4) = 11.828$, $p < 0.01$).

Exploring the city with friends is significantly less frequently reported by young people in Matosinhos (68%). This may be related to the fact that respondents from this Portuguese city more often explore their city with adults (parents or grandparents). Overall, 39% of the total sample indicated such a form of exploration, while among young people in Matosinhos the proportion reaches 50% ($\chi^2(3) = 8.144$, $p < 0.05$). This once again highlights

the specific pattern observed in this subgroup, which appears to rely more strongly on parental involvement both in everyday mobility and in the exploration of urban space.

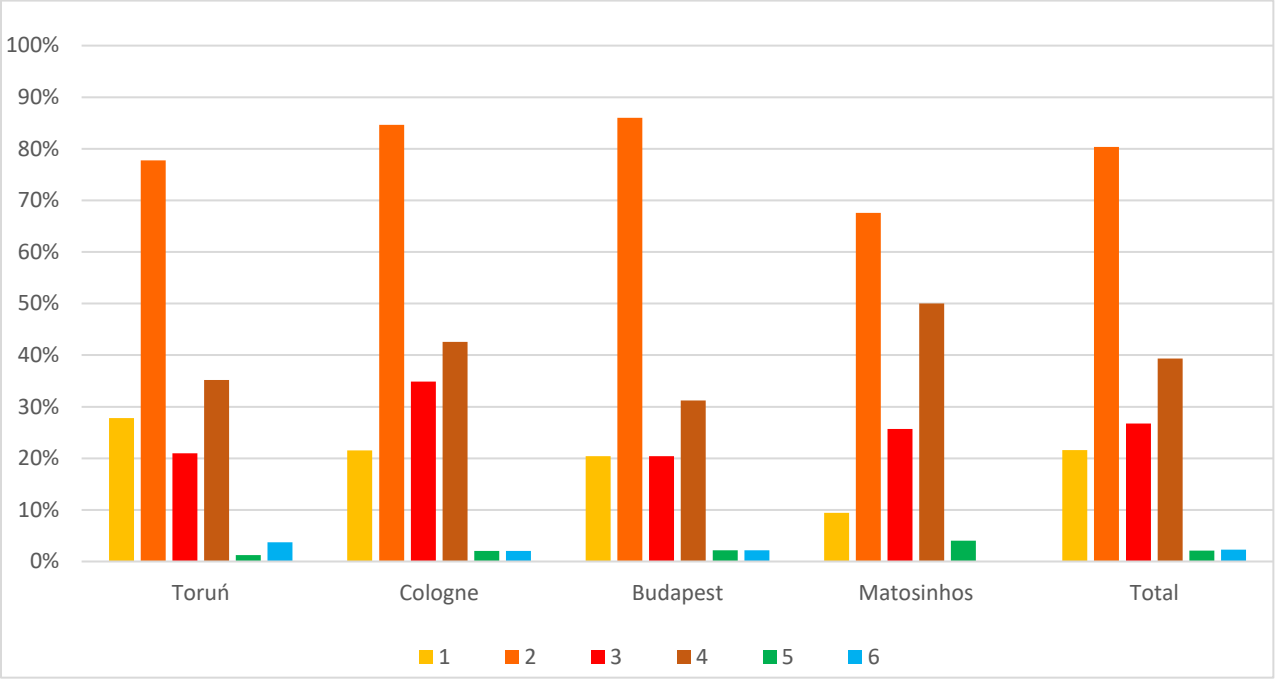
Young people also frequently explore their home city with siblings (27%), who—particularly when older—may act as guides in navigating urban space. Statistically significant differences between cities are observed in this respect ($\chi^2(3) = 11.148$, $p < 0.05$), with the highest proportion recorded in Cologne (35%) and the lowest in Toruń (21%).

Around one in five respondents (22%) explore their city independently, and significant variation is also observed between cities ($\chi^2(4) = 11.242$, $p = 0.01$). This form of exploration is least common among young people in Matosinhos (10%), who, as noted earlier, more often rely on parental accompaniment. By contrast, it is most frequently reported in Toruń (28%).

Only 2% of respondents stated that they do not like exploring their city and do not engage in such activity. This level of disinterest is clearly lower than that reported for the neighbourhood of the home or school environment. This finding appears understandable, as the city as a whole offers young people a wider range of opportunities for leisure and exploration than the immediate residential or school surroundings.

Overall, regardless of whether the reference is the immediate neighbourhood, the school environment, or the city as a whole, friends remain the most common companions in spatial exploration, followed by parents and siblings. Given the age of the respondents, this pattern is entirely consistent with expectations, as peer groups play a central role in adolescents' social experience of everyday life, including their engagement with urban space. A notable proportion of young people also explore these environments independently, with this form of activity most common in Toruń and least common in Matosinhos.

Figure 148 Figure Y.17. The structure of responses to the question: 'With whom do you most like to explore (multiple choice): The entire city'



Explanation: 1 – Alone; 2 - With peers; 3 - With siblings; 4 - With adults (parents, grandparents); 5 - I don't like exploring this neighbourhood; 6 - In another way

Source: Own elaboration on the basis of the questionnaire survey

3.3.1.2.5. Urban aspirations and visions of the future city

The next part of the report is devoted to reconstructing the perceptions and expectations of the young people participating in the study regarding their desired living environment in adulthood. The analysis focuses on the subjective importance of proximity and accessibility of basic urban infrastructure within walking or cycling distance, which constitutes an important indicator of young people's pursuit of autonomy and mobility independence. The empirical material collected enables a comparison of diverse visions of the city of the future – ranging from green and compact urban models, through well-developed public transport systems, to futuristic and technologically advanced motorised solutions. The observed urban aspirations are significantly differentiated across contexts, demonstrating the extent to which the participants' local experiences strongly shape their preferences and imaginaries of the ideal city.

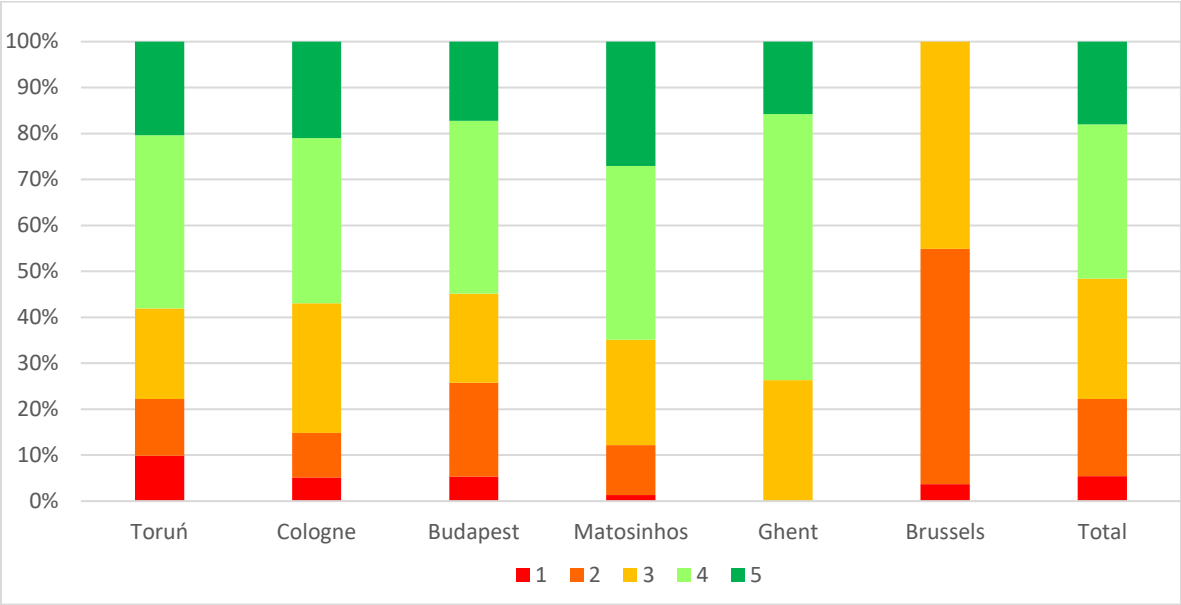
Half (52%) of the young people participating in the study stated that the possibility of reaching school, shops, or leisure destinations on foot or by bicycle is important to them (responses: 'very important' and 'rather important'). Young people therefore value the

freedom and independence associated with being able to reach destinations by themselves, without relying on parental transport or public transport schedules. At the same time, one in five respondents considered the possibility of walking or cycling to destinations to be unimportant.

Some differences in attitudes across cities can be observed ($\chi2(20)=184,941$, $p<0,001$). The importance of independent mobility is particularly pronounced among young people in Ghent, where 16% indicated 'very important' and 58% 'rather important'. Given that young residents of this Belgian city experience daily the autonomy provided by cycling, such responses are fully understandable. A slightly lower, though still high, level of importance is observed among respondents from Matosinhos (65% combined 'very important' and 'rather important'). This relatively high share, compared to other cities, may appear somewhat surprising when considered alongside earlier findings indicating frequent reliance on car-based transport. It is likely that young people in Matosinhos, lacking alternatives, are often dependent on parental transport, which appears to be more a necessity than a choice. Thus, while responses in Ghent reflect a desire to maintain the existing mobility pattern, in Matosinhos they indicate a clear need for change in current mobility conditions.

An interesting case is that of young people in Brussels, the second Belgian city included in the study. The distribution of responses in this city is essentially the reverse of that observed in Ghent. As many as 55% of respondents in Brussels stated that the possibility of reaching destinations on foot or by bicycle is unimportant ('very' or 'rather unimportant'), while a further 45% selected the neutral category ('neither important nor unimportant'). No respondents indicated that this issue was important, just as in Ghent none indicated that independent mobility was unimportant. It is difficult to provide a definitive explanation for these differences between the two populations. They most likely stem from differences in city size and everyday mobility experiences. In the remaining cities, responses were broadly similar. Only in Cologne was the importance of independence and autonomy in urban mobility slightly less frequently considered unimportant compared to Budapest and Toruń.

Figure 149 Figure Y.18. The structure of responses to the question: 'How important is it for you that daily needs (school, shops, places to spend free time) are available within walking or cycling distance from your home?'



Explanation: 1 - Not important at all; 2 - Rather unimportant; 3 - Neither important nor unimportant; 4 - Rather important; 5 - Very important

Source: Own elaboration on the basis of the questionnaire survey

The responses of the young people participating in the study regarding their perceptions of the desirable city in which they would like to live in the future, as adults, are presented below. For 60% of respondents, the city of the future is a green, compact urban environment in which most destinations can be reached on foot. However, this vision is preferred to varying degrees by young people from the different study settings ($\chi2(5)=21.093$, $p=0.001$). It is most frequently indicated by young residents of Toruń (73%) and Budapest (65%) – cities that differ substantially, particularly in terms of size and, consequently, current opportunities for walking accessibility (which are much greater in Toruń than in the Hungarian capital). By contrast, the vision of a green, compact city is least frequently indicated by young people in Brussels (51%).

Next, respondents referred to cities with a modern and well-developed public transport system (44%), accessible from any location within the city ($\chi2(5)=21.347$, $p=0.001$). This vision of the future city is again most characteristic of young people in Budapest (54%) and Toruń (53%), and least characteristic in Brussels (29%) and Matosinhos (32%).

A similar proportion of respondents (42%) identified the city of the future as one in which people move around using modern, fully autonomous electric cars, which in some

respects are already becoming a reality. Here as well, differences across cities can be observed ($\chi2(5)=37.017$, $p<0.001$). This vision is more frequently expressed by young people in Cologne (52%) and Matosinhos (55%), and less frequently in Ghent (22%) and Toruń (28%).

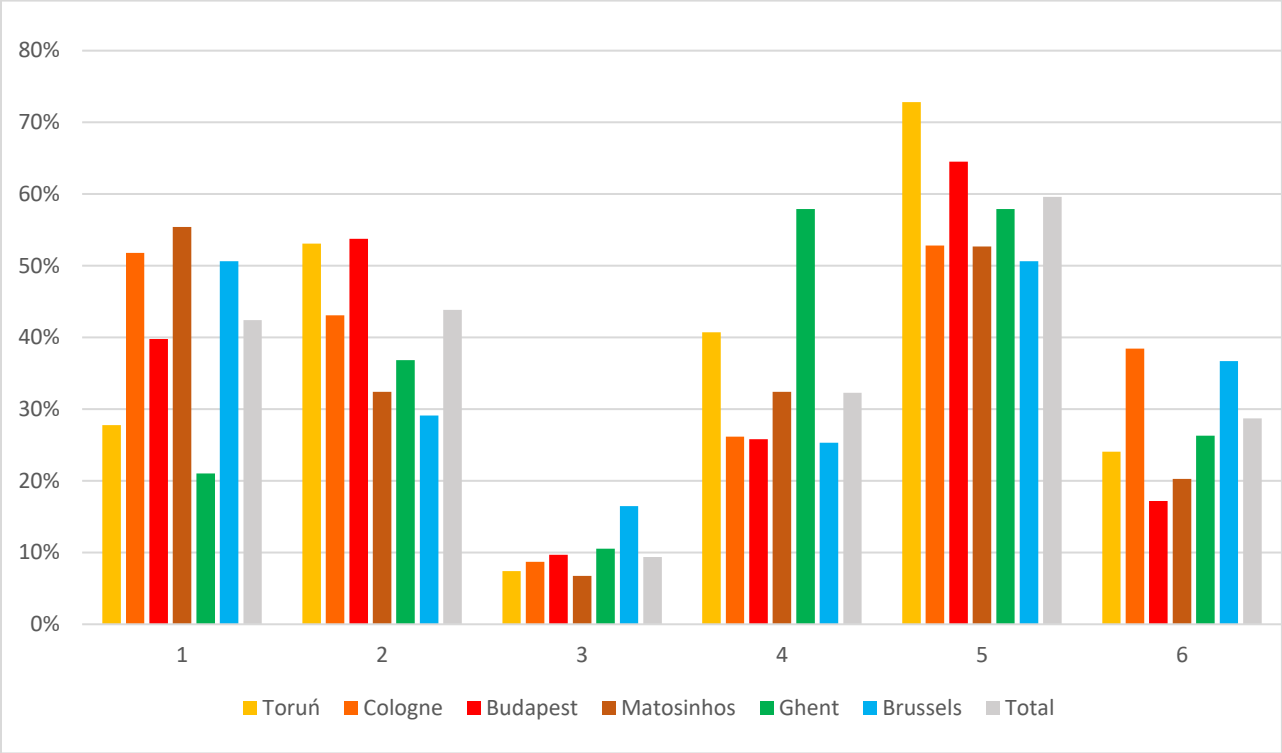
For one in three respondents (32%), the city of the future is one in which a significant share of inhabitants use bicycles, scooters, or skateboards. As expected, this vision is most frequently indicated by young people in Ghent, where 58% expressed a preference for living in such a city in the future ($\chi2(5)=22.761$, $p<0.001$). This vision is also considerably more attractive to young people in Toruń (41%) than in the overall sample, whereas it is less frequently present among respondents in Cologne (26%).

The most futuristic scenario included in the survey – a city with flying vehicles (taxis, drones) transporting people and goods – was indicated by 29% of respondents. The strongest support for such transport solutions in the future is observed among young people in Cologne (39%), for whom flying taxis and drones appear to be an attractive mode of urban mobility ($\chi2(5)=22.198$, $p=0.001$).

The least attractive vision for respondents is that of a shared-mobility city (10%), based on the collective use of cars, bicycles, and scooters. This concept appears to be too abstract for many respondents. Importantly, opinions on this issue are highly consistent across the sample, and the observed differences in response frequencies are not statistically significant.

Overall, Toruń and Budapest are the cities where the preference for a green, compact urban model is strongest. In these contexts, a vision of a future city with modern and widely accessible public transport is also particularly prominent. By contrast, in the two Belgian cities – Ghent and Brussels – more divergent visions of the future city can be observed: in the former, a clear preference for cycling and scooter-based mobility, and in the latter, for autonomous electric vehicles. Brussels, Cologne, and Matosinhos are the cities where acceptance of car-based futures is highest, alongside the lowest interest in a green city enabling safe and extensive use of active mobility modes.

Figure 150 Figure Y.19. The structure of responses to the question: 'What version of the city would you like to live in when you are a grown up? (choose up to 3 options)'



Explanation: 1 - Cool Future Cars – Cars run on electricity and might even drive themselves; 2 - Fast Bus & Train – Buses and trains come often, are quick, and take you everywhere; 3 - Sharing Instead of Owning – Cars, bikes, or scooters are shared with others; 4 - Fun on Bikes & Scooters – Lots of people ride bikes, scooters, or skateboards; 5 - Everything Close & Lots of Nature – You can walk to most places, with lots of trees and parks around; 6 - Flying in the City – Flying taxis and delivery drones move people and stuff quickly through the air

Source: Own elaboration on the basis of the questionnaire survey

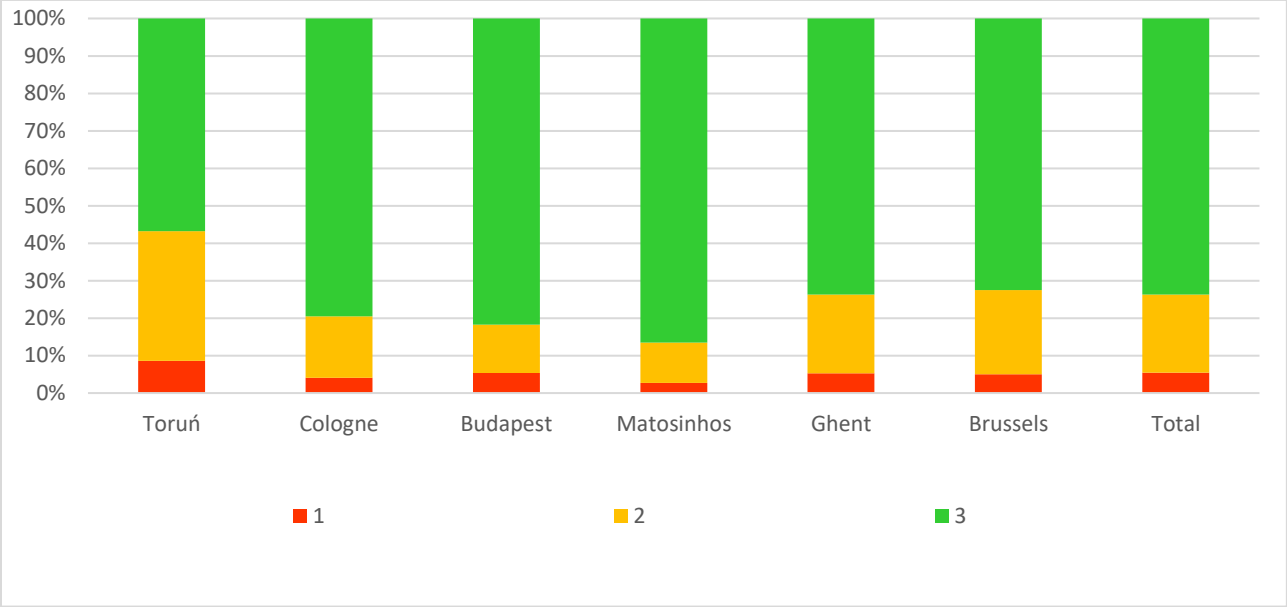
3.3.1.2.6. A sense of place and a sense of safety

One of the key components of the study was an assessment of the sense of place (i.e. feelings of spatial rootedness) and perceived safety among young people in urban space. When asked whether they feel 'at home' in the area of their place of residence, the vast majority of respondents (74%) answered affirmatively, while only 6% reported the opposite. At the same time, some variation can be observed across the cities under study ($\chi2(10)=36.503$, $p<0.001$).

The lowest level of feeling 'at home' in the immediate residential environment was reported among young people in Toruń (57%), among whom 9% indicated that they did not experience such a feeling. By contrast, the strongest sense of belonging to the place

of residence was observed among young residents of Matosinhos (87%) and Cologne (80%). The results for the remaining cities do not differ significantly from the overall pattern observed in the total sample. It is difficult to provide a definitive explanation for the relatively low level of feeling 'at home' among young people in Toruń and the high levels reported in Matosinhos and Cologne. This is certainly not attributable to city size. Other factors, potentially including perceived safety, may play a role, and these will be examined in the subsequent part of the report.

Figure 151 Figure Y.20.1. The structure of responses to the question: 'Do you feel "at home": A. in the neighbourhood where you live?'



Explanation: 1 – Weakly; 2 - Neither weakly nor strongly; 3 - Strongly

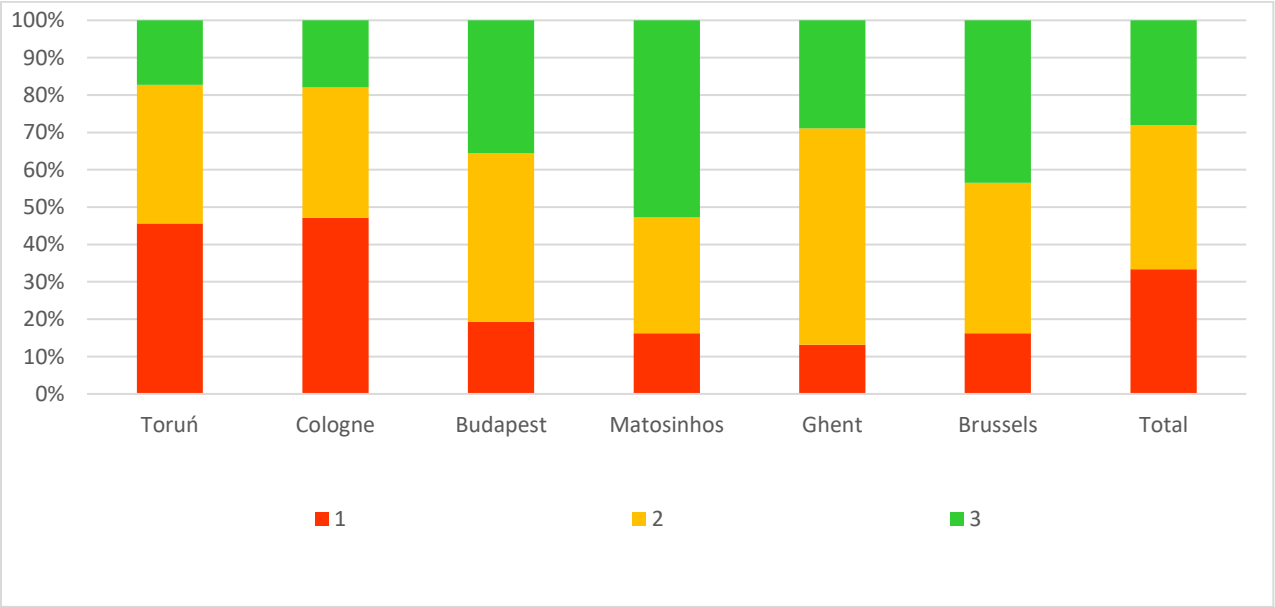
Source: Own elaboration on the basis of the questionnaire survey

Far less frequently (28%) do young people report feeling 'at home' in the area surrounding their school. This feeling is sometimes experienced by 39% of respondents, while for 33% the immediate vicinity of the school is perceived as an alien environment. From the perspective of a large share of young people, the school is most likely not regarded as a welcoming institution, and the associated sense of alienation may extend to its surrounding area.

As in the case of the residential neighbourhood, differences between cities can also be observed regarding the sense of place in the school environment ($\chi2(10)=91.515$, $p<0.001$).

A markedly lower-than-average sense of feeling 'at home' in the school surroundings characterises young people in Toruń and Cologne. In the case of Polish respondents, this continues a previously observed pattern of relatively weak place attachment in both near and broader environments, which may reflect a more persistent lack of identification with urban space. By contrast, the strongest sense of feeling 'at home' in the school environment is observed among young people in Portugal, among whom over half (55%) report feeling this way consistently, and a further 31% occasionally. A somewhat weaker identification with the school surroundings is also observed among young respondents in Brussels.

Figure 152 Figure Y.20.2. The structure of responses to the question: 'Do you feel "at home": B. in the neighbourhood of your school?'



Explanation: 1 – Weakly; 2 - Neither weakly nor strongly; 3 - Strongly

Source: Own elaboration on the basis of the questionnaire survey

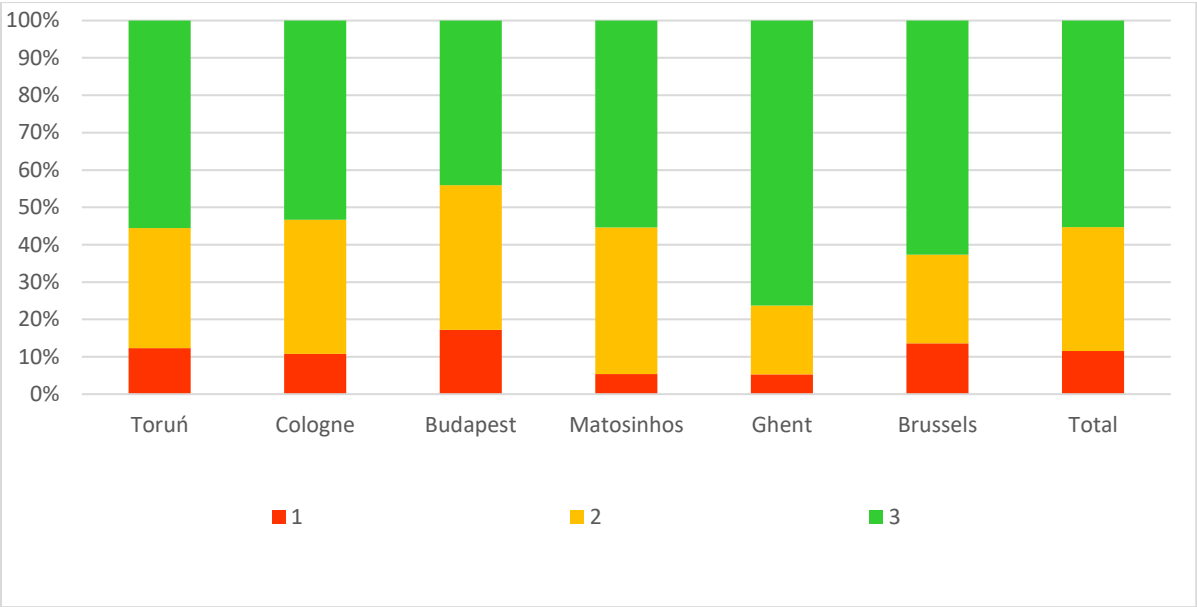
It is noteworthy that the young people participating in the study feel significantly more comfortable in their city than in the vicinity of their school. As many as 62% of respondents stated that they feel it is "their city." Although differences between cities in this respect are not statistically significant, certain tendencies can still be observed (p=0.053).

The strongest sense of identification with one's city is found among young people in Ghent, where as many as 76% feel that it is their city, while only 5% express the opposite view. A slightly lower level of such identification is observed among young people in Brussels, where, alongside a high proportion of respondents who identify with their city,

there is also a noticeable share of those who do not feel that the Belgian capital is their city.

By contrast, the lowest level of city identification is observed among young residents of Budapest, where only 44% feel that it is their city, while 17% express the opposite view.

Figure 153 Figure Y.20.3. The structure of responses to the question: 'Do you feel "at home": C. generally in the entire city, do you feel it is your city?'

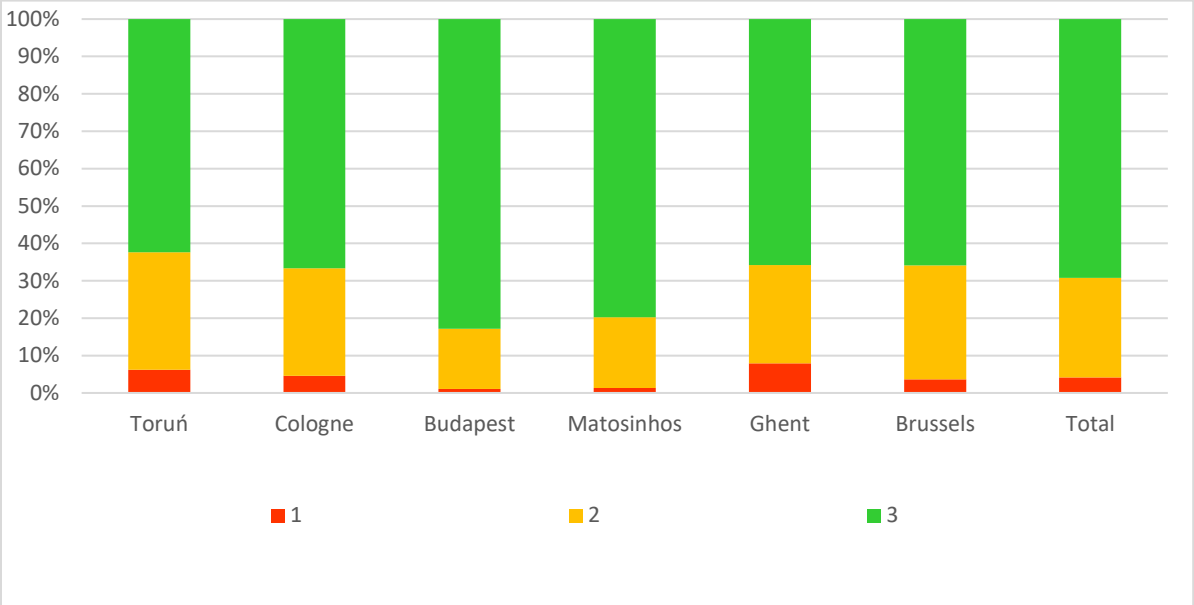


Explanation: 1 – Weakly; 2 - Neither weakly nor strongly; 3 - Strongly

Source: Own elaboration on the basis of the questionnaire survey

Another issue addressed in the study, alongside the sense of identification with the near and broader spatial environments in which young people function, was their perceived safety in the place of residence, the school surroundings, and their city. The vast majority of respondents (69%) feel safe in their place of residence, while only 4% report a sense of insecurity.

Figure 154 Figure Y.21.1. The structure of responses to the question: 'Do you feel safe: A. in the neighbourhood where you live?'



Explanation: 1 – No; 2 - Sometimes yes, sometimes no; 3 - Yes

Source: Own elaboration on the basis of the questionnaire survey

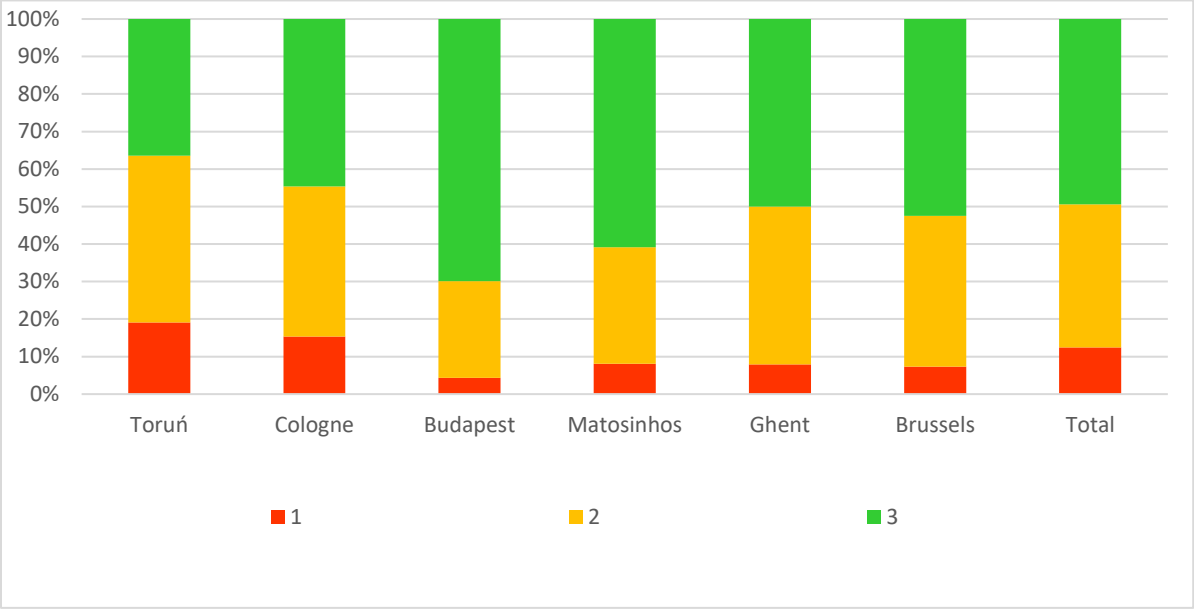
There are clear differences between the cities under study in the extent to which young people feel safe in the immediate vicinity of their home ($\chi2(10)=20.877$, $p<0.05$). The highest levels of perceived safety at the place of residence are reported by young people in Budapest (83%) and Matosinhos (80%). In these cities, only slightly more than 1% of respondents report feeling unsafe. By contrast, the lowest level of perceived safety at the place of residence is observed among young people in Toruń (62%). The previously identified low level of place identification among Polish respondents is most likely linked to this relatively lower sense of safety. Under conditions of perceived insecurity, it is difficult to view the residential environment as a place where one feels 'at home'.

A somewhat lower level of perceived safety (compared to the residential environment) is reported by young people in the area surrounding their school. Less than half of respondents (49%) indicated that they feel safe in this part of urban space, while 12% declared a sense of insecurity in the school surroundings. Here as well, differences between cities can be observed ($\chi2(10)=40.170$, $p<0.001$).

Once again, the lowest level of perceived safety is found among young people in Toruń, where only 36% feel safe in the school area. At the same time, one in five Polish respondents (19%) reports feeling unsafe. It is possible that certain tensions in peer relations, typical of the school environment, are extended beyond the school itself,

thereby reducing the sense of safety in its immediate surroundings. By contrast, the highest levels of perceived safety around schools are reported by young people in Budapest (70%) and Matosinhos (61%)—two markedly different urban contexts.

Figure 155 Figure Y.21.2. The structure of responses to the question: 'Do you feel safe: B. in the neighbourhood of your school?'



Explanation: 1 – No; 2 - Sometimes yes, sometimes no; 3 - Yes

Source: Own elaboration on the basis of the questionnaire survey

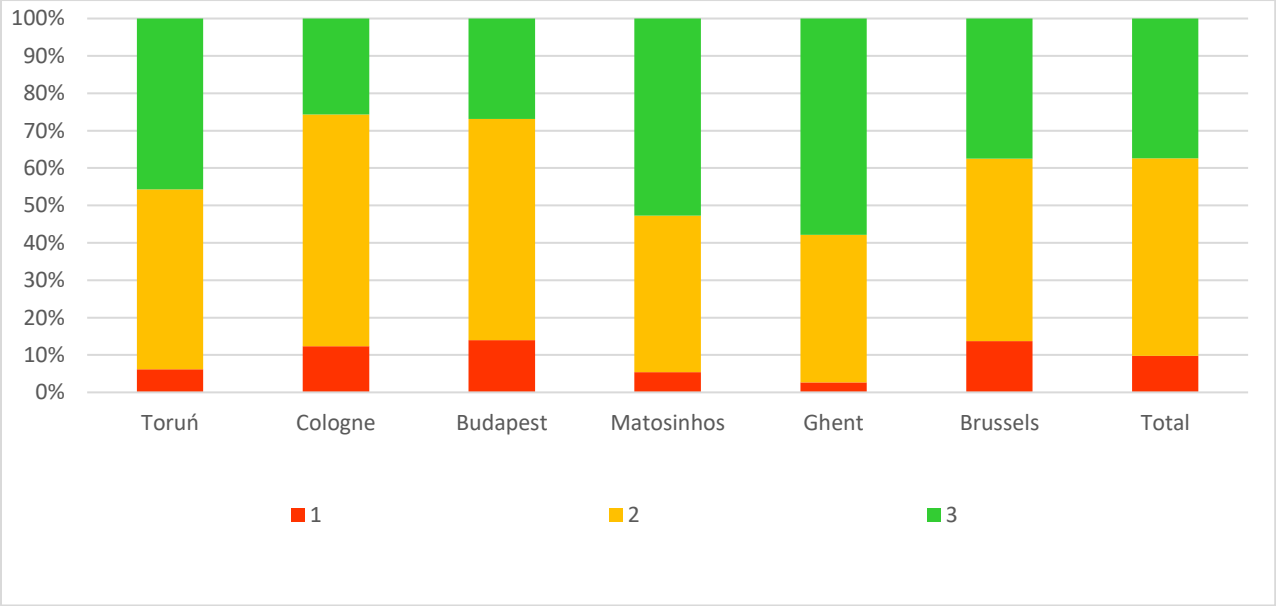
Even lower levels of perceived safety are reported by the young respondents in their city of residence. Only 37% indicated that they feel safe in their city, while a further 53% stated that they feel safe "sometimes yes, sometimes no." In general, as the distance from the home environment increases, young people's sense of safety decreases. The immediate surroundings of the home constitute a familiar and thus domesticated space, whereas the broader urban environment becomes more abstract and less familiar, which in turn reduces the perceived sense of safety.

However, differences across the cities under study should be noted ($\chi2(10)=40.320$, $p<0.001$). The lowest levels of perceived safety in both the residential and school environments were observed among young people living in Toruń. At the same time, when referring to safety in the city as a whole, it appears that young Poles (alongside Portuguese and Belgian respondents in Ghent) feel safer than young people in the remaining cities. The lowest levels of perceived safety are reported among young people

in Cologne (26% stating that they feel safe in their city), Budapest (27%), and, at the level of the overall sample, Brussels.

The differences between these two groups of cities are clearly related to their size and, consequently (particularly in the case of Cologne and Brussels), to greater social diversity, which most likely has a negative impact on young people's perceived sense of safety.

Figure 156 Figure Y.21.3. The structure of responses to the question: 'Do you feel safe: C. generally in your city?'



Explanation: 1 – No; 2 - Sometimes yes, sometimes no; 3 - Yes

Source: Own elaboration on the basis of the questionnaire survey

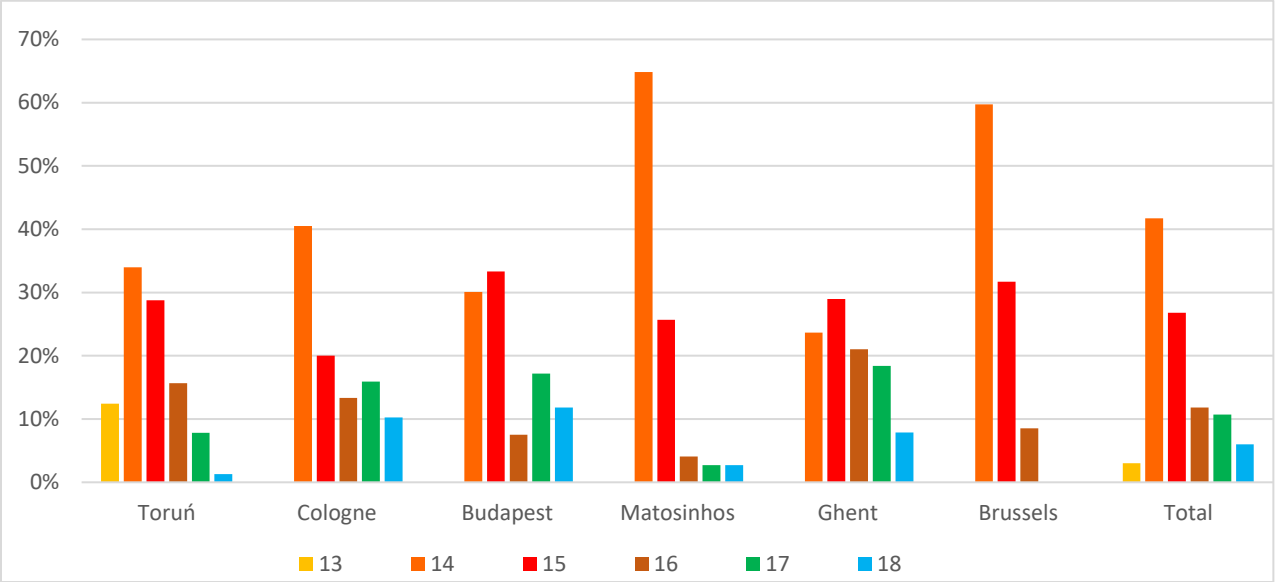
3.3.1.2.7. General characteristics of respondents

The studied population includes young people aged 13 to 18 years, with a total of 635 respondents in this age category. The largest age group consists of 14-year-olds, who account for 41.7% of the entire sample. However, the age distribution shows statistically significant differences between the cities ($\chi2(10)=158.280$, $p<0.001$).

Toruń stands out as the only city in which 13-year-olds participated in the study, representing 12.4% of the local sample. This age group was not represented in the other cities. In contrast, Matosinhos (64.9%) and Brussels (59.8%) show a clear predominance of 14-year-olds, suggesting that in these locations the study predominantly covered specific school cohorts.

Older adolescents (17–18 years) are most strongly represented in Cologne and Budapest. In Cologne, they jointly account for 26.2% of respondents, while in Budapest they constitute as much as 29%. In Brussels, no respondents aged 17 or 18 were recorded, indicating a strong concentration of the sample in younger age groups.

Figure 157 Figure Y.22. The structure of responses to the question: 'How old are you?'

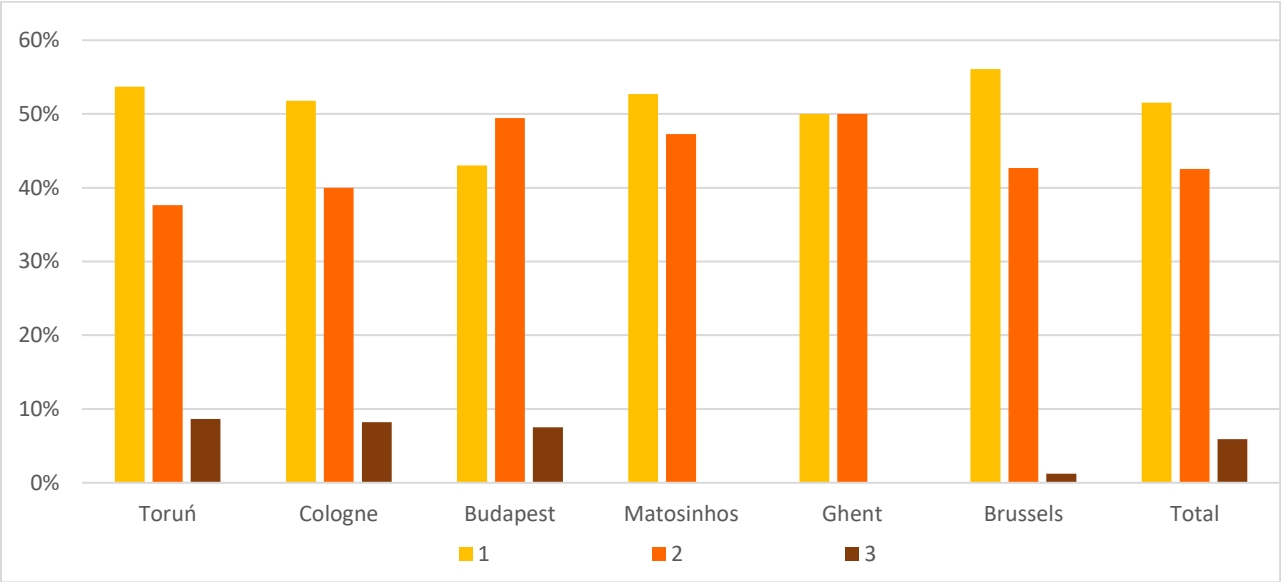


Source: Own elaboration on the basis of the questionnaire survey

The gender structure of respondents is relatively balanced, although with a slight predominance of girls, who account for 51.6% of the total sample. Boys constitute 42.5% of the population, while 5.9% of participants reported another identity or chose not to answer. Statistical tests confirm significant differences across cities in this respect ($\chi2(10)=26.480$, $p<0.003$).

The highest proportion of girls is observed in Brussels (56.1%) and Toruń (53.7%). By contrast, Budapest is the only city in which the share of boys (49.5%) exceeds that of girls (43.0%). It is also noteworthy that the category “Other / Prefer not to say” is most prominent in Toruń (8.6%) and Cologne (8.2%), whereas in Matosinhos and Ghent no respondents selected this option.

Figure 158 Figure Y.23. The structure of responses to the question: 'What is your gender'



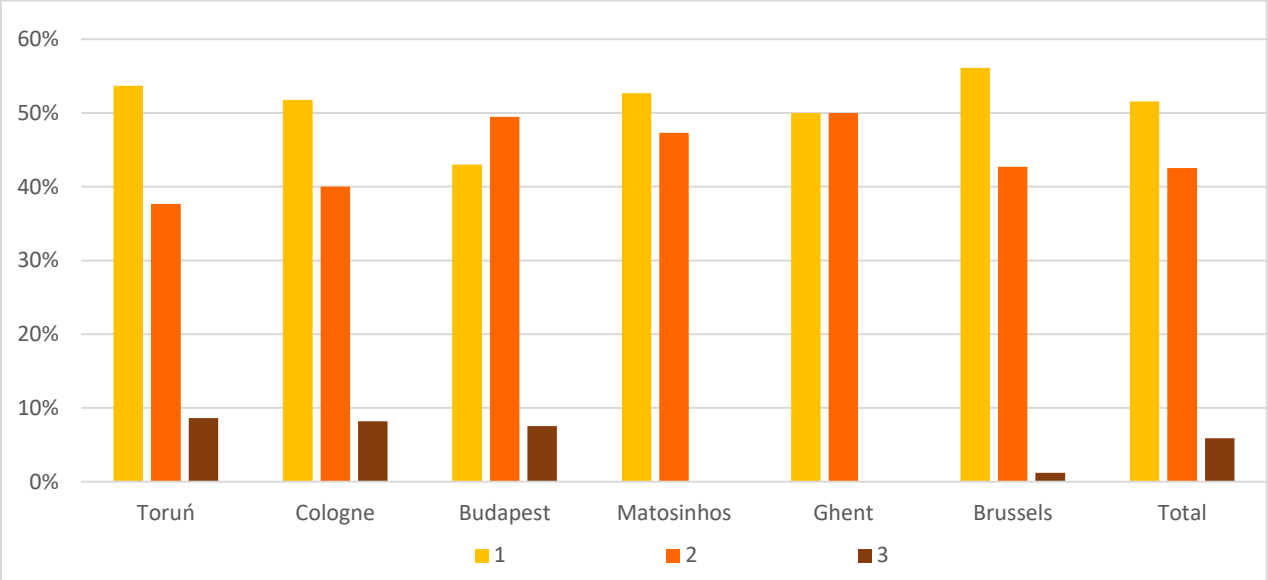
Explanation: Explanation: 1 – Girl; 2 – Boy; 3 - Other / Prefer not to say

Source: Own elaboration on the basis of the questionnaire survey

The analysis of students' place of residence in relation to their school provides important insights into youth mobility. The majority of respondents (55.8%) live in a different district than the one in which their school is located. Only 28.8% of students reside in the same neighbourhood as their school, while 15.4% commute from outside the city limits. Differences between cities in this respect are pronounced and statistically significant ($\chi^2(10)=99.720$, $p<0.001$).

The highest proportion of students living outside the school district but still within city boundaries was recorded in Cologne (as many as 80% of young people). A similar, although less extreme, pattern is observed in Matosinhos (58.1%) and Brussels (52.5%). Toruń is characterised by the highest share of students living in the same district as their school (35.8%), which may indicate a more catchment-based school system or the relatively smaller spatial extent of the city in terms of school distribution. Budapest stands out with the highest proportion of students living outside the city (33.3%). This result is significantly above the average and suggests that schools in Budapest function as educational centres for surrounding localities. A similar tendency, albeit on a smaller scale, can be observed in Ghent (23.7%) and Toruń (20.4%).

Figure 159 Figure Y.24. The structure of responses to the question: 'Where do you live in the city?'



Explanation: 1 - In the same neighbourhood as the school; 2 - In the different neighbourhood as the school; 3 - Outside the city

Source: Own elaboration on the basis of the questionnaire survey

3.3.1.2.8. Summary for youth (14-18 years)

The empirical material collected in the study enables a multidimensional diagnosis of adolescents' mobility patterns in urban space, their sense of place, and their urban aspirations. The findings indicate that young people's everyday transport experiences are largely shaped by a combination of individual preferences, existing infrastructural conditions, and, in many cases, parental decisions.

Key tendencies

Mobility patterns and transport choices

A large majority (90.4%) of respondents regularly use public transport; however, this prevalence varies significantly across the analysed urban contexts. Cycling or scooter use constitutes a daily practice for half of the participants (49.6%). Non-use of public or "active" transport is most often associated with the search for comfort and privacy, as well as objective constraints such as long travel times or adverse weather conditions. At the same

time, more than half (57%) of young people report frequently walking considerable distances.

Social appropriation of urban space

During adolescence, peers constitute the primary social group through which urban space is experienced. Adolescents most frequently explore their neighbourhood (71%), school surroundings (83%), and the city as a whole (80%) in the company of friends. A substantial proportion also explores independently (22%) or, particularly among younger participants, with family members.

Sense of place and safety

The data reveal a clear pattern: perceived safety decreases with increasing spatial distance from the familiar environment of the home towards the more abstract scale of the city. Feeling "at home" in the immediate residential area is reported by 74% of respondents, whereas this drops to 28% in the vicinity of school. While 69% feel safe in their residential area, this figure falls to 37% at the city level.

Urban aspirations

Adolescents strongly value transport independence; for 52% it is important to reach key destinations (school, leisure spaces) on foot or by bicycle. The most preferred visions of future cities are compact, green urban environments (60%) and cities with efficient, well-developed public transport systems (44%). The least attractive model is a shared-mobility-based city, selected by only 10% of respondents.

Characteristics of the analysed urban environments

Brussels: Similar to Cologne in combining walking and public transport, but distinguished by low interest in driving in the future and relatively weaker preference for compact-city models, likely influenced by congestion and urban scale.

Budapest: A large metropolitan environment dominated by extensive public transport infrastructure, which is the primary mode of daily mobility. Walking and cycling are relatively rare. The city combines high perceived safety at home with strong preference for compact, green urban futures.

Cologne: A large urban context combining intensive public transport use with substantial walking activity. Adolescents show strong interest in autonomous mobility technologies and futuristic transport solutions.

Ghent: A city strongly shaped by cycling culture, where the bicycle constitutes the dominant mobility mode for adolescents (68% daily use). This is associated with lower reliance on public transport and a strong sense of place (76%).

Matosinhos: An environment characterised by the dominant role of the private car, with school travel frequently organised by parents. Despite this, adolescents report strong attachment and high perceived safety at home.

Toruń: A mixed-mobility city with balanced use of walking, public transport, and cars. A distinctive feature is the relatively high share of independent spatial exploration. However, the city is also characterised by comparatively lower levels of sense of place and perceived safety.

3.3.1.3. Parents and carers

3.3.1.3.1. Introduction

Parents play a crucial role in shaping children's everyday mobility practices, influencing both travel choices and the degree of independence granted to young people in navigating urban environments. This section focuses on parents' perspectives regarding their children's mobility patterns, access to key destinations, safety perceptions, and the factors affecting everyday travel decisions.

Particular attention is devoted to differences among the six cities included in the study: Toruń, Cologne, Budapest, Matosinhos, Ghent, and Brussels. This comparative perspective allows for an assessment of how local transport systems, urban infrastructure, and broader social and spatial contexts influence parental attitudes and behaviours related to children's mobility.

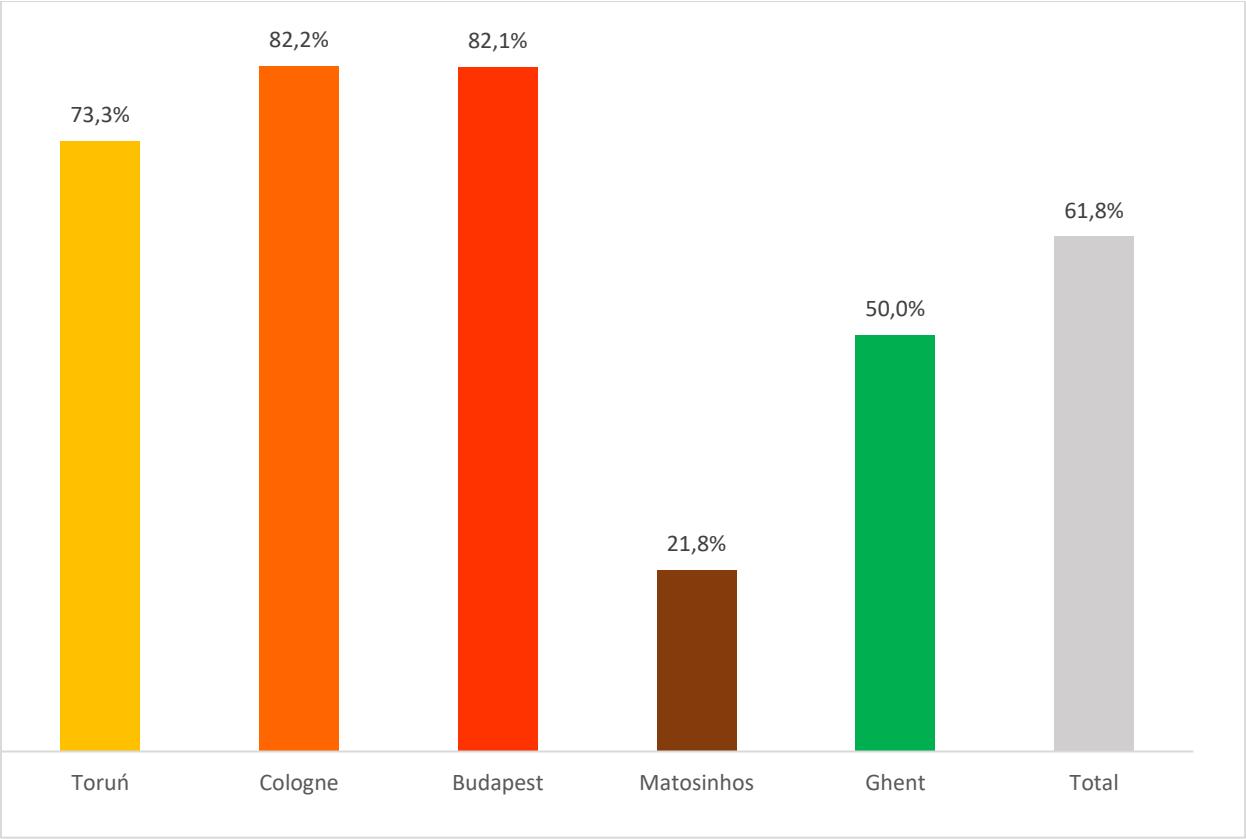
3.3.1.3.2. Daily mobility patterns in the context of the 15mC

Nearly two-thirds of the parents participating in the survey (61.8%) declared using public transport. At the same time, the scale of public transport use differs significantly across the analysed cities. Statistical analysis confirms a significant relationship between respondents' place of residence and the use of public transportation ($\chi^2(4)=78.213$; $p<0.001$).

The highest levels of public transport use were recorded among respondents from Cologne (82.2%) and Budapest (82.1%), where public transportation constitutes an important element of everyday mobility. A relatively high share of public transport users

was also observed in Toruń (73.3%). In contrast, Matosinhos stands out with a markedly lower level of public transport use, reported by only 21.8% of respondents. In Ghent, public transport is used by half of the surveyed participants (50.0%).

Figure 160 Figure P.1. The structure of responses to the question: 'Do you use public transport (e.g., bus, tram, subway)?' (% of "Yes" responses in the total number of all responses)



Source: Own elaboration on the basis of the questionnaire survey

Among respondents who do not use public transport, the most frequently indicated reasons were a preference for other, more private and comfortable means of transportation (40.9%) and excessively long travel times (36.4%). Respondents also relatively often pointed to insufficient service frequency (25.5%) and discomfort or crowding in public transportation (20.9%).

A more detailed analysis demonstrates that the importance of particular barriers varied across the analysed cities. In Matosinhos, infrastructural problems were indicated relatively more often, especially the lack of nearby stops or transport connections (27.9%). Differences between the cities in this respect proved to be statistically significant ($\chi^2(4)=11.362$; $p=0.023$).

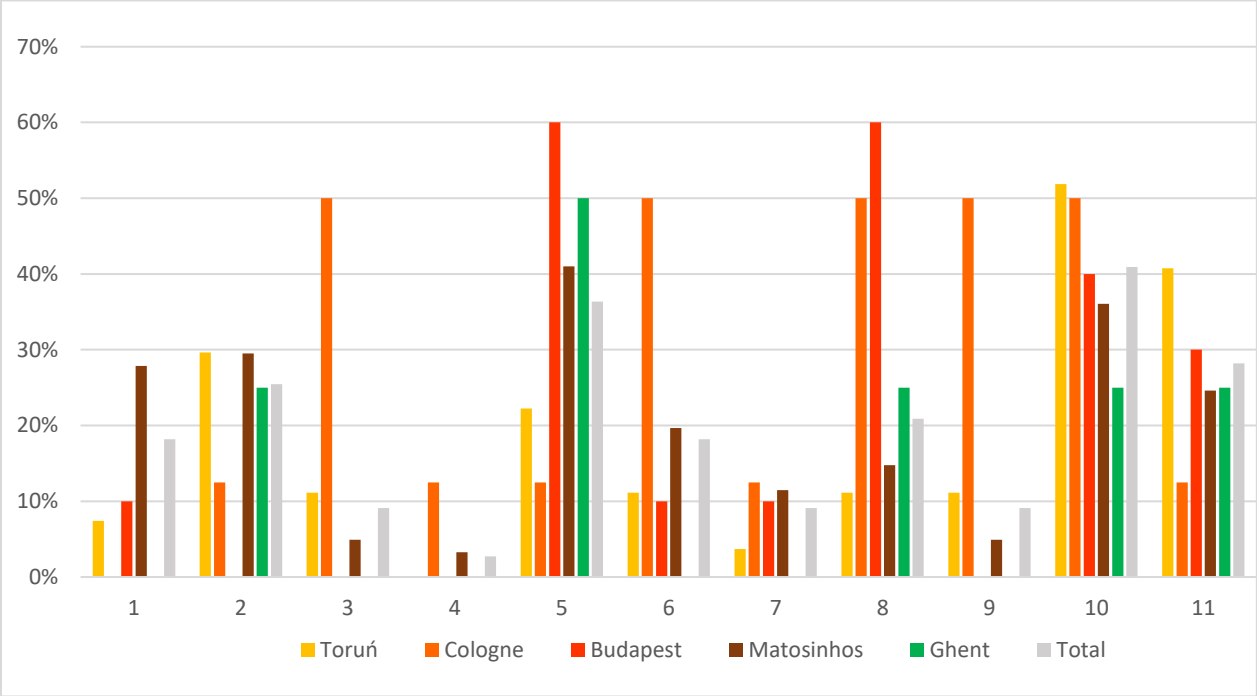
Significant variation was also observed regarding the perceived cost of public transport ($\chi^2(4)=13.169$; $p=0.010$). Respondents from Cologne were considerably more likely than

residents of other cities to indicate that public transport was too expensive (50.0%), whereas this issue was virtually absent in Budapest and Ghent.

Clear differences between the cities were also identified regarding travel comfort ($\chi^2(4)=13.872$; $p=0.008$). In Budapest, as many as 60.0% of respondents who did not use public transport pointed to crowding and lack of comfort, while in Cologne the proportion reached 50.0%. In the remaining cities, this issue was reported considerably less frequently.

For the remaining analysed factors — such as service frequency, long travel times, unpunctuality, weather conditions, or preference for more private means of transportation — no statistically significant differences between the cities were identified.

Figure 161 Figure P.2. The structure of responses to the question: 'What are the main reasons why you DO NOT use public transport?' (multiple choice, 100% = respondents who do not use the public transport)



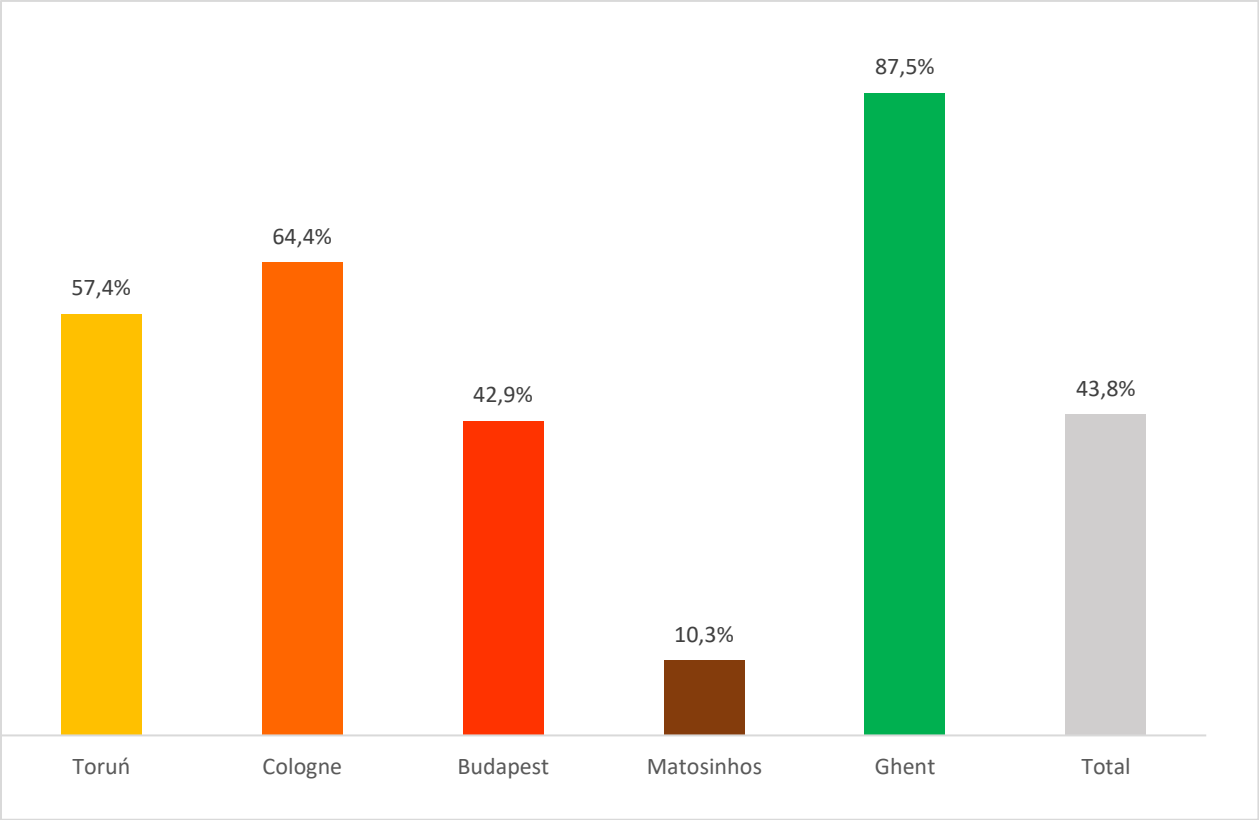
Explanation: 1 - Lack of stops or lines nearby; 2 - Too low frequency of services; 3 - It is too expensive; 4 - I do not know how it works; 5 - Long travel time; 6 – Unpunctuality; 7 - Unfavorable weather conditions; 8 - Lack of comfort, crowding; 9 - Lack of feeling safe; 10 - I prefer other, more private and comfortable means of transport; 11 – Other

Source: Own elaboration on the basis of the questionnaire survey

Travelling by bicycle or scooter was declared by 43.8% of respondents; however, the use of these modes of transport varies considerably across the analysed cities. Statistical

analysis confirms significant differences depending on the respondents' place of residence ($\chi^2(4)=64.287$; $p<0.001$).
The highest level of bicycle and scooter mobility was recorded in Ghent, where 87.5% of respondents reported using these forms of transportation. Relatively high values were also observed in Cologne (64.4%) and Toruń (57.4%).
A noticeably lower share of respondents using bicycles or scooters was identified in Budapest (42.9%), while the lowest level was recorded in Matosinhos, where only 10.3% of respondents declared using these modes of transport.

Figure 162 Figure P.3. The structure of responses to the question: 'Do you travel by bicycle or scooter?' (% of "Yes" responses in the total number of all responses)



Source: Own elaboration on the basis of the questionnaire survey

Among respondents who do not use bicycles or scooters as a mode of transportation, the most frequently reported reasons were a preference for other, more convenient modes of transport (40.7%), a lack of a sense of safety (32.1%), and long travel times (30.2%). Respondents also relatively often pointed to the lack of their own bicycle or scooter

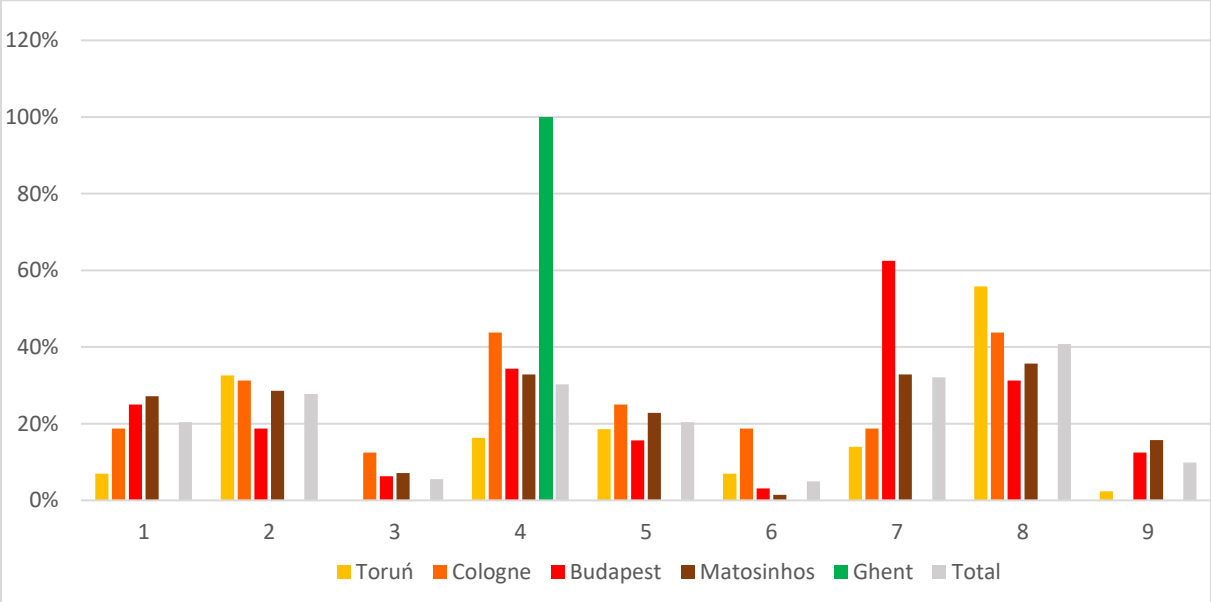
(27.8%) and insufficient cycling infrastructure, including the lack of bicycle paths and bicycle parking facilities (20.4%).

The analysis reveals significant differences between the analysed cities. The most pronounced variation concerned the sense of safety ($\chi^2(4)=22.167$; $p<0.001$). In Budapest, as many as 62.5% of respondents who did not use bicycles or scooters identified safety concerns as an important barrier, compared to 14.0% in Toruń and 18.8% in Cologne. In Matosinhos, this issue was reported by approximately one-third of respondents (32.9%).

Statistically significant differences were also observed for responses included in the "other" category ($\chi^2(4)=9.947$; $p=0.041$), which appeared relatively more frequently in Matosinhos (15.7%) and Budapest (12.5%).

For the remaining analysed factors — such as lack of cycling infrastructure, lack of access to a bicycle or scooter, long travel times, weather conditions, health limitations, or preference for other means of transportation — no statistically significant differences between the cities were identified.

Figure 163 Figure P.4. The structure of responses to the question: 'What are the main reasons why you DO NOT travel by bicycle or scooter' (multiple choice, 100% = respondents who do not travel by bicycle or scooter)

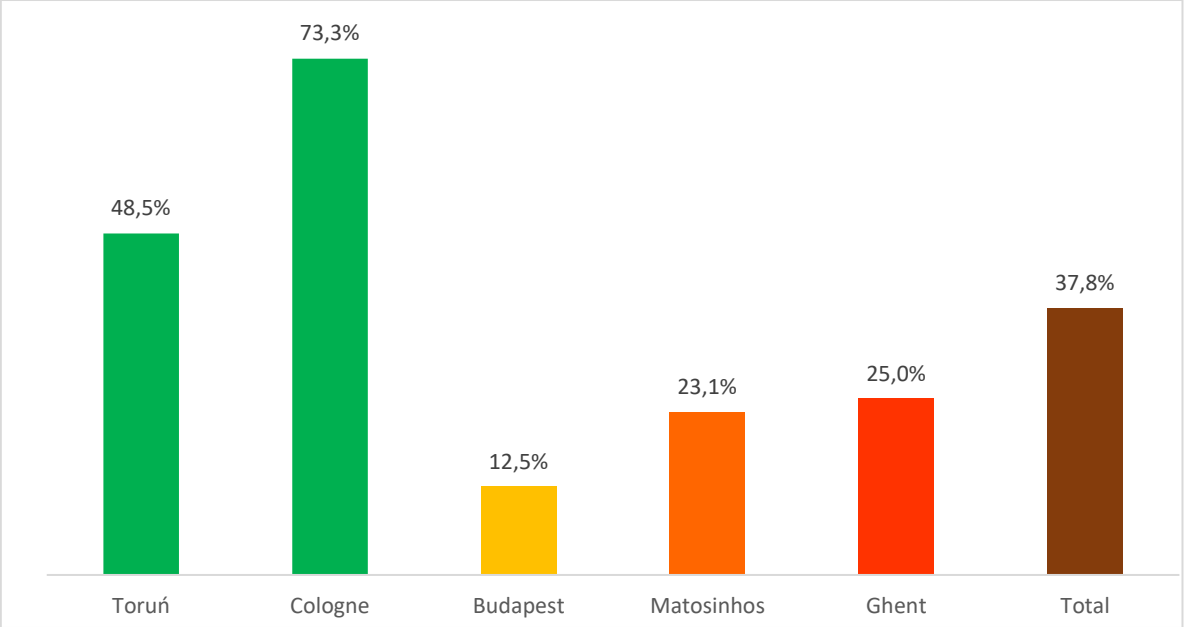


Explanation: 1 - Lack of bike paths or bike parking; 2 - I do not have a bicycle/a scooter; 3 - I cannot ride a bicycle/a scooter; 4 - Long travel time; 5 - Unfavorable weather conditions; 6 - Health limitations; 7 - Lack of feeling safe; 8 - I prefer other, more comfortable means of transport; 9 - Other

Source: Own elaboration on the basis of the questionnaire survey

More than one-third of respondents (37.8%) declared walking the entire route; however, the scale of pedestrian mobility differs considerably across the analysed cities. Statistical analysis confirms significant differences depending on the respondents' place of residence ($\chi^2(4)=54.481$; $p<0.001$).
The highest proportion of respondents declaring that they walk the entire route was recorded in Cologne (73.3%), where pedestrian mobility constitutes an important element of residents' everyday transport practices. A relatively high share of such responses was also observed in Toruń (48.5%).
In contrast, substantially lower levels of pedestrian mobility were identified in Budapest, where only 12.5% of respondents declared walking the entire route. Low values were also recorded in Matosinhos (23.1%) and Ghent (25.0%).

Figure 164 Figure P.5. The structure of responses to the question: 'Do you walk the entire route?' (% of "Yes" responses in the total number of all responses)

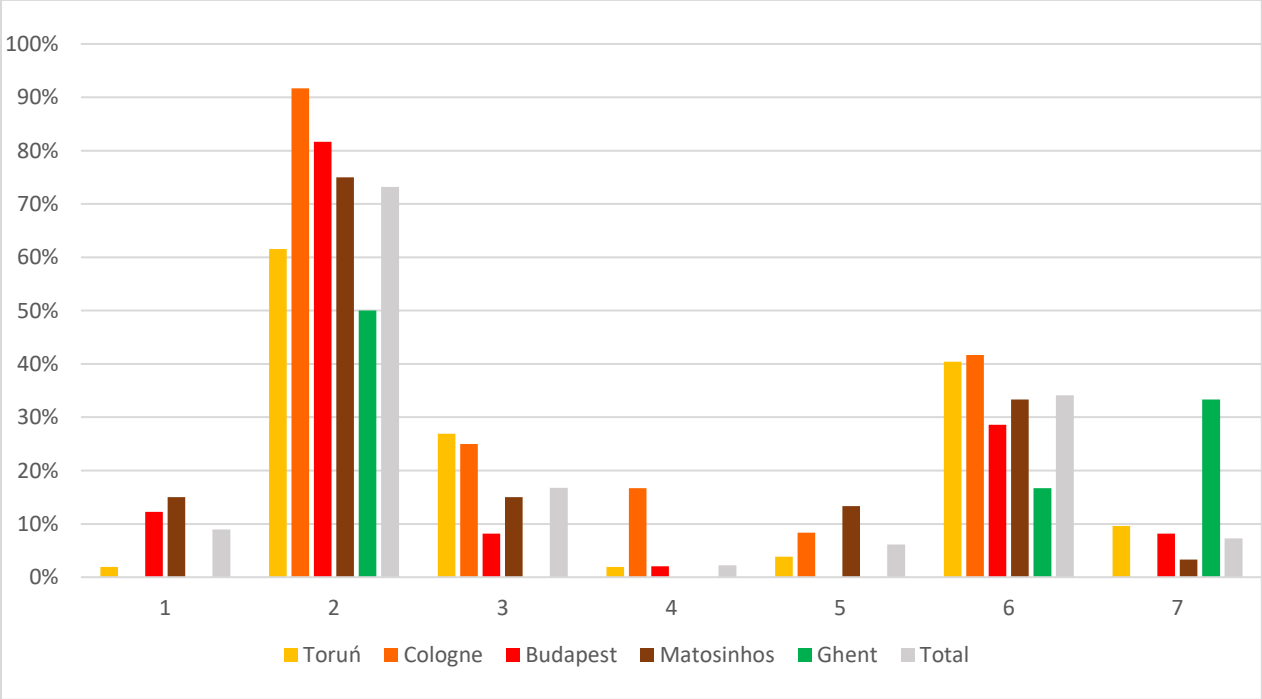


Source: Own elaboration on the basis of the questionnaire survey

Among respondents who do not walk the entire route, the most frequently indicated reason was the long travel time (73.2%). Respondents also relatively often pointed to a preference for other, more convenient means of transportation (34.1%), while unfavourable weather conditions (16.8%), lack of sidewalks or pedestrian infrastructure (8.9%), and lack of a sense of safety (6.1%) were mentioned less frequently.
The analysis reveals noticeable differences between the analysed cities. Statistically significant variation was observed regarding pedestrian infrastructure ($\chi^2(4)=10.756$; $p=0.029$). Respondents from Matosinhos (15.0%) and Budapest (12.2%) were relatively

more likely to indicate the lack of sidewalks as an important barrier limiting walking mobility, whereas this issue was virtually absent in Cologne and Ghent.
Significant differences between the cities were also identified in relation to the sense of safety ($\chi^2(4)=11.719$; $p=0.020$). This issue was reported most frequently by respondents from Matosinhos (13.3%) and Cologne (8.3%), while it was not indicated by participants from Budapest or Ghent.
Although long travel time was the most frequently mentioned barrier across all analysed cities, the differences between them remained at the threshold of statistical significance ($\chi^2(4)=9.434$; $p=0.051$). Particularly high values were recorded in Cologne (91.7%) and Budapest (81.6%).
For the remaining analysed factors — such as weather conditions, health limitations, preference for more convenient means of transport, or responses included in the "other" category — no statistically significant differences between the cities were identified.

Figure 165 Figure P.6. The structure of responses to the question: 'What are the main reasons why you DO NOT walk the entire route' (multiple choice, 100% = respondents who do not walk the entire route)



Explanation: 1 - Lack of sidewalks; 2 - It is too far to walk; 3 - Unfavorable weather conditions; 4 - Health limitations; 5 - Lack of feeling safe; 6 - I prefer other, more comfortable means of transport; 7 – Other

Source: Own elaboration on the basis of the questionnaire survey

3.3.1.3.3. From obligation to leisure: forms of urban travel

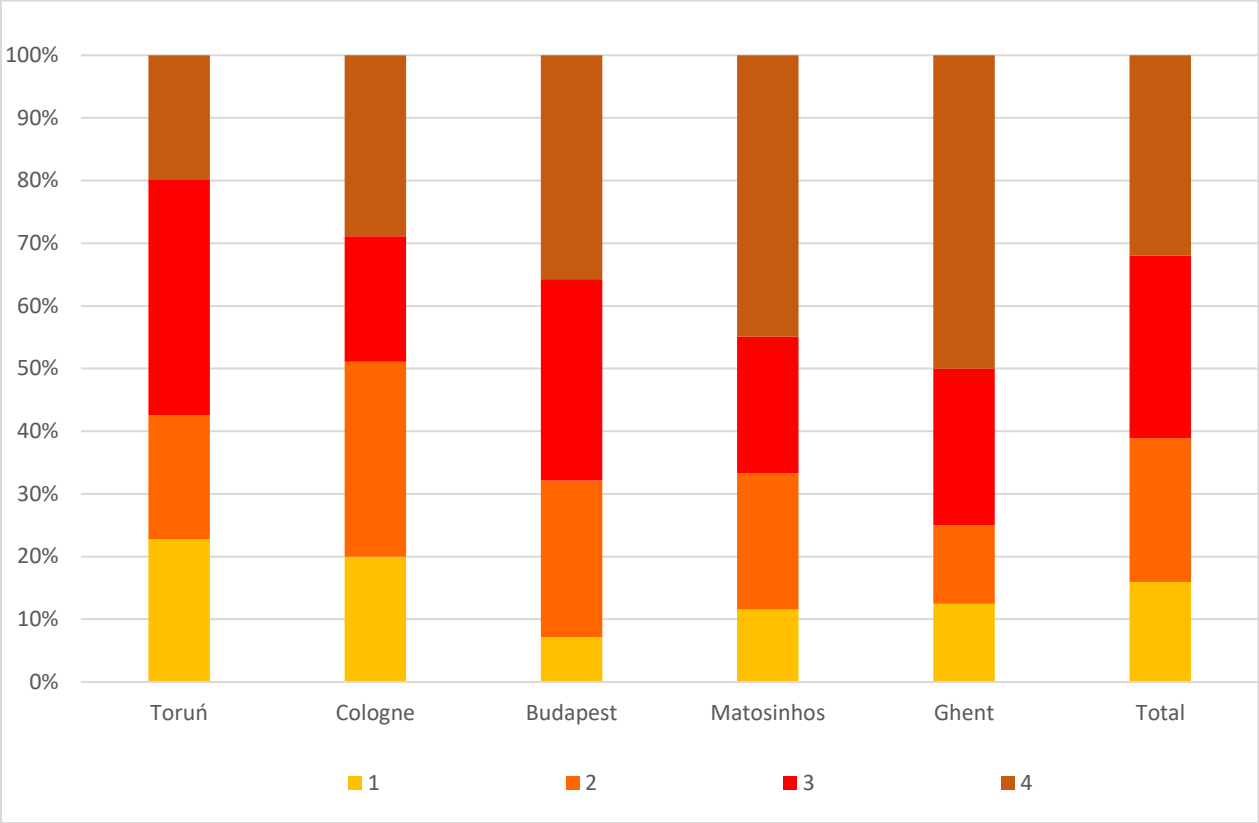
The next section of the report focuses on the spatial analysis of mobility, with particular attention to daily commuting to work or to meet basic needs, as well as mobility undertaken during leisure time.

Walking as a mode of transport for commuting to work or meeting everyday needs plays a moderate role among the surveyed respondents. Only 16.0% of respondents declared walking every day, while 22.9% reported doing so several times a week. The largest groups consisted of respondents walking several times a month (29.2%) and those who never walk in their everyday travel routines (31.9%).

Statistical analysis indicates significant differences between the analysed cities ($\chi^2(12)=25.441$; $p=0.013$). The highest proportion of respondents declaring daily walking mobility was recorded in Toruń (22.8%) and Cologne (20.0%). In Budapest, the share of such responses was considerably lower (7.1%), similarly to Matosinhos (11.5%) and Ghent (12.5%).

Toruń also stood out with a relatively high proportion of respondents declaring that they walk several times a month (37.6%). In contrast, Matosinhos (44.9%) and Ghent (50.0%) recorded the highest shares of respondents declaring that they never walk in their everyday activities. A similar response was indicated by 35.7% of respondents in Budapest.

Figure 166 Figure P.7.1. The structure of responses to the question: 'How do you generally get to work or to meet basic needs: On foot'



Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never

Source: Own elaboration on the basis of the questionnaire survey

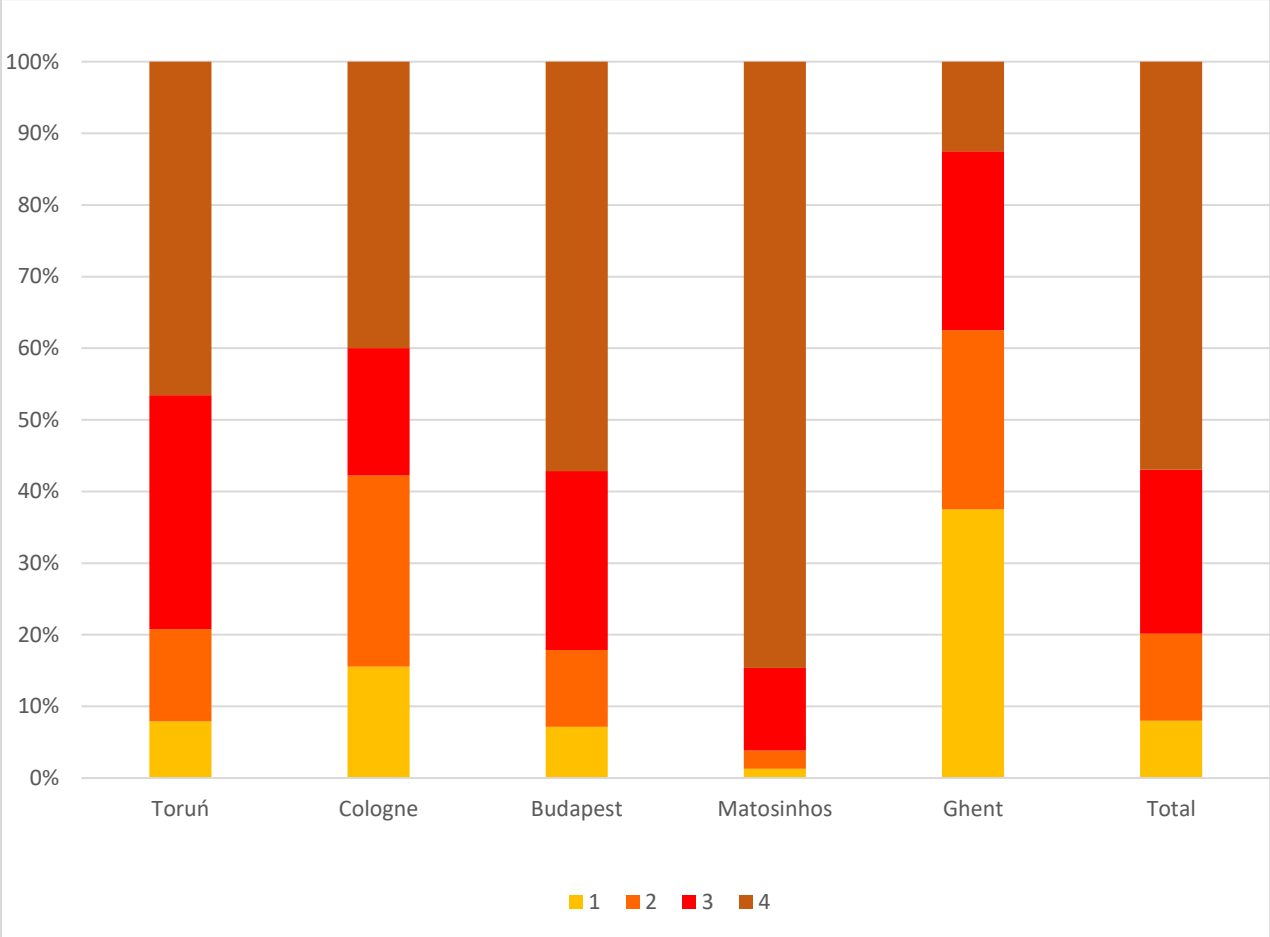
The use of one's own bicycle as a mode of transportation for commuting to work or meeting everyday needs remains relatively limited among the surveyed respondents. Only 8.0% of respondents declared using a bicycle every day, while 12.2% reported doing so several times a week. The largest share of respondents reported never using their own bicycle for everyday travel (56.9%).

Statistical analysis indicates significant differences between the analysed cities ($\chi^2(12)=56.991$; $p<0.001$). The highest level of daily bicycle use was recorded in Ghent (37.5%), clearly distinguishing this city from the other surveyed locations. Relatively high values were also observed in Cologne, where 15.6% of respondents declared using a bicycle every day and 26.7% several times a week.

In contrast, bicycle use as an everyday means of transport was marginal in Matosinhos — only 1.3% of respondents reported using a bicycle daily, while 84.6% reported never using this form of mobility. A high proportion of "never" responses was also recorded in Budapest (57.1%) and Toruń (46.5%). Toruń, however, stood out with a relatively high

share of respondents declaring bicycle use several times a month (32.7%), which may suggest a more occasional character of cycling mobility.

Figure 167 Figure P.7.2. The structure of responses to the question: 'How do you generally get to work or to meet basic needs: By own bicycle'



Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never

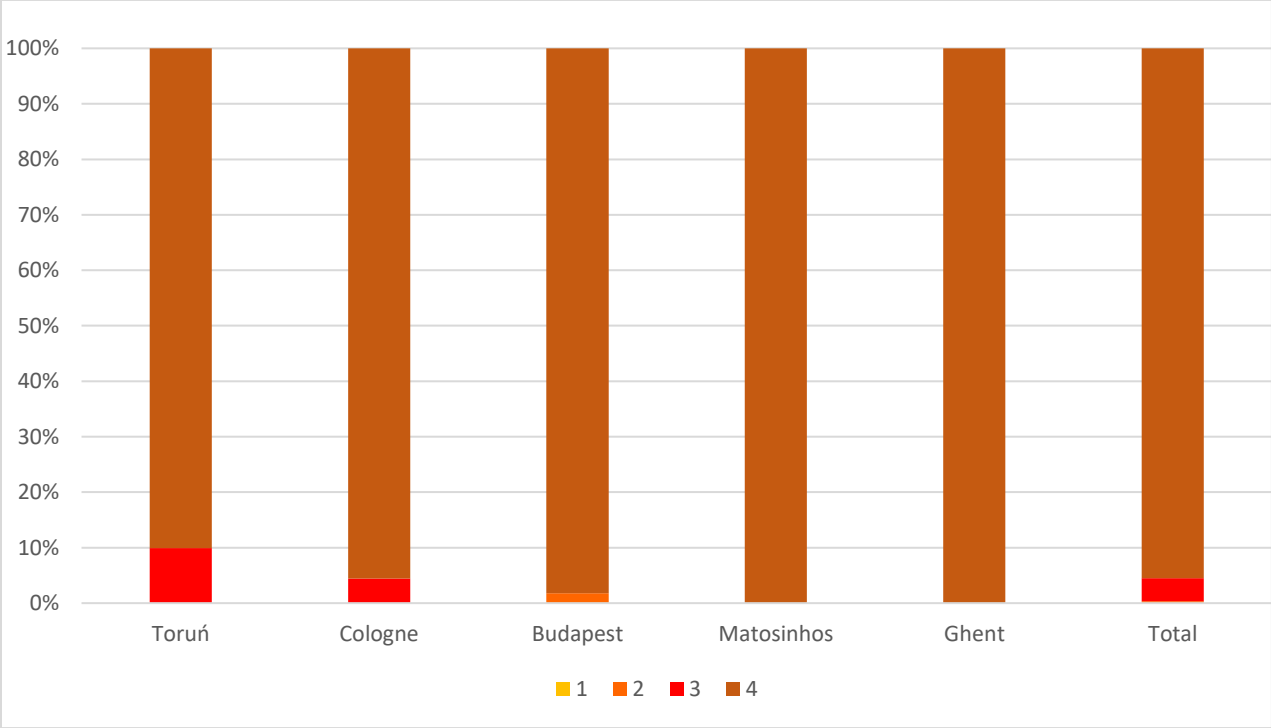
Source: Own elaboration on the basis of the questionnaire survey

The use of city bicycles or short-term rental bicycles for commuting and meeting everyday needs is marginal among the surveyed respondents. As many as 95.5% of participants declared that they never use this form of transport, while only 4.2% reported using it several times a month. Using a city bicycle several times a week was recorded exclusively in Budapest and concerned only single respondents (1.8%).

Statistical analysis indicates significant differences between the analysed cities ($\chi^2(8)=21.381$; $p=0.006$); however, these results should be interpreted with caution due to the very low frequencies observed in several response categories.

The relatively highest level of city bicycle use was observed in Toruń, where 9.9% of respondents declared using this mode of transport several times a month. In Cologne, the proportion reached 4.4%, whereas in Budapest, Matosinhos, and Ghent the use of city bicycles was virtually absent.

Figure 168 Figure P.7.3. The structure of responses to the question: 'How do you generally get to work or to meet basic needs: By city bike (by minute-rental bike)'



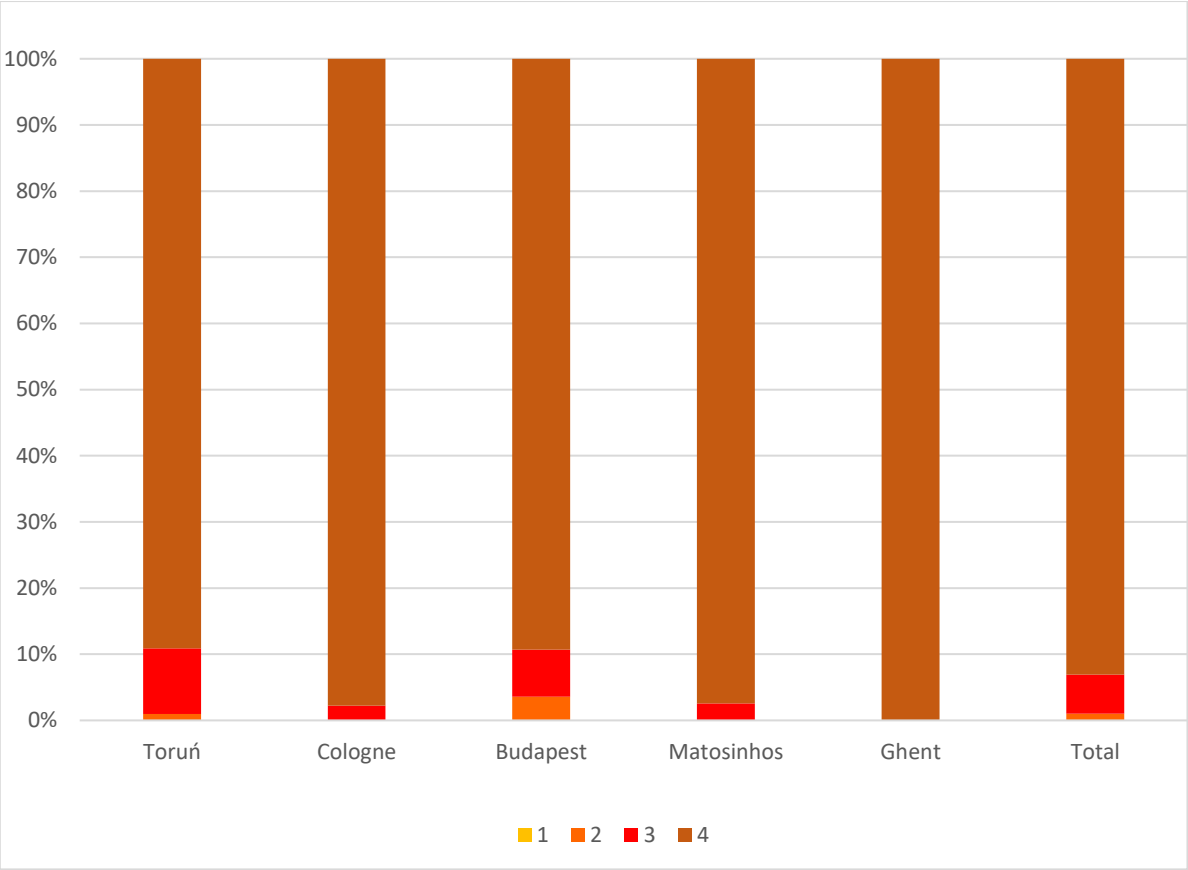
Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never

Source: Own elaboration on the basis of the questionnaire survey

The use of scooters — both traditional and electric — for commuting to work or meeting everyday needs remains very limited among the surveyed respondents. The overwhelming majority of participants (93.1%) declared that they never use this mode of transport. Only 5.9% of respondents reported using scooters several times a month, while regular use several times a week was declared by just 1.0% of respondents.
Statistical analysis did not reveal significant differences between the analysed cities regarding the frequency of scooter use ($\chi^2(8)=11.971$; $p=0.153$). This indicates that the low level of scooter use shows a relatively similar pattern across all surveyed locations.

The relatively highest proportion of respondents using scooters several times a month was recorded in Toruń (9.9%) and Budapest (7.1%). In Matosinhos, the proportion reached 2.6%, while in Ghent none of the respondents declared using scooters in their everyday travel routines.

Figure 169 Figure P.7.4. The structure of responses to the question: 'How do you generally get to work or to meet basic needs: By a traditional or electric scooter'



Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never

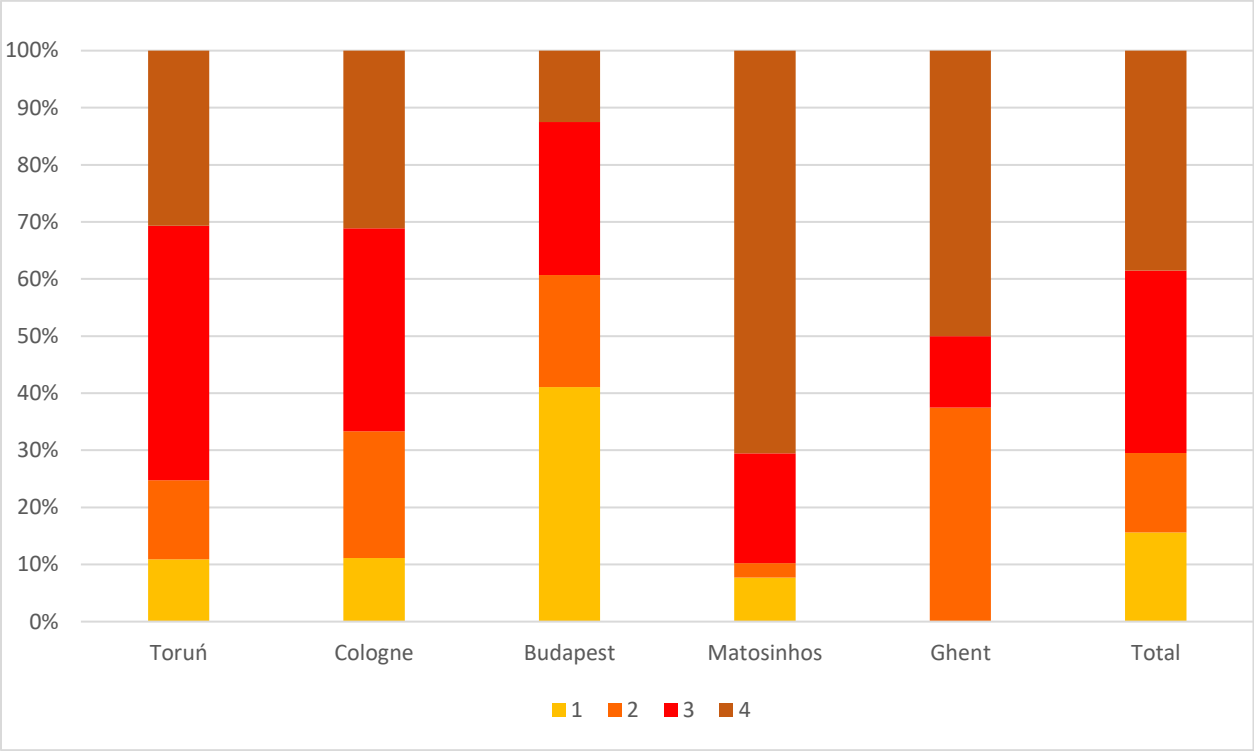
Source: Own elaboration on the basis of the questionnaire survey

Public transport remains one of the important modes of transportation used for commuting to work and meeting everyday needs. Daily use of public transportation was declared by 15.6% of respondents, while another 13.9% reported using it several times a week. The largest group of respondents indicated occasional use of public transport — several times a month (31.9%). At the same time, 38.5% of respondents declared that they never use public transportation in their everyday travel routines.

Statistical analysis indicates very clear differences between the analysed cities ($\chi^2(12)=84.411$; $p<0.001$). The highest level of daily public transport use was recorded in

Budapest, where as many as 41.1% of respondents declared using public transportation every day. This result clearly distinguishes Budapest from the other analysed cities.
A contrasting situation was observed in Matosinhos, where as many as 70.5% of respondents declared that they never use public transport. A relatively high proportion of "never" responses was also recorded in Ghent (50.0%), whereas in Toruń and Cologne these values were considerably lower, reaching 30.7% and 31.1% respectively.
Toruń, in turn, stood out with the highest share of respondents using public transport several times a month (44.6%), which may suggest a more occasional pattern of public transport use. In Cologne and Ghent, respondents relatively more often declared using public transportation several times a week.

Figure 170 Figure P.7.5. The structure of responses to the question: 'How do you generally get to work or to meet basic needs: By public transport (e.g., bus, tram, subway)'



Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never

Source: Own elaboration on the basis of the questionnaire survey

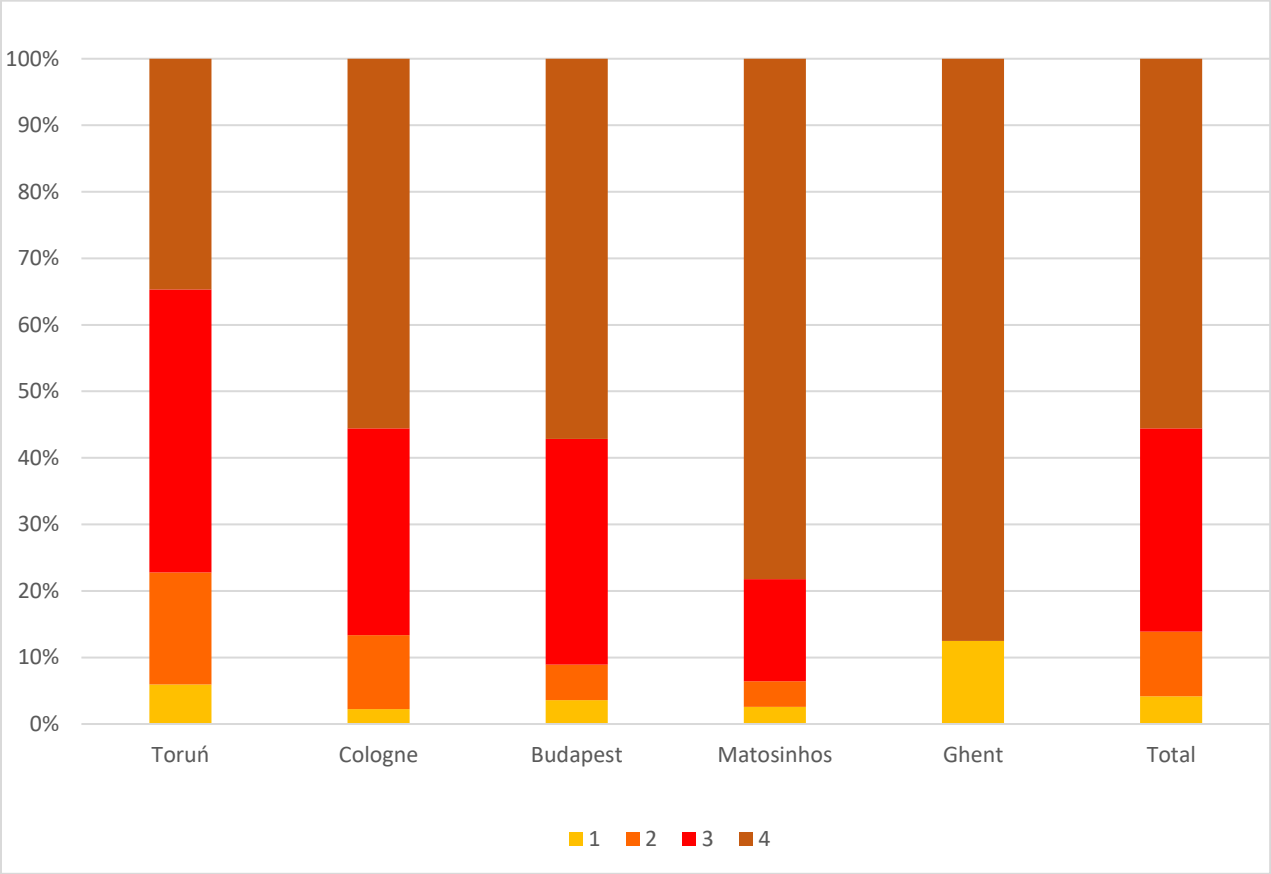
Using a car as a passenger for commuting to work or meeting everyday needs plays a limited role among the surveyed respondents. Only 4.2% of respondents declared using a car as a passenger every day, while 9.7% reported doing so several times a week. The largest group indicated occasional use of this mode of transport — several times a month

(30.6%). More than half of respondents (55.6%) declared that they never travel by car as a passenger.

Statistical analysis indicates significant differences between the analysed cities ($\chi^2(12)=46.877$; $p<0.001$). The lowest proportion of "never" responses was recorded in Toruń (34.7%), suggesting relatively more frequent use of cars as passengers in everyday mobility practices. Toruń also recorded the highest share of respondents declaring the use of this form of transport several times a week (16.8%) and several times a month (42.6%).

In contrast, in Matosinhos (78.2%) and Ghent (87.5%) the overwhelming majority of respondents declared that they never travel by car as passengers. In Budapest and Cologne, the proportion of "never" responses also exceeded half of respondents, reaching 57.1% and 55.6% respectively.

Figure 171 Figure P.7.6. The structure of responses to the question: 'How do you generally get to work or to meet basic needs: By car, but someone drives me'



Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never

Source: Own elaboration on the basis of the questionnaire survey

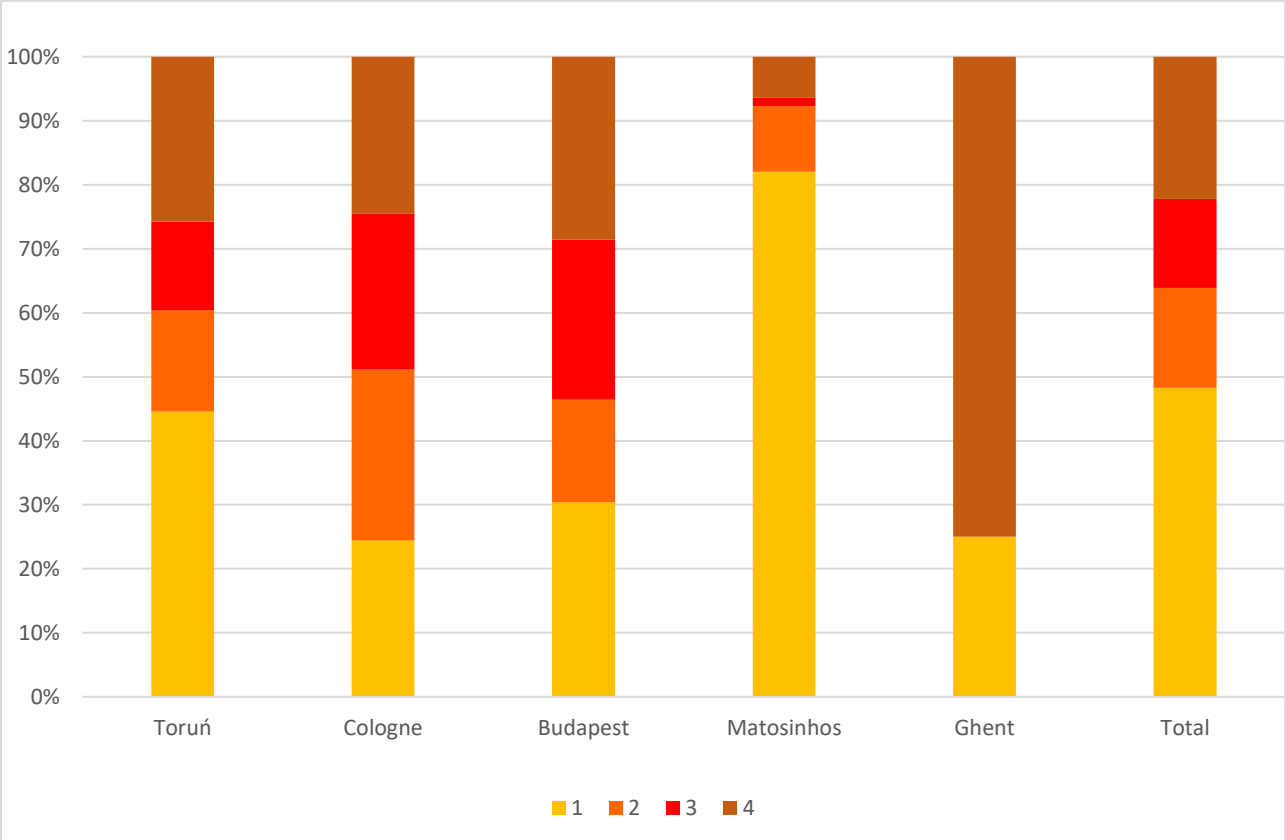
Cars used as a mode of everyday transportation by drivers play an important role in respondents' mobility patterns. Nearly half of the surveyed respondents (48.3%) declared using a car every day for commuting to work or meeting everyday needs. Another 15.6% reported using a car several times a week, while 22.2% indicated that they never use a car as a driver in their daily travel routines.

Statistical analysis indicates very clear differences between the analysed cities ($\chi^2(12)=78.431$; $p<0.001$). By far the highest level of daily car use was recorded in Matosinhos, where as many as 82.1% of respondents declared travelling by car every day. This result clearly distinguishes Matosinhos from the other analysed cities and may indicate a high level of dependence on individual car transport.

A relatively high share of daily car use was also observed in Toruń (44.6%), whereas lower values were recorded in Budapest (30.4%), Ghent (25.0%), and Cologne (24.4%).

At the same time, Ghent stood out with the highest proportion of respondents declaring that they never use a car as a driver (75.0%). In contrast, the share of such responses in Matosinhos was very low, reaching only 6.4%.

Figure 172 Figure P.7.7. The structure of responses to the question: 'How do you generally get to work or to meet basic needs: By car and I drive'



Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never

Source: Own elaboration on the basis of the questionnaire survey

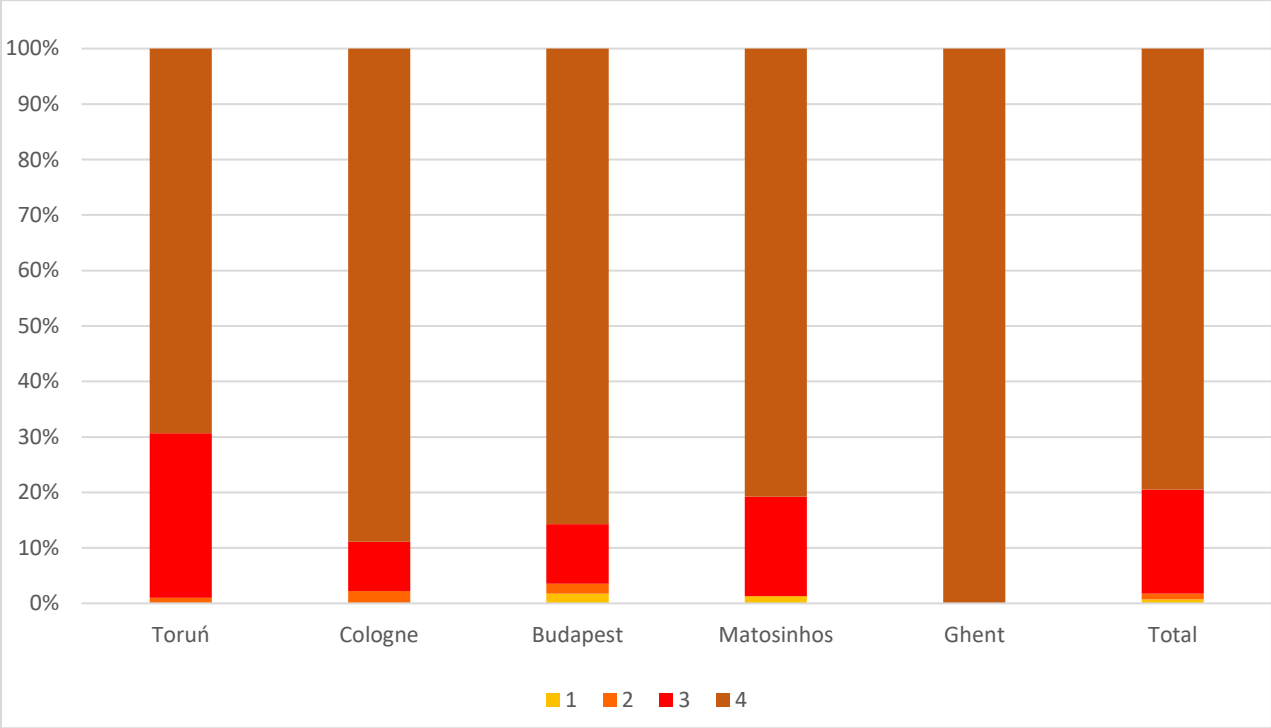
The use of app-based ride-hailing services, such as Uber, Bolt, or Free Now, remains relatively limited among the surveyed respondents. The vast majority of participants (79.5%) declared that they never use this type of transport service for commuting to work or meeting everyday needs. Only 0.7% of respondents reported using such services every day, while 1.0% used them several times a week.

The most frequently indicated pattern of use was several times a month, declared by 18.8% of respondents. Statistical analysis indicates significant differences between the analysed cities ($\chi^2(12)=21.833$; $p=0.039$); however, the findings should be interpreted with caution due to the low frequencies observed in several response categories.

The relatively highest level of occasional use of app-based transport services was recorded in Toruń, where 29.7% of respondents declared using such services several times a month. In Matosinhos, the proportion reached 17.9%, compared to 10.7% in Budapest and 8.9% in Cologne.

In Ghent, none of the respondents declared using this type of transport more frequently than "never," which may indicate the marginal role of ride-hailing services in the everyday mobility practices of the city's residents.

Figure 173 Figure P.7.8. The structure of responses to the question: 'How do you generally get to work or to meet basic needs: By app-based car (e.g., Uber, Bolt, FreeNow) or by taxi

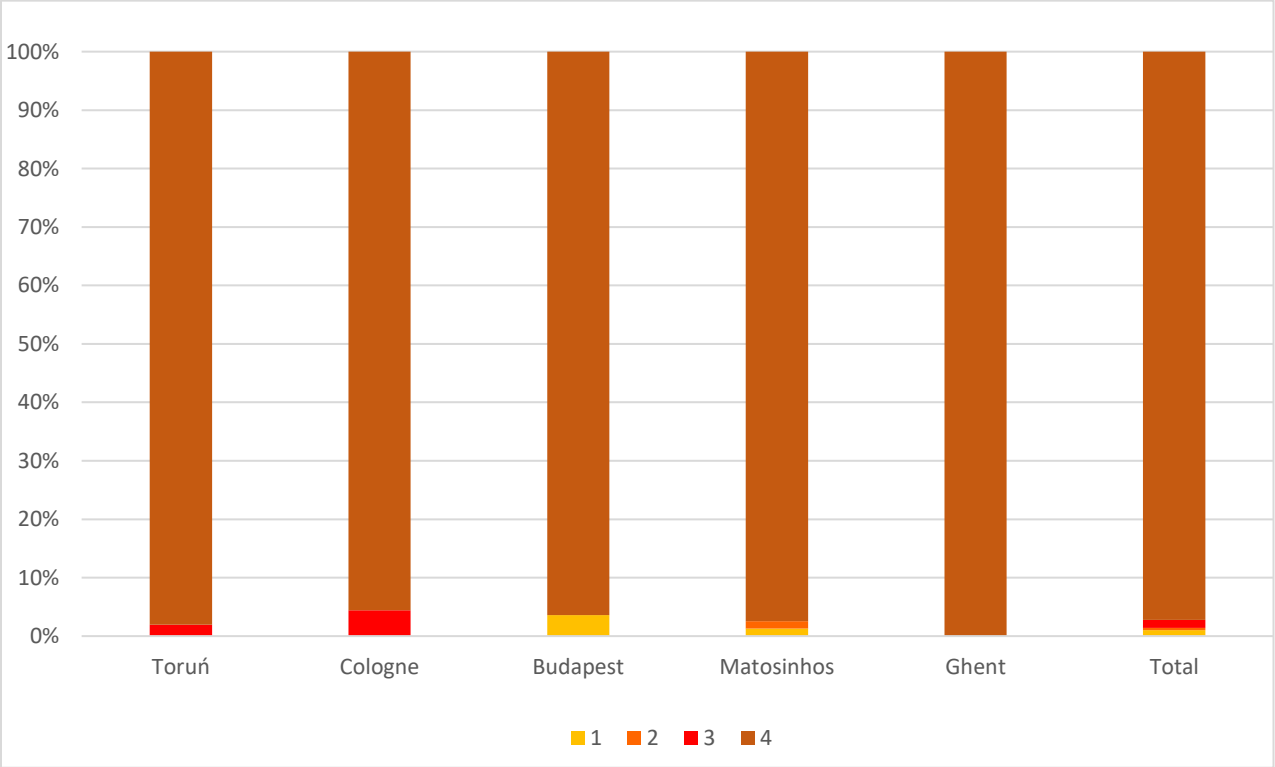


Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never

Source: Own elaboration on the basis of the questionnaire survey

Other forms of transportation used for commuting to work or meeting everyday needs played only a marginal role among the surveyed respondents. The overwhelming majority of participants (97.2%) declared that they never use other, previously unspecified modes of transportation. Only single respondents reported using such forms of mobility every day (1.0%), several times a week (0.3%), or several times a month (1.4%).
Statistical analysis did not reveal significant differences between the analysed cities regarding the use of other forms of transportation ($\chi^2(12)=14.058$; $p=0.297$). This indicates that the marginal character of these mobility practices was relatively similar across all surveyed locations.
Occasional use of other means of transport several times a month was declared mainly in Cologne (4.4%) and Toruń (2.0%), while daily use appeared only in Budapest (3.6%) and Matosinhos (1.3%). However, due to the very low frequencies of responses, these results should be interpreted with caution.

Figure 174 Figure P.7.9. The structure of responses to the question: 'How do you generally get to work or to meet basic needs: Other'



Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never

Source: Own elaboration on the basis of the questionnaire survey

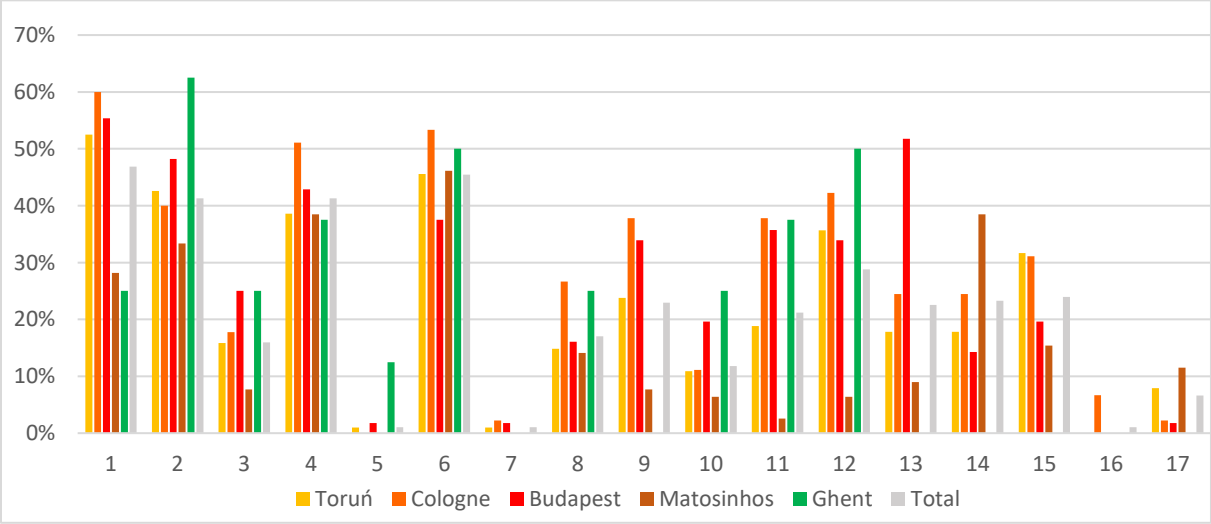
The most frequently indicated reason for choosing a particular mode of transportation for commuting to work or meeting everyday needs was travel speed (46.9%). Respondents also very often highlighted independence and the lack of the need to wait for others (45.5%), travel comfort (41.3%), and the possibility of travelling whenever they wanted (41.3%).

Health-related motives and maintaining good physical condition were also important factors (28.8%), as were weather conditions influencing transport choices (24.0%) and the lack of alternative transport options (23.3%). Respondents relatively less frequently referred to environmental concerns related to reducing air pollution (21.2%) and the availability of a nearby public transport stop (22.9%).

The analysis reveals noticeable differences between the analysed cities. In Cologne, respondents particularly often emphasised freedom of movement and independence (53.3%), as well as environmental considerations (37.8%) and health-related motives (42.2%). Respondents from Budapest relatively more frequently pointed to the possibility of doing other activities during the journey, such as studying, listening to music, or talking to others (51.8%).

In Matosinhos, motivations related to independence (46.2%) and the lack of alternative transport options (38.5%) were dominant, while health-related and environmental aspects were of comparatively lower importance. In Ghent, in turn, travel comfort (62.5%) and health considerations (50.0%) proved particularly significant.

Figure 175 Figure P.8. The structure of responses to the question: 'Why do get to work or to meet basic needs every day in the chosen above way'



Explanation: 1 - It is the fastest way; 2 - It is the most comfortable way; 3 - It is the cheapest way; 4 - I travel when I want; 5 - It is trendy; 6 - I don't have to wait for anyone, I am independent; 7 - Everyone travels this way here; 8 - It is close to home; 9 - I have a stop nearby (bus, tram, or subway); 10 - I feel safe on the road; 11 - I don't pollute the air; 12 - For health and to stay in good condition; 13 - I can do smth (e.g., studying, listening to music,

talking to others) during the journey; 14 - I have no other choice; 15 - It depends on the weather; 16 - Not applicable, I don't travel; 17 - Other

Source: Own elaboration on the basis of the questionnaire survey

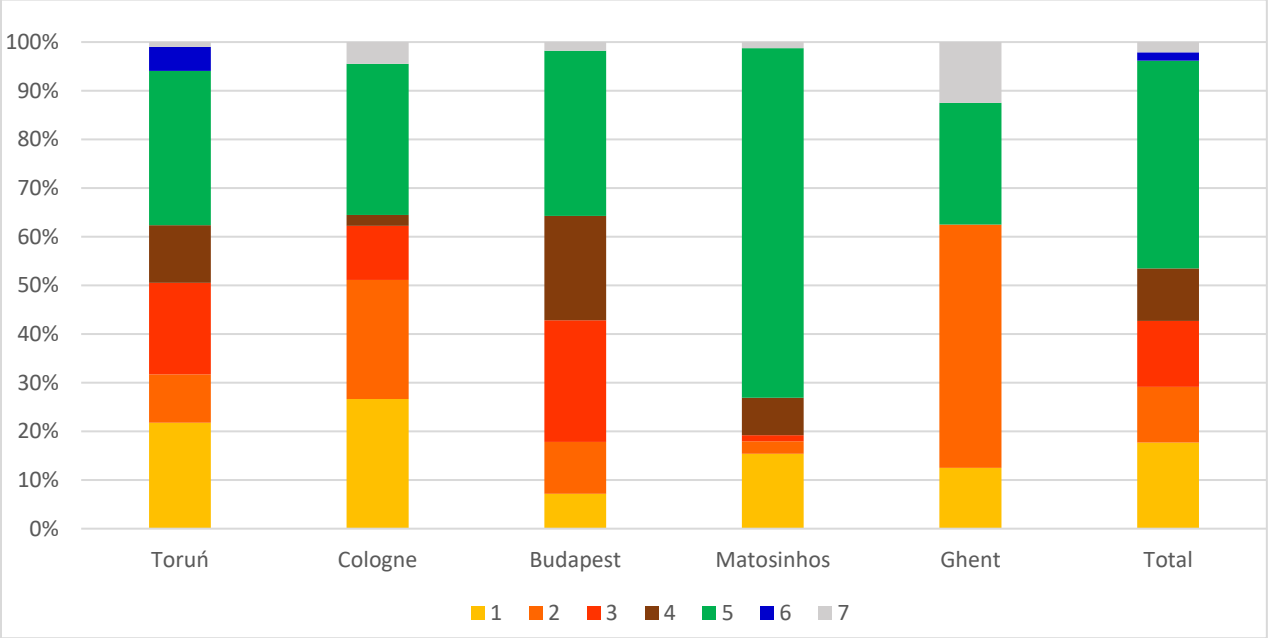
The most frequently indicated mode of transportation used during leisure time was travelling by car as a driver (42.7%). Respondents less frequently declared travelling on foot (17.7%), by public transportation (13.5%), or by their own bicycle (11.5%). Relatively limited importance was attached to travelling by car as a passenger (10.8%), app-based transport services (1.7%), and other forms of mobility (2.1%).

Statistical analysis indicates significant differences between the analysed cities ($\chi^2(24)=94.643$; $p<0.001$). The highest level of car use as a driver was recorded in Matosinhos, where as many as 71.8% of respondents declared using this form of mobility during their leisure time. Relatively high values were also observed in Budapest (33.9%), Toruń (31.7%), and Cologne (31.1%).

Ghent clearly stood out with the highest proportion of respondents declaring the use of their own bicycle (50.0%), confirming the strong position of cycling mobility in the everyday practices of the city's residents. In Cologne, the share of respondents indicating bicycles as a preferred leisure-time transport mode was also relatively high (24.4%).

Respondents from Budapest were relatively more likely to declare the use of public transportation (25.0%) and travelling by car as a passenger (21.4%). In contrast, respondents from Toruń more frequently than in other cities indicated walking as their preferred mode of mobility during leisure time (21.8%).

Figure 176Figure P.9. The structure of responses to the question: ' How do you generally move in your free time (e.g., for meetings with friends, family)'



Explanation: 1 - On foot; 2 - By own bicycle; 3 - By public transport (e.g., bus, tram, subway); 4 - By car, but someone drives me; 5 - By car and I drive; 6 - By app-based car (e.g., Uber, Bolt, FreeNow) or by taxi; 7 - Other

Source: Own elaboration on the basis of the questionnaire survey

The most frequently indicated reasons for choosing a particular mode of transport during leisure time were convenience (37.2%), speed (35.4%), independence ("I do not have to wait for anyone") (35.8%), and the possibility of travelling whenever one wants (31.6%). Health and fitness considerations (23.3%), weather conditions (19.1%), and the belief that a given mode of transport is the cheapest option (12.8%) were also relatively important.

The statistical analysis revealed significant differences between the analysed cities for several motivations related to leisure-time mobility. Respondents from Budapest most frequently indicated speed as the main reason for choosing a means of transport (53.6%; χ^2=12.554; p=0.014), whereas residents of Matosinhos were significantly less likely to consider speed a key factor (24.4%).

Significant differences were also observed in relation to environmental motivations. Caring for the environment was declared most frequently by respondents from Ghent (50.0%) and Cologne (28.9%), while it was rarely mentioned by residents of Matosinhos (2.6%). This relationship was statistically significant (χ^2=28.611; p<0.001).

A similar pattern emerged for health-related motivations. Travelling "for health and good physical condition" was most often indicated by respondents from Cologne (42.2%) and Ghent (37.5%), whereas this reason was much less common in Budapest (12.5%) and Matosinhos (11.5%) (χ^2=21.474; p<0.001).

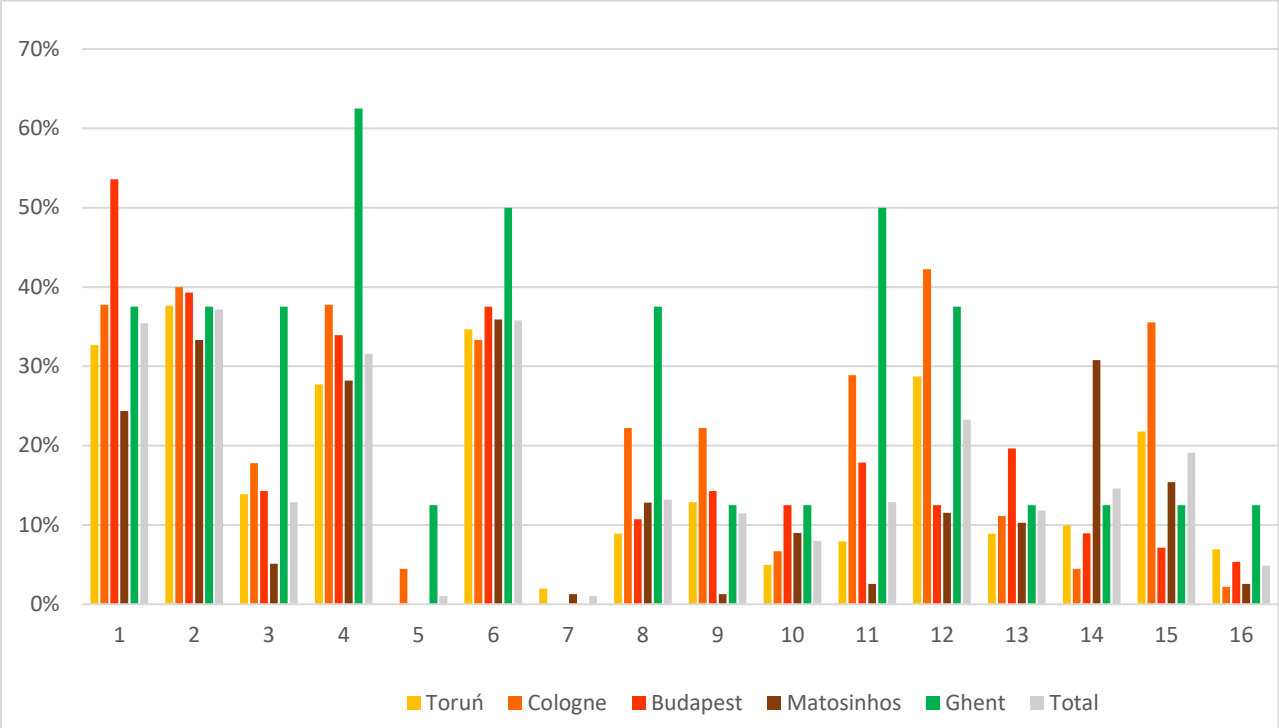
Significant differences were also found regarding the feeling of necessity ("I have no other choice"). In Matosinhos, as many as 30.8% of respondents selected this answer, compared with only 4.4% in Cologne (χ^2=21.671; p<0.001).

Weather conditions more frequently influenced transport choices in Cologne (35.6%) and Toruń (21.8%), while they were considerably less important in Budapest (7.1%) (χ^2=14.603; p=0.006).

Differences between cities also appeared in relation to the availability of a nearby public transport stop. This factor was most frequently indicated by respondents from Cologne (22.2%), whereas it was rarely selected in Matosinhos (1.3%) (χ^2=17.161; p=0.002).

In contrast, no statistically significant differences between cities were found for motivations such as convenience, independence, the possibility of travelling whenever desired, or feeling safe on the road.

Figure 177 Figure P.10. The structure of responses to the question: Why do move in your free time in the chosen above way?



Explanation: 1 - It is the fastest way; 2 - It is the most comfortable way; 3 - It is the cheapest way; 4 - I travel when I want; 5 - It is trendy; 6 - I don't have to wait for anyone, I am independent; 7 - Everyone travels this way here; 8 - It is close to home; 9 - I have a stop nearby (bus, tram, or subway); 10 - I feel safe on the road; 11 - I don't pollute the air; 12 - For health and to stay in good condition; 13 - I can do smth (e.g., studying, listening to music, talking to others) during the journey; 14 - I have no other choice; 15 - It depends on the weather; 16 - Other

Source: Own elaboration on the basis of the questionnaire survey

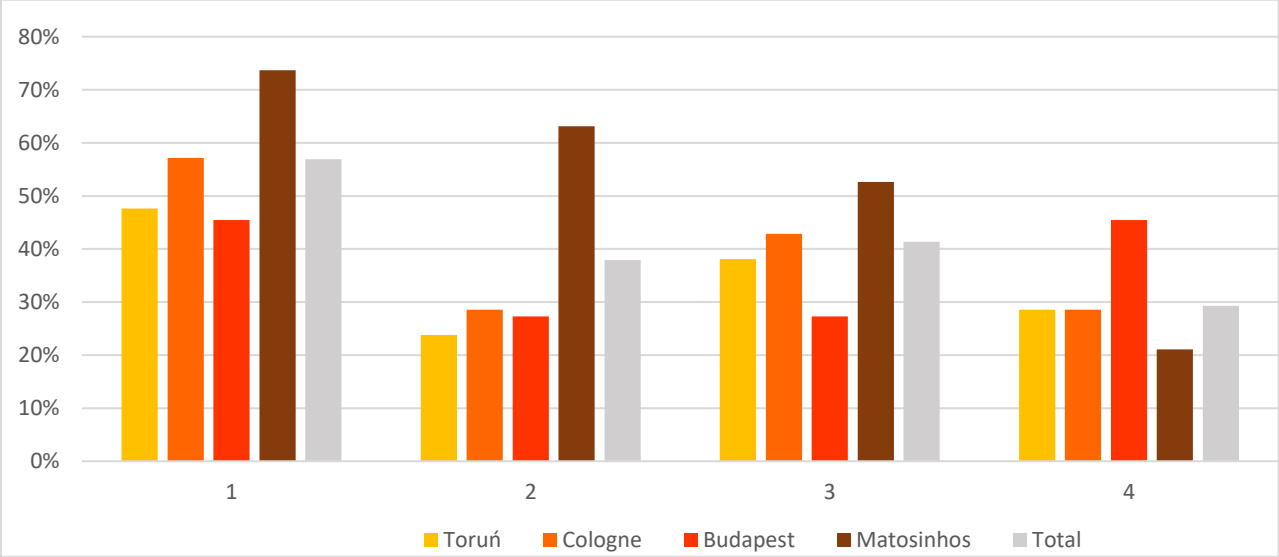
The analysis of responses concerning transporting children by car reveals clear differences between the analysed cities, particularly for older age groups. The strongest relationships concerned transporting children aged 10–13 and 14–18 to school and extracurricular activities.

For children aged 10–13, respondents from Matosinhos much more frequently declared driving children to school by car (93.5%), whereas the proportions were substantially lower in Toruń and Cologne (26.0% and 26.9%, respectively). These differences were statistically significant (χ^2=65.562; p<0.001).

A similar pattern appeared for extracurricular activities among children aged 10–13. In Matosinhos, 71.7% of respondents reported transporting children by car, compared with only 7.7% in Cologne (χ^2=37.093; p<0.001).

Matosinhos also stood out in the case of children aged 14–18. There, 81.8% of respondents declared driving children to school by car, whereas in Cologne the figure was only 3.8% (χ^2=63.108; p<0.001).
Regarding extracurricular activities for the 14–18 age group, 65.9% of respondents in Matosinhos transported children by car, compared with only 3.8% in Cologne (χ^2=35.024; p<0.001).
Significant differences also appeared for the response "in none of these situations." Respondents from Matosinhos were much less likely to declare that children aged 10–13 (0.0%) and 14–18 (11.4%) were never transported by car, whereas such responses were substantially more frequent in Cologne and Budapest.
For younger children (under 7 years old and 7–9 years old), differences between cities were weaker and generally did not reach statistical significance. One exception concerned transporting children aged 7–9 to extracurricular activities, where respondents from Matosinhos again more frequently declared car use (66.7%) than respondents from other cities (χ^2=10.809; p=0.029).
Overall, the findings indicate that Matosinhos is characterised by a much stronger dependence on private cars for children's mobility than the other analysed cities, especially for older children and everyday educational activities. In contrast, Cologne shows the lowest levels of transporting children by car, which may reflect greater independence among children or better accessibility of alternative transport options.

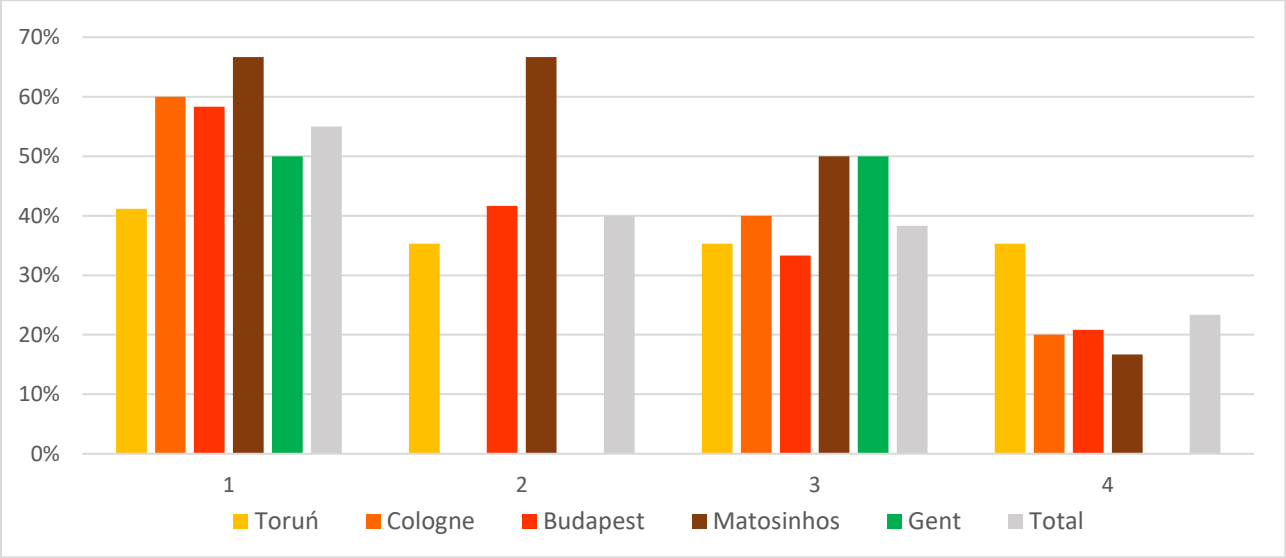
Figure 178 Figure P.11.1. The structure of responses to the question: Are your children (under 7 years) driven by car



Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

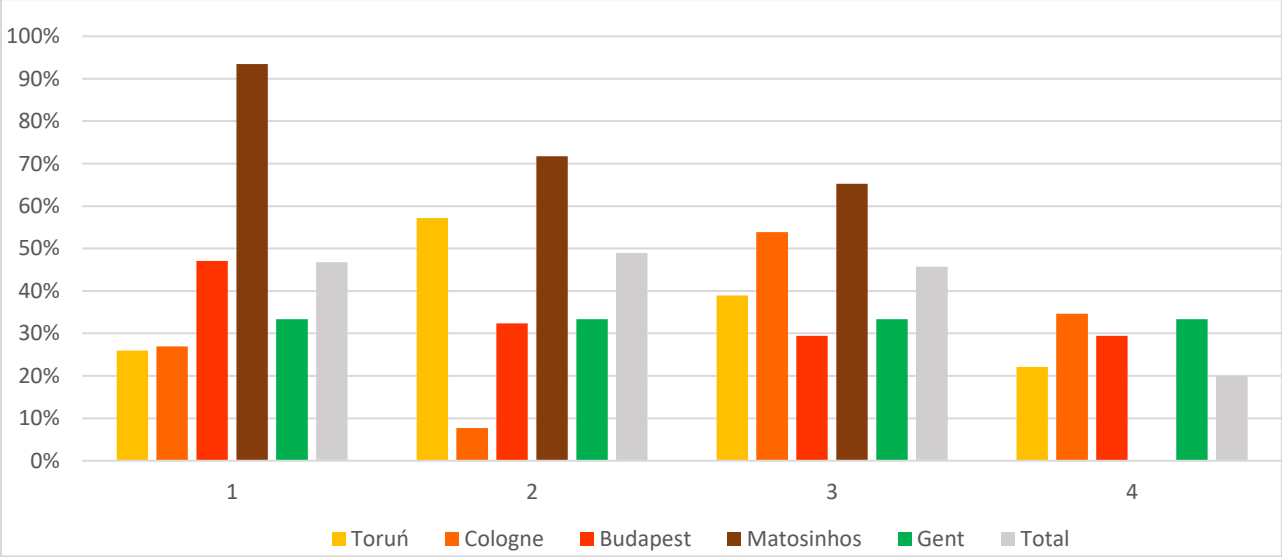
Figure 179 Figure P.11.2. The structure of responses to the question: Are your children (7-9 years) driven by car



Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

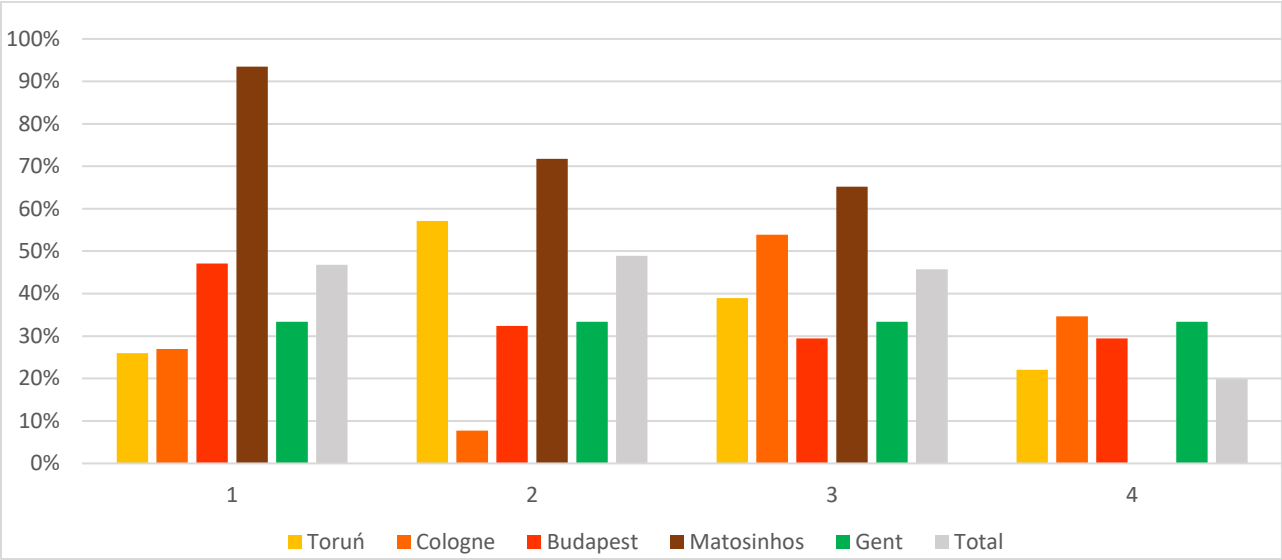
Figure 180 Figure P.11.3. The structure of responses to the question: Are your children (10-13 years) driven by car



Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with *friends; 4 - In none of these situations*

Source: Own elaboration on the basis of the questionnaire survey

Figure 181 Figure P.11.4. The structure of responses to the question: Are your children (14-18 years) driven by car



Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

The analysis of responses concerning children being accompanied on public transport reveals significant differences between the analysed cities, especially among school-aged children and adolescents.

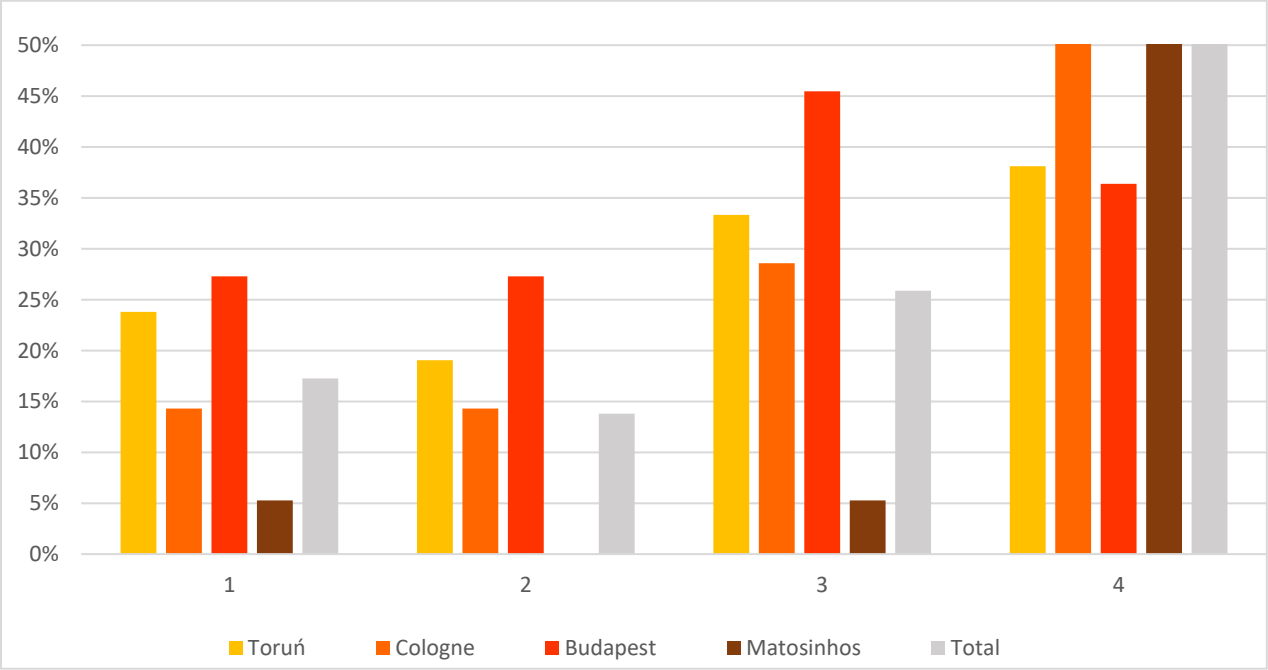
For children under the age of 7, differences between cities were generally weaker and less frequently statistically significant. One exception concerned accompanied public transport use during leisure activities (e.g., meeting friends), where the highest proportion was recorded in Budapest (45.5%) and the lowest in Matosinhos (5.3%) (χ^2=8.204; p=0.042).

Significant differences also appeared for the response "in none of these situations" among children under 7 years old. Respondents from Matosinhos most frequently declared that children did not use accompanied public transport at all (89.5%), compared with 38.1% in Toruń (χ^2=15.179; p=0.002).

Among children aged 7–9, particularly strong differences concerned travelling to extracurricular activities. In Budapest, 58.3% of respondents declared the use of accompanied public transport, whereas in Cologne and Matosinhos the percentage was 0.0% (χ^2=23.840; p<0.001).

A similar pattern appeared for leisure-time trips among children aged 7–9. In Budapest, half of the respondents reported accompanied public transport use, whereas no such responses were recorded in Matosinhos (χ^2=13.706; p=0.008).
For children aged 10–13, statistically significant differences concerned both travelling to school and extracurricular activities. In Cologne (46.2%) and Budapest (41.2%), accompanied public transport use for school travel was reported more frequently than in Toruń (18.2%) (χ^2=10.693; p=0.030).
Regarding extracurricular activities among children aged 10–13, the highest proportion of accompanied public transport use was recorded in Budapest (50.0%), while the lowest was observed in Cologne (7.7%) (χ^2=17.795; p=0.001).
Among adolescents aged 14–18, Budapest again stood out with the highest levels of accompanied public transport use. This applied both to travelling to school (65.2%) and extracurricular activities (47.8%). In Toruń, the corresponding proportions were substantially lower, amounting to 24.2% and 25.8%, respectively (χ^2=14.661; p=0.005 and χ^2=11.586; p=0.021).
Overall, the findings suggest that Budapest is characterised by relatively high levels of accompanied public transport use among children and adolescents, especially in school-aged and teenage groups. In contrast, Matosinhos was more frequently characterised by low levels of this type of mobility, particularly among younger children.

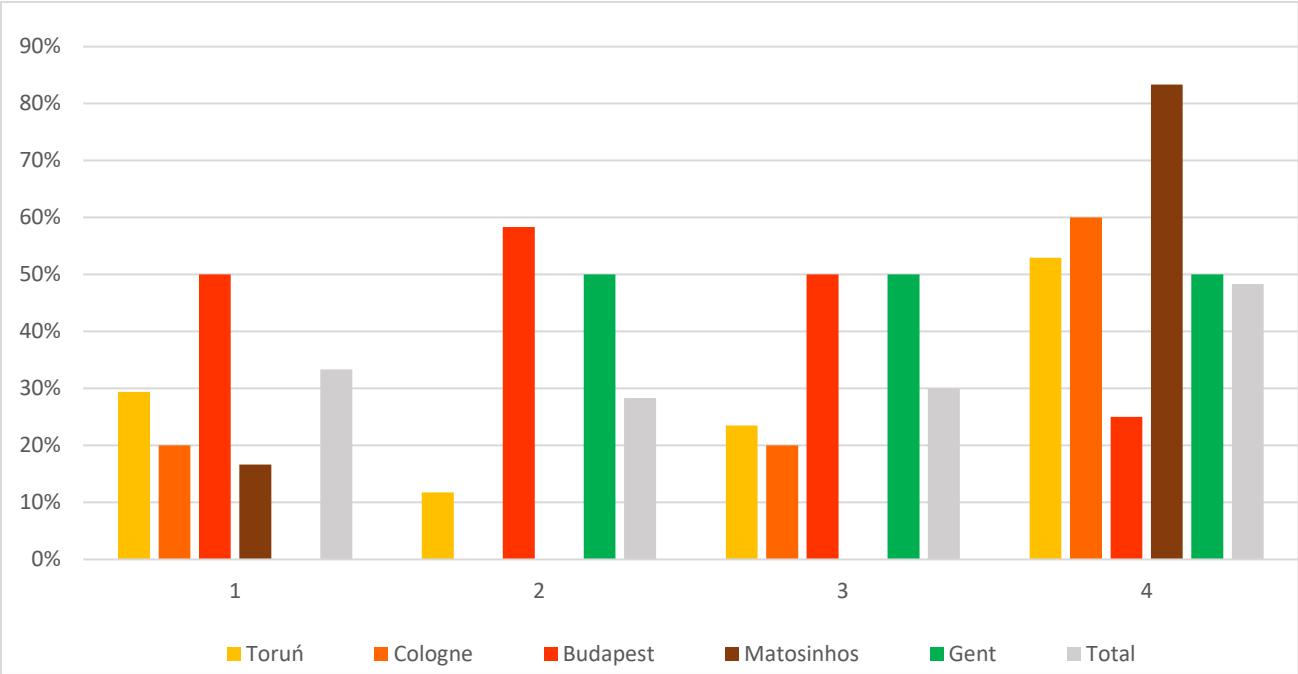
Figure 182 Figure P.12.1. The structure of responses to the question: Are your children (under 7 years) driven by public transport accompanied by adults or older children



Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

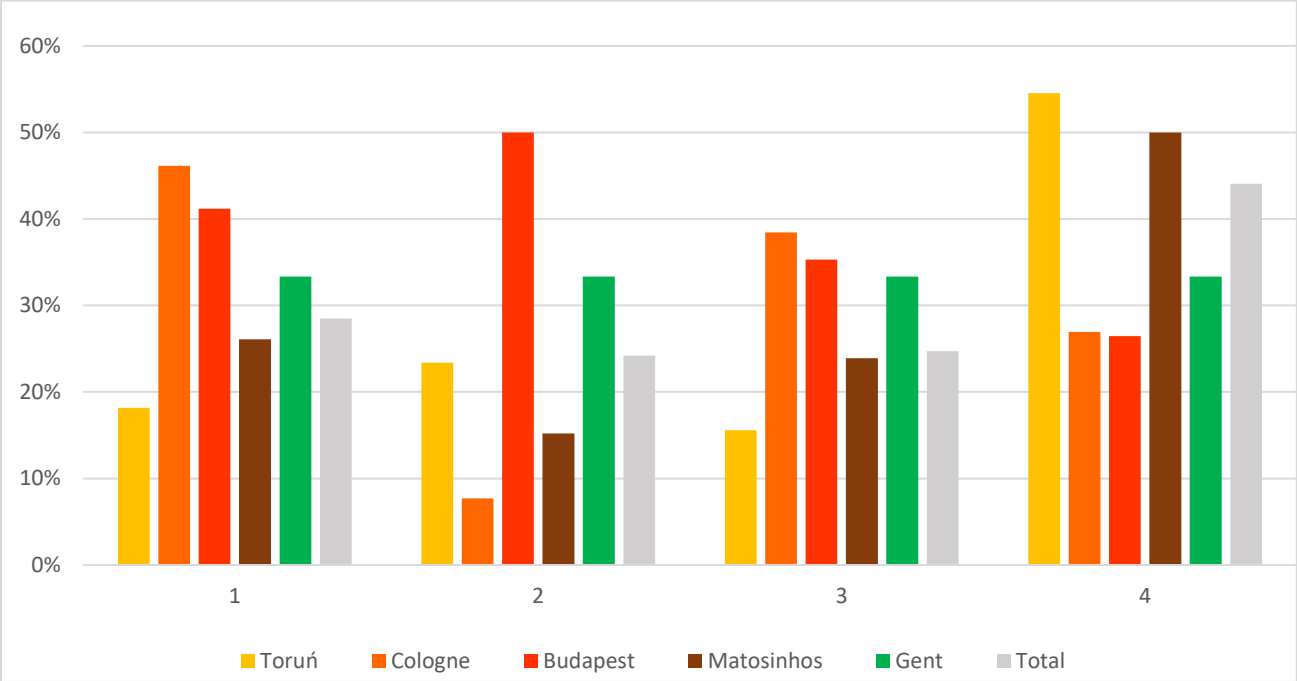
Figure 183 Figure P.12.2. The structure of responses to the question: Are your children (7-9 years) driven by public transport accompanied by adults or older children



Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

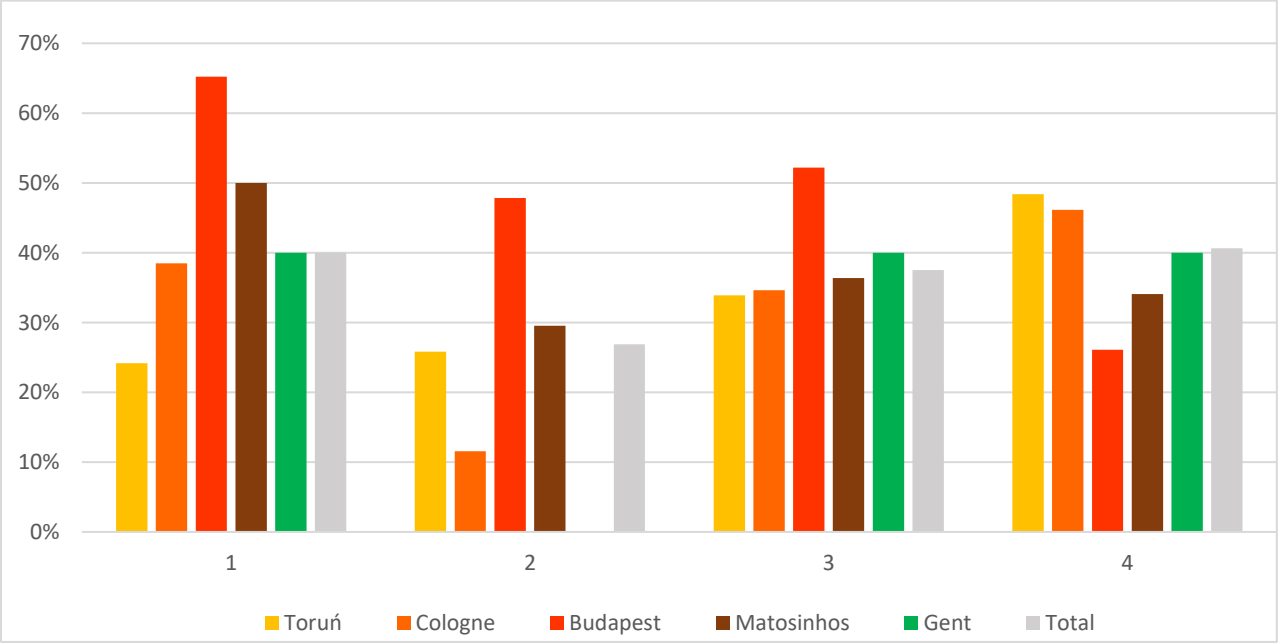
Figure 184 Figure P.12.3. The structure of responses to the question: Are your children (10-13 years) driven by public transport accompanied by adults or older children



Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

Figure 185 Figure P.12.4. The structure of responses to the question: Are your children (14-18 years) driven by public transport accompanied by adults or older children



Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

The analysis of responses concerning children being accompanied on foot reveals clear differences between the analysed cities, particularly with regard to younger children and leisure-related mobility.

For children under the age of 7, statistically significant differences mainly concerned walking to school under supervision. In Toruń, more than half of respondents (57.1%) declared accompanying children on foot, whereas in Matosinhos no such responses were recorded (0.0%) (χ^2=21.452; p<0.001).

Among children aged 7–9, significant differences were also observed in walking to school. The highest level of supervised walking was recorded in Toruń (64.7%), while the lowest appeared in Matosinhos (16.7%) and Ghent (0.0%) (χ^2=10.266; p=0.036).

Significant differences also emerged for leisure-related trips among children aged 7–9. In Cologne, all respondents (100.0%) declared accompanying children on foot, whereas in Matosinhos the proportion was only 16.7% (χ^2=12.383; p=0.015).

For the response "in none of these situations" among children aged 7–9, the highest proportion was recorded in Matosinhos (75.0%), while no such responses appeared in Cologne (0.0%) (χ^2=12.036; p=0.017).

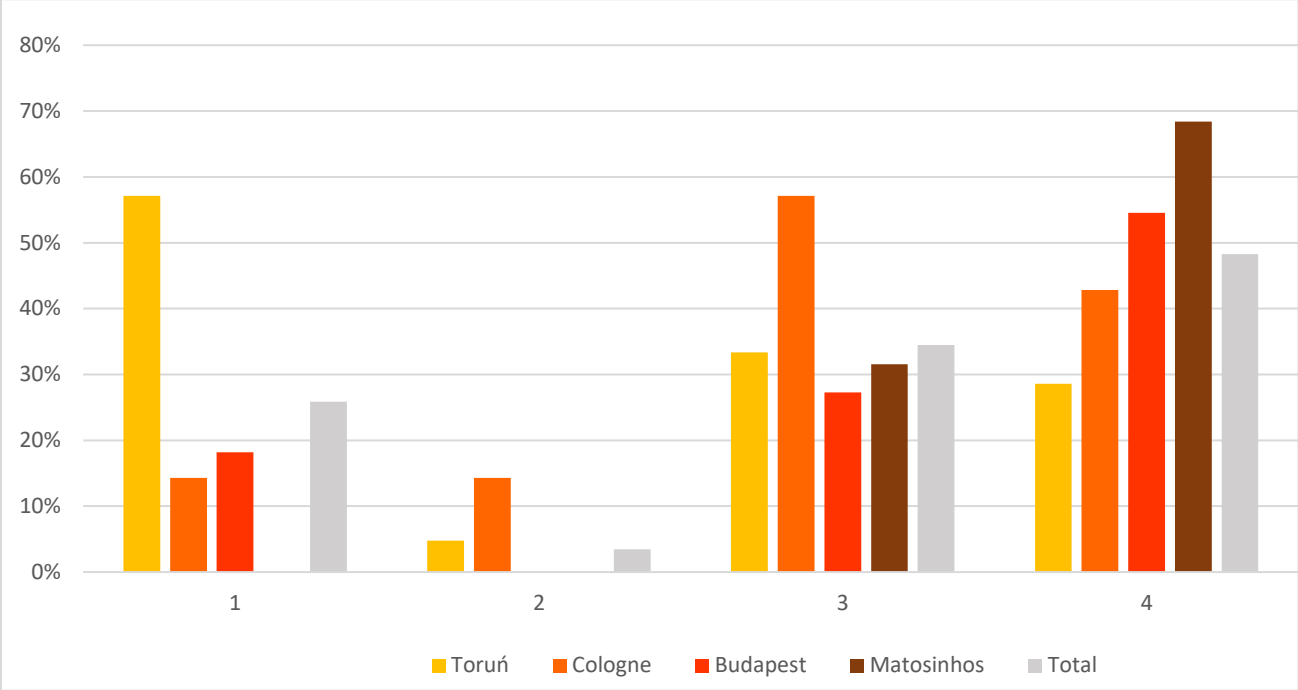
For children aged 10–13, significant differences mainly concerned walking to school and leisure-time trips. In Toruń, 32.5% of respondents declared accompanying children to school on foot, whereas in Matosinhos the proportion was only 8.7% (χ^2=13.704; p=0.008).

Regarding leisure activities among children aged 10–13, the highest level of supervised walking was recorded in Cologne (69.2%), while the lowest was found in Toruń (29.9%) (χ^2=12.802; p=0.012).

Among adolescents aged 14–18, differences mainly concerned leisure-related mobility. In Budapest (52.2%) and Matosinhos (45.5%), supervised walking was reported more frequently than in Toruń (16.1%) (χ^2=20.536; p<0.001).

A similar pattern appeared for the response "in none of these situations." In Toruń, as many as 74.2% of respondents stated that adolescents were not accompanied on foot in any of the analysed situations, whereas in Matosinhos the proportion was only 34.1% (χ^2=25.815; p<0.001).

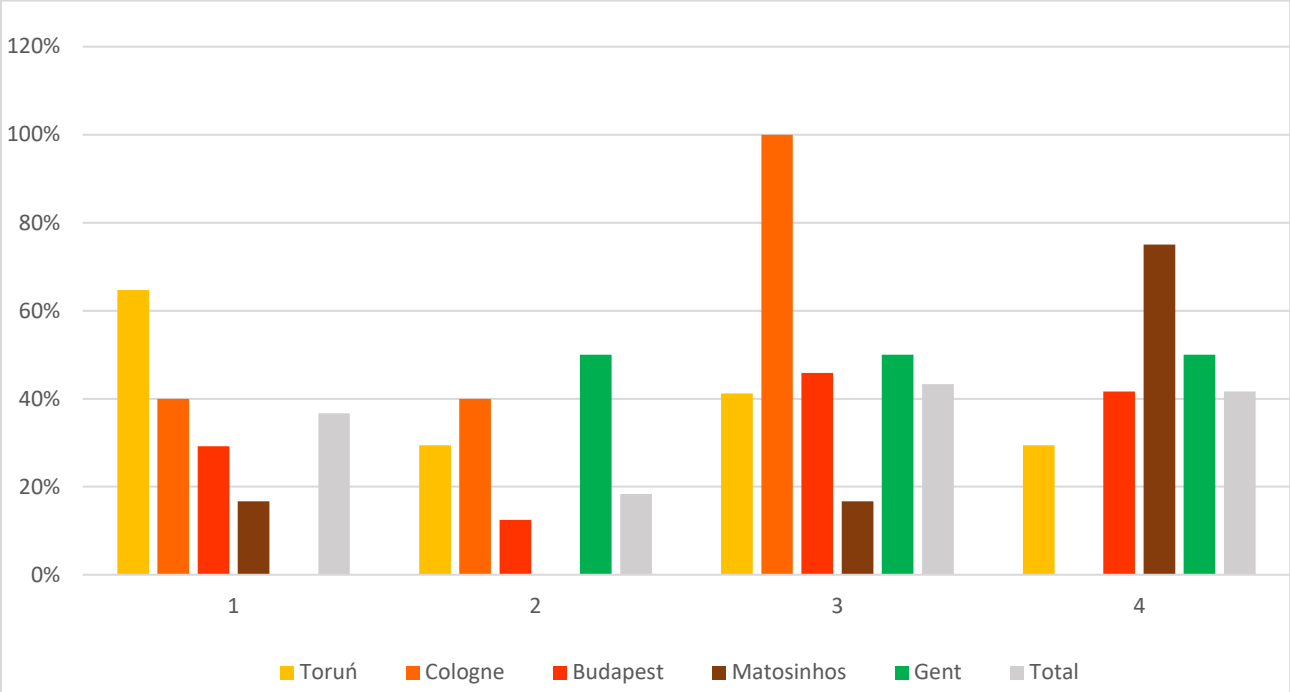
Figure 186 Figure P.13.1. The structure of responses to the question: Are your children (under 7 years) walked away on foot, accompanied by adults or older children



Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

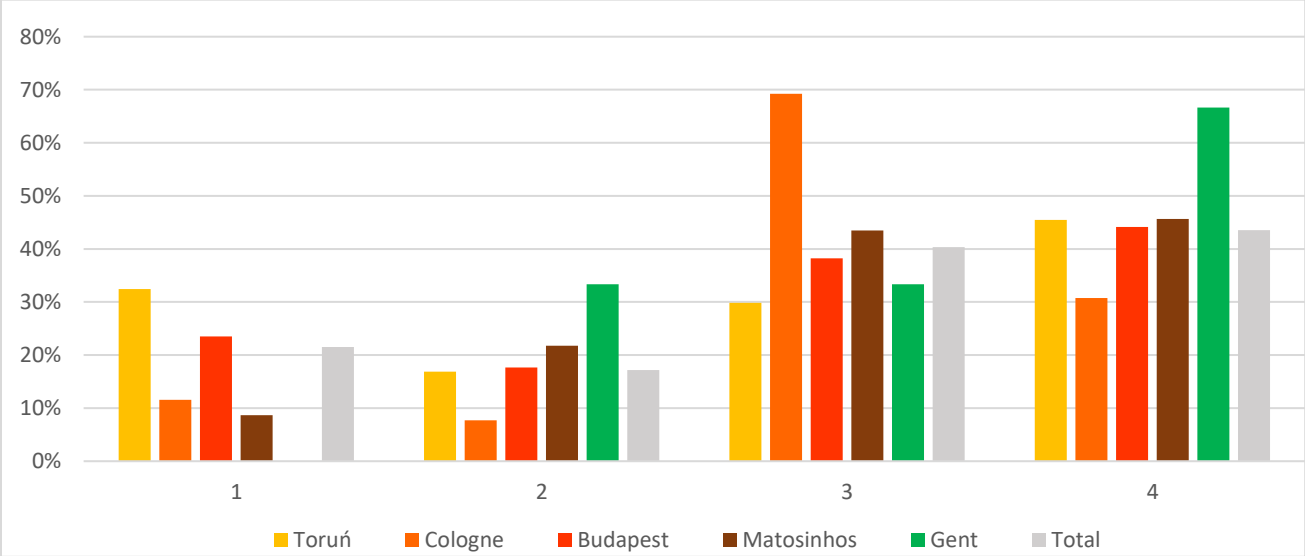
Figure 187 Figure P.13.2. The structure of responses to the question: Are your children (7-9 years) walked away on foot, accompanied by adults or older children



Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

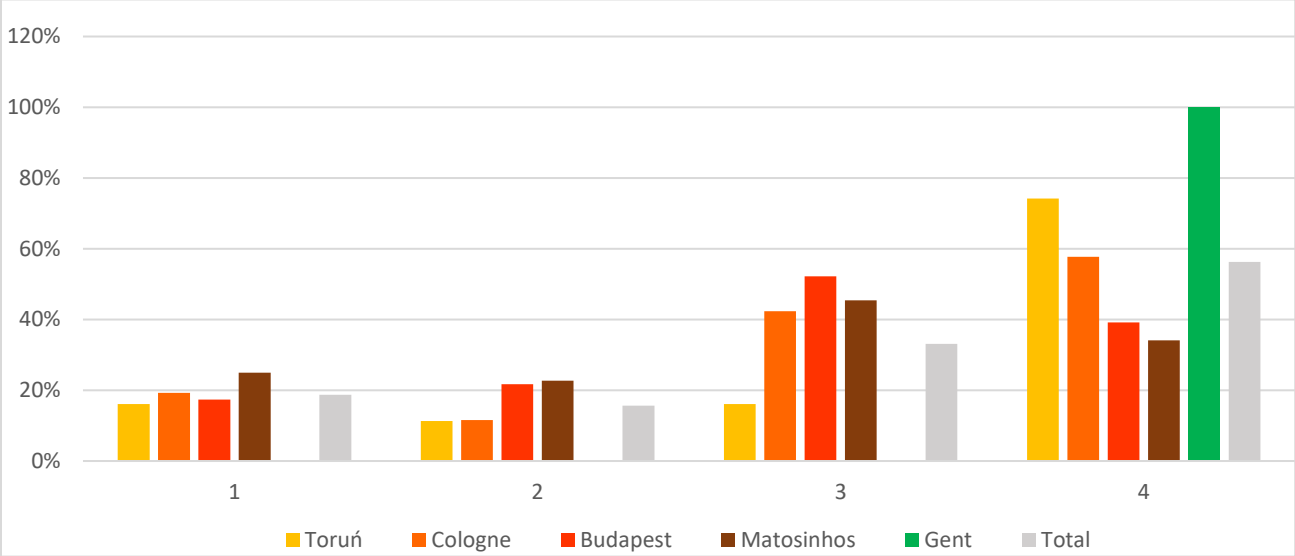
Figure 188 Figure P.13.3. The structure of responses to the question: Are your children (10-13 years) walked away on foot, accompanied by adults or older children



Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

Figure 189 Figure P.13.4. The structure of responses to the question: Are your children (14-18 years) walked away on foot, accompanied by adults or older children



Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

The analysis of responses concerning children's independent mobility reveals clear differences between the cities and a strong effect of children's age on the level of autonomous movement.

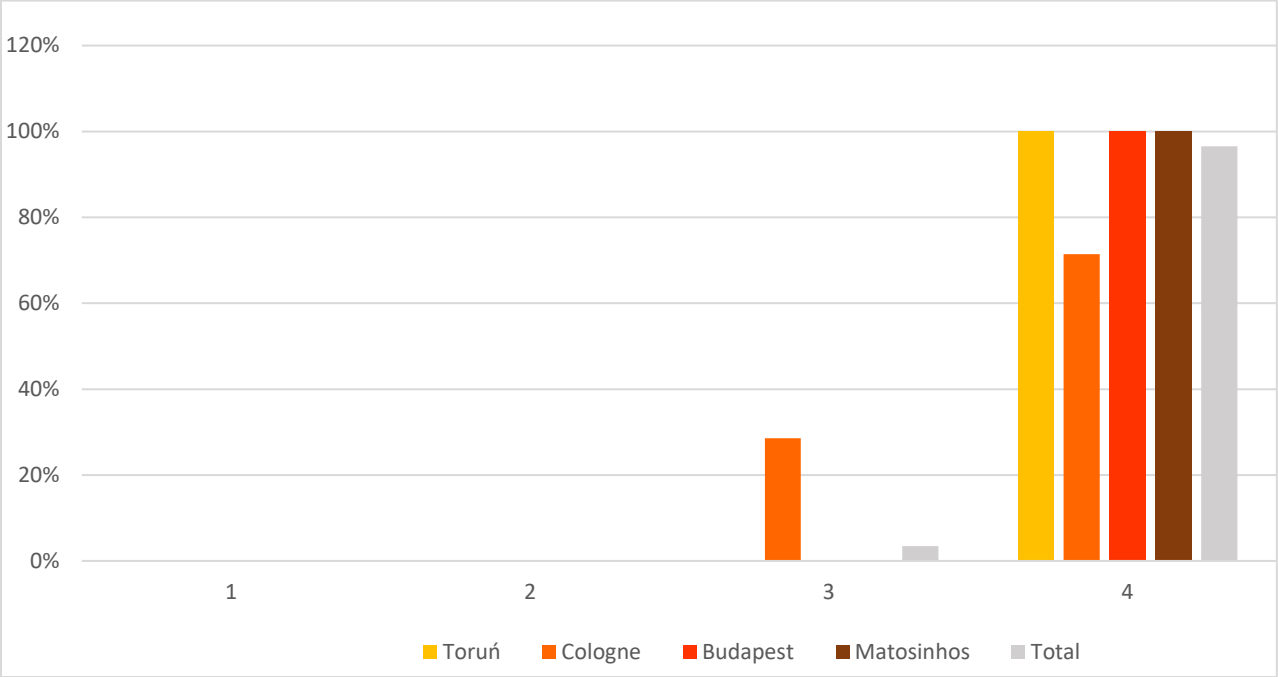
For children under the age of 7, independent mobility was practically absent. The only exception concerned leisure activities in Cologne, where 28.6% of respondents declared that children moved independently, whereas no such responses were recorded in the other cities (χ^2=9.024; p=0.029).

Among children aged 7–9, clearer inter-city differences emerged. Independent walking to school was most frequently reported in Toruń (41.2%) and Cologne (40.0%), while no such responses were recorded in Matosinhos or Ghent (χ^2=12.198; p=0.016).

Significant differences were also observed for the response "in none of these situations." In Matosinhos and Ghent, all respondents declared that children aged 7–9 moved independently in at least one situation, whereas in Cologne the proportion of "in none of these situations" responses reached 80.0% (χ^2=17.814; p=0.001).

The strongest differences between cities were visible among children aged 10–13. Independent travel to school was reported very frequently in Toruń (89.6%) and Cologne (76.9%), whereas it was much less common in Matosinhos (26.1%) (χ^2=61.498; p<0.001).
Similar differences concerned leisure-time mobility. In Cologne (61.5%) and Toruń (50.6%), respondents more often declared independent mobility among children aged 10–13 than in Budapest (23.5%) and Matosinhos (28.3%) (χ^2=15.243; p=0.004).
Responses to "in none of these situations" also indicate different mobility patterns. In Matosinhos, half of respondents (50.0%) declared that children aged 10–13 did not move independently in any analysed situation, whereas in Toruń the proportion was only 7.8% (χ^2=31.876; p<0.001).
Among adolescents aged 14–18, independent mobility was very high in all cities, particularly regarding travel to school. In Toruń, as many as 96.8% of respondents declared that adolescents travelled independently to school, whereas in Matosinhos the proportion was 56.8% (χ^2=39.608; p<0.001).
For leisure-time mobility, the highest level of independence was recorded in Toruń (83.9%) and Cologne (84.6%), while lower values were observed in Budapest (65.2%) and Matosinhos (63.6%), although these differences were only marginally statistically significant (p=0.084).
Overall, the findings indicate that children's independent mobility increases with age, although the pace of this process differs between cities. Toruń and Cologne stand out for higher levels of children's independent mobility, particularly among those aged 10–13, whereas Matosinhos more often reflects a more protective mobility model for children and adolescents.

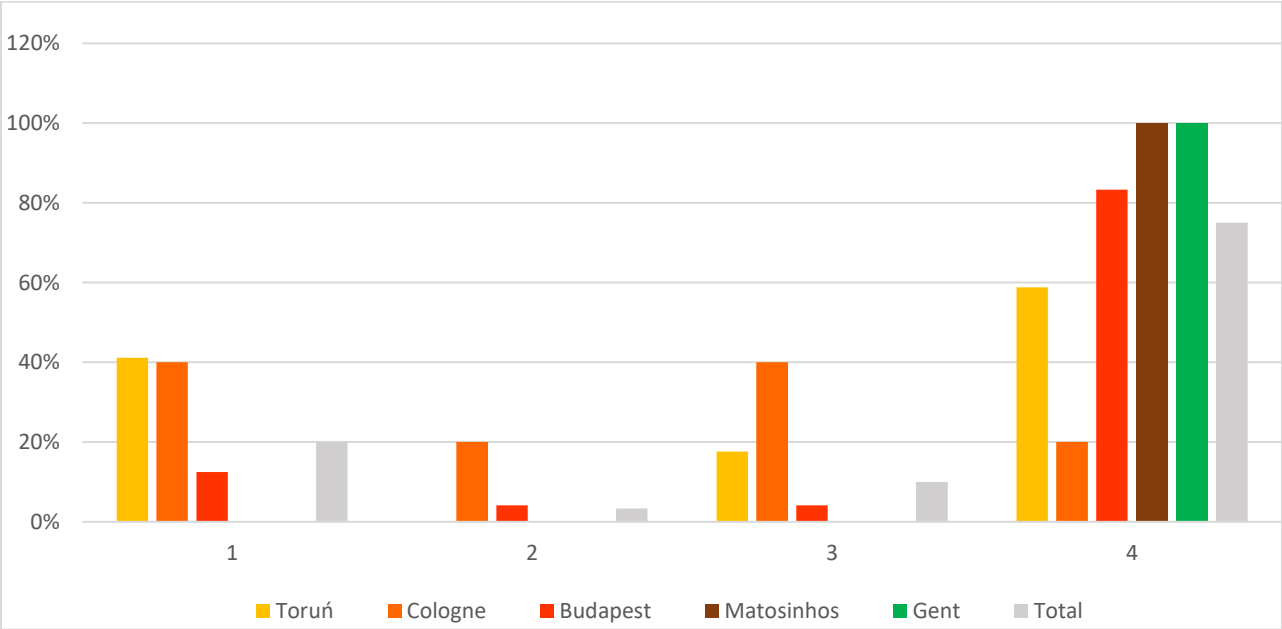
Figure 190 Figure P.14.1. The structure of responses to the question: 'Are your children (under 7 years) moving alone'



Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

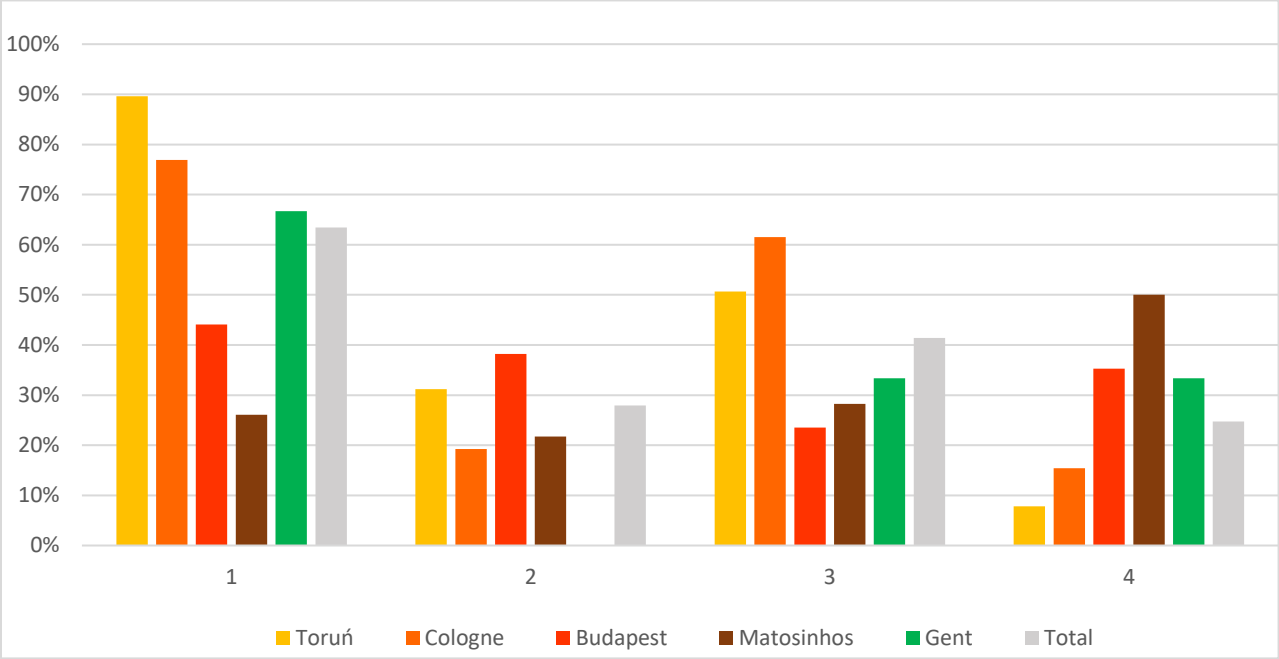
Figure 191 Figure P.14.2. The structure of responses to the question: 'Are your children (7-9 years) moving alone'



Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

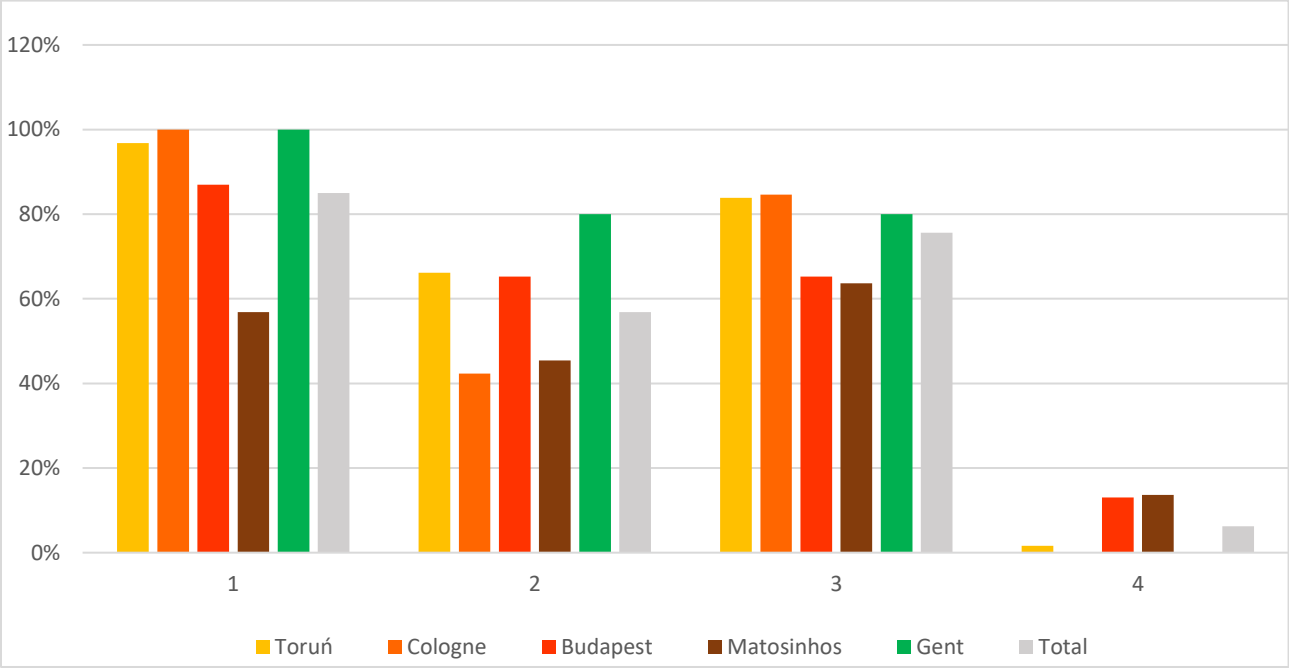
Figure 192 Figure P.14.3. The structure of responses to the question: 'Are your children (10-13 years) moving alone'



Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

Figure 193 Figure P.14.4 The structure of responses to the question: 'Are your children (14-18 years) moving alone'



Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

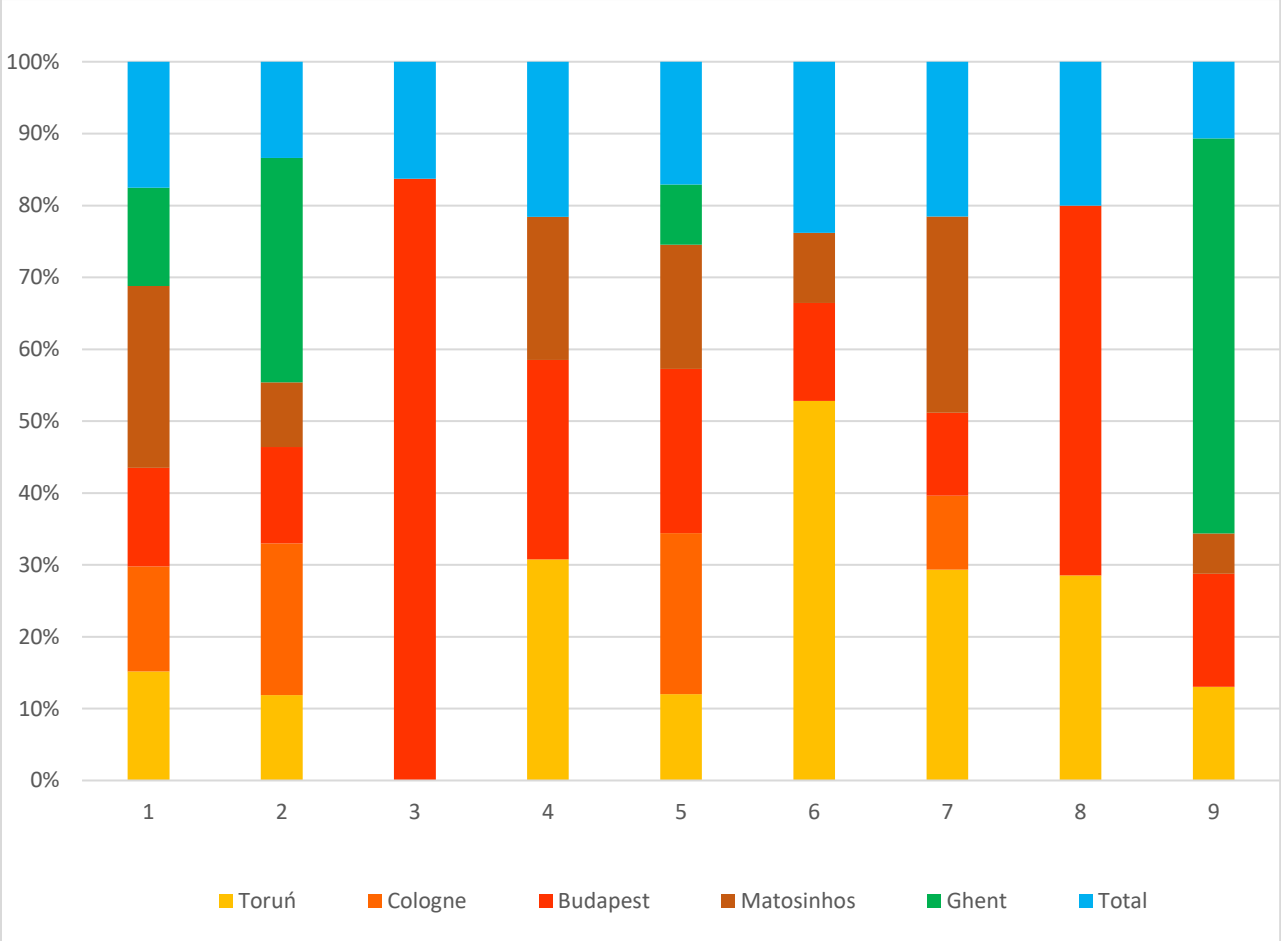
When asked about their preferred mode of transport in a hypothetical situation of free choice, respondents most frequently indicated their own bicycle (26.7%), public transportation (25.3%), and travelling by car as a driver (23.3%). Walking was selected relatively less often (16.0%), while such forms of mobility as public bicycle-sharing systems, scooters, or app-based transport services played only a marginal role.

Statistical analysis indicates significant differences between the analysed cities regarding preferred modes of transportation ($\chi^2(32)=59.707$; $p=0.002$). The highest level of preference for using a private bicycle was recorded in Ghent, where as many as 62.5% of respondents identified this form of mobility as the most desirable. Relatively high values were also observed in Cologne (42.2%).

Respondents from Budapest (33.9%) and Cologne (33.3%) were relatively more likely to prefer public transportation. In contrast, Matosinhos and Toruń recorded particularly high shares of respondents preferring travelling by car as a driver — 29.5% and 31.7%, respectively.

Matosinhos also stood out with the highest proportion of respondents preferring walking (23.1%), whereas in Ghent relatively low importance was attributed both to travelling by car as a driver (0.0%) and to public transportation (12.5%). However, the results for Ghent should be interpreted cautiously due to the small sample size.

Figure 194 Figure P.15. The structure of responses to the question: 'If you could choose, how you would like to move around the city?'



Explanation: 1 - On foot; 2 - By own bicycle; 3 - By minute-rental bike (city bike); 4 - By a traditional or electric scooter; 5 - By public transport (e.g., bus, tram, subway); 6 - By car, but someone drives me; 7 - By app-based car (e.g., Uber, Bolt, FreeNow) or by taxi; 8 - Not applicable, I don't travel; 9 - Other

Source: Own elaboration on the basis of the questionnaire survey

3.3.1.3.4. Urban aspirations and visions of the future city

The next section of the report is devoted to reconstructing the imaginaries and expectations of the participating parents and carers regarding the desired living environment. The analysis focuses on the subjective importance of proximity and accessibility of basic urban infrastructure within walking or cycling distance, which constitutes an important determinant of the city of short distances.

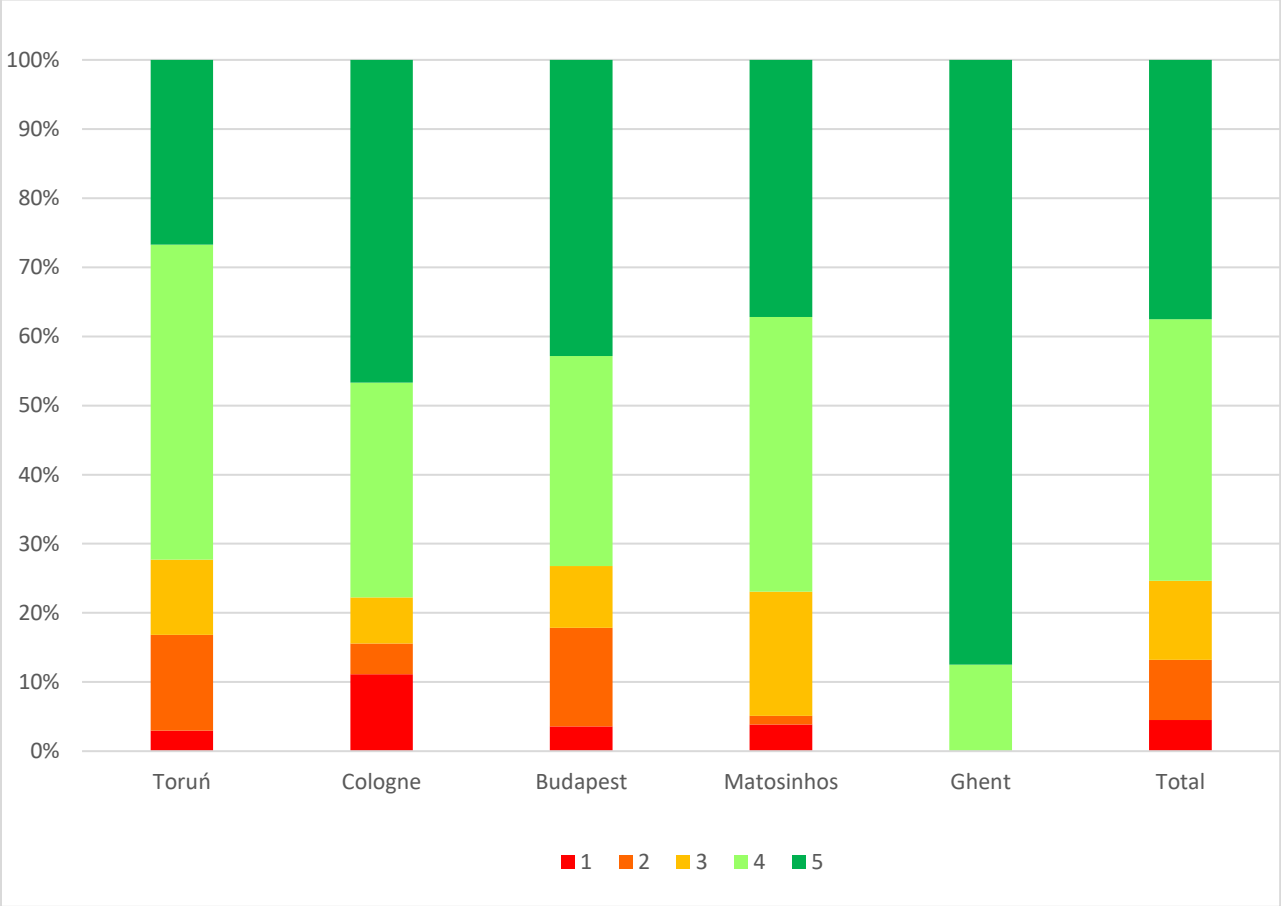
As it was shown on the basis of the survey, the availability of shops, leisure spaces, and everyday services within walking or cycling distance is considered an important element of urban quality of life by the surveyed respondents. Altogether, 75.3% of respondents regarded this issue as rather important or very important, including 37.5% who selected the answer "very important." At the same time, only 13.2% considered this issue unimportant or rather unimportant.

Statistical analysis indicates significant differences between the analysed cities ($\chi^2(16)=38.422$; $p=0.001$). The highest level of importance attached to the accessibility of services within walking or cycling distance was recorded in Ghent, where as many as 87.5% of respondents described this issue as "very important." Relatively high values were also observed in Cologne (46.7%) and Budapest (42.9%).

In Toruń, the dominant response was "rather important" (45.5%), while the proportion of respondents indicating "very important" (26.7%) was lower than in the other analysed cities. In Matosinhos, respondents more frequently than elsewhere selected the neutral response ("neither important nor unimportant" – 17.9%).

A relatively low level of importance attached to the proximity of everyday services was observed only among a small group of respondents. Responses indicating "completely unimportant" or "rather unimportant" appeared most frequently in Toruń and Budapest, although they still represented a minority of answers.

Figure 195 Figure P.16. The structure of responses to the question: 'How important is it for you that daily needs (work, school, shops, places to spend free time) are available within walking, cycling, or scootering distance from your home?'



Explanation: 1 - Not important at all; 2 - Rather unimportant; 3 - Neither important nor unimportant; 4 - Rather important; 5 - Very important

Source: Own elaboration on the basis of the questionnaire survey

Respondents most frequently declared that they would like to live in a city where "everything is close and many everyday needs can be met on foot" (85.8%). This vision clearly dominated over the other concepts of the future city and highlights the very high importance attached to service accessibility, short travel distances, and everyday pedestrian mobility in respondents' expectations.

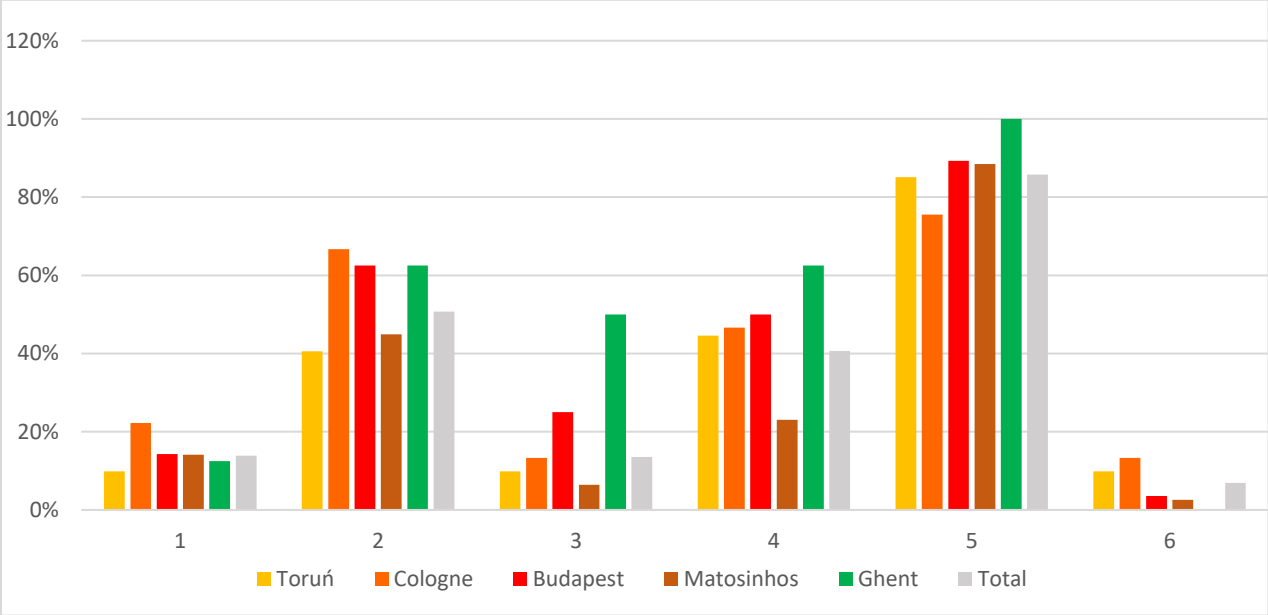
The second most frequently indicated vision was a city with fast and efficient public or bus transportation (50.7%). Relatively high support was also observed for solutions promoting convenient walking and cycling mobility (40.6%).

Much less frequently, respondents expressed a preference for cities primarily based on private car transport (13.9%) or on shared mobility solutions and shared vehicles (13.5%). The least popular vision concerned cities based on air transport or "flying around the city" (6.9%).

The analysis also reveals noticeable differences between the analysed cities. In Ghent, all respondents (100.0%) indicated a preference for a short-distance city where most everyday needs can be met on foot. Very high values were also recorded in Budapest (89.3%) and Matosinhos (88.5%).

Respondents from Cologne (66.7%), Budapest (62.5%), and Ghent (62.5%) relatively more often emphasised the importance of fast public transportation. In Ghent, particularly high support was also observed for solutions promoting walking and cycling mobility (62.5%).

Figure 196 Figure P.17. The structure of responses to the question: 'What version of the city would you like to live in the future? (choose up to 3 options)'



Explanation: 1 - Cool Future Cars – Cars run on electricity and might even drive themselves; 2 - Fast Bus & Train – Buses and trains come often, are quick, and take you everywhere; 3 - Sharing Instead of Owning – Cars, bikes, or scooters are shared with others; 4 - Fun on Bikes & Scooters – Lots of people ride bikes, scooters, or skateboards; 5 -Everything Close & Lots of Nature – You can walk to most places, with lots of trees and parks around; 6 - Flying in the City – Flying taxis and delivery drones move people and stuff quickly through the air

Source: Own elaboration on the basis of the questionnaire survey

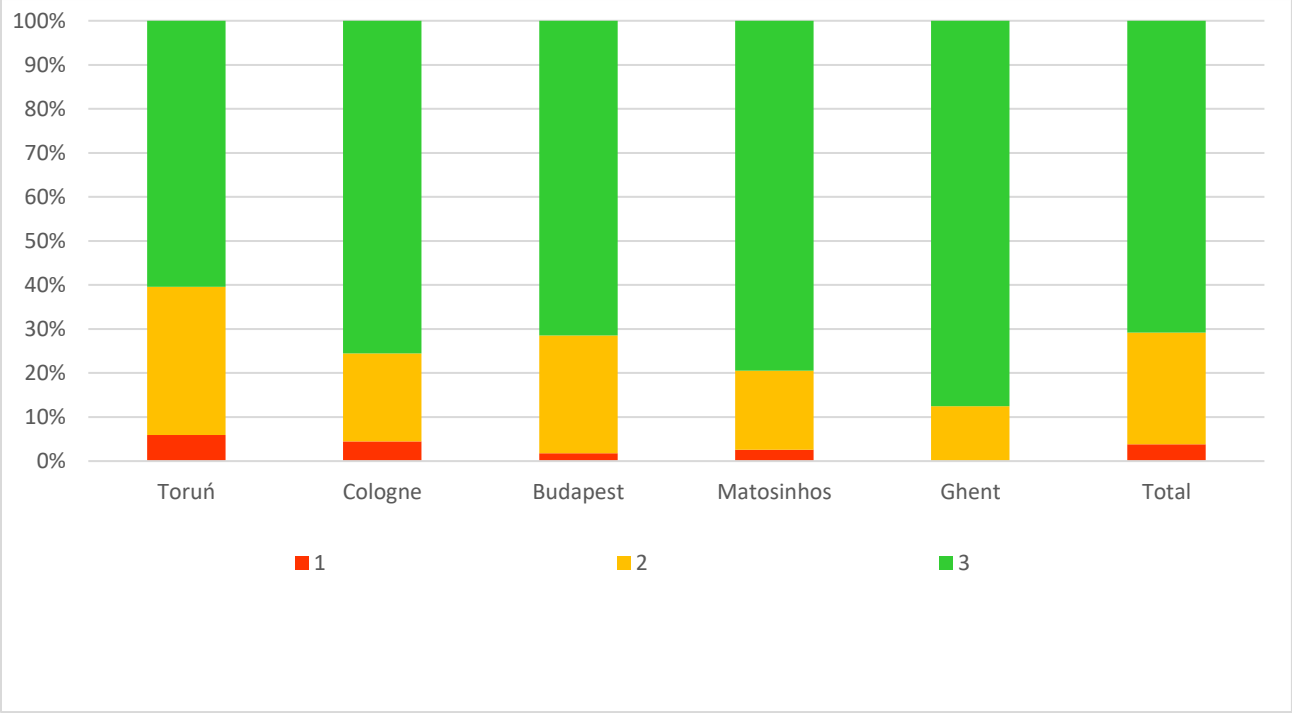
3.3.1.3.5. A sense of place and a sense of safety

One of the key elements of the study was an assessment of the level of sense of place (i.e. place attachment) and the sense of safety among parents and carers in the urban space. The majority of respondents reported feeling "at home" in their area. A positive response was indicated by 70.8% of respondents, while another 25.3% selected the intermediate answer ("sometimes yes, sometimes no"). Only 3.8% of respondents declared that they do not feel such a connection with their place of residence.

The findings indicate a relatively high level of identification with the local neighbourhood and may reflect a sense of social belonging and comfort in everyday functioning within the local environment.

The analysis also reveals some differences between the analysed cities. The highest level of feeling "at home" was recorded in Ghent, where 87.5% of respondents selected the answer "yes." High values were also observed in Matosinhos (79.5%) and Cologne (75.6%). In Toruń, the share of positive responses was relatively lower (60.4%), while at the same time the city recorded the highest proportion of ambivalent answers ("sometimes yes, sometimes no" – 33.7%). This may indicate more diverse experiences related to everyday life in the urban environment.

Figure 197 Figure P.18.1. The structure of responses to the question: 'Do you feel "at home": in the neighbourhood where you live?'



Explanation: 1 – Weakly; 2 - Neither weakly nor strongly; 3 - Strongly

Source: Own elaboration on the basis of the questionnaire survey

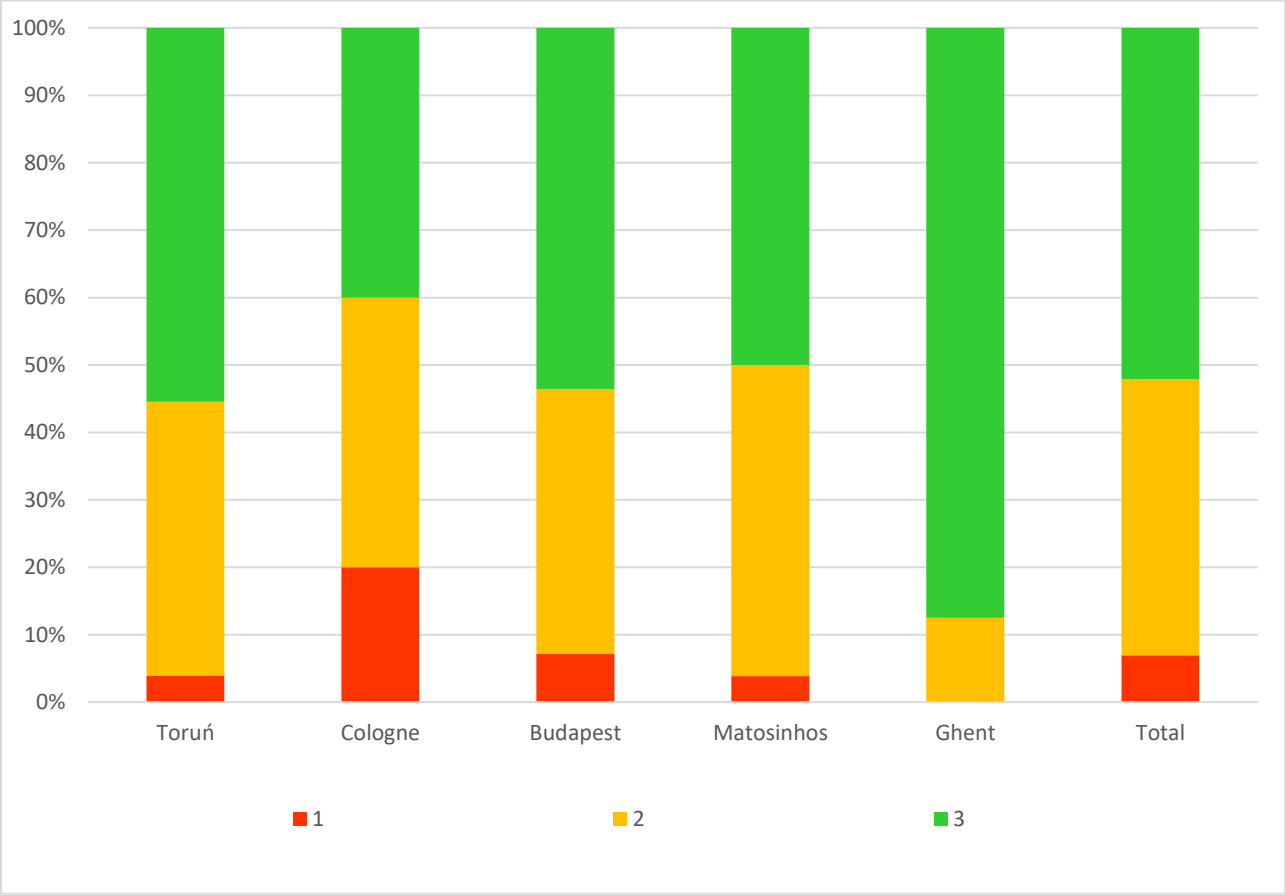
The sense of identification with the city as a whole is noticeably weaker among respondents than the feeling of attachment to their immediate neighbourhood. Slightly more than half of the respondents (52.1%) declared that they perceive the city as "their own," while as many as 41.0% selected the ambivalent response ("sometimes yes, sometimes no"). Only 6.9% of respondents stated that they do not identify with the city in which they live.

These findings suggest that local bonds and feelings of belonging are more often connected to the immediate residential environment than to the city understood as a broader socio-spatial community.

The analysis also reveals significant differences between the analysed cities. The strongest sense of identification with the city was recorded in Ghent, where as many as 87.5% of respondents declared that they perceive the city as "their own." Relatively high values were also observed in Toruń (55.4%) and Budapest (53.6%).

In Cologne, only 40.0% of respondents declared a strong sense of attachment to the city, while at the same time the city recorded the highest proportion of negative responses (20.0%) among all analysed locations. In Matosinhos, half of the respondents selected the answer "yes" (50.0%), although the share of ambivalent responses also remained very high (46.2%).

Figure 198 Figure P.18.2. The structure of responses to the question: 'Do you feel "at home generally in the entire city, do you feel it is your city?'



Explanation: 1 – Weakly; 2 - Neither weakly nor strongly; 3 - Strongly

Source: Own elaboration on the basis of the questionnaire survey

The vast majority of respondents declared that they feel safe in the area where they live. A positive response was indicated by 71.5% of respondents, while one-quarter of participants (25.0%) selected the ambivalent answer ("sometimes yes, sometimes no"). Only 3.5% of respondents declared that they do not feel safe in their immediate surroundings.

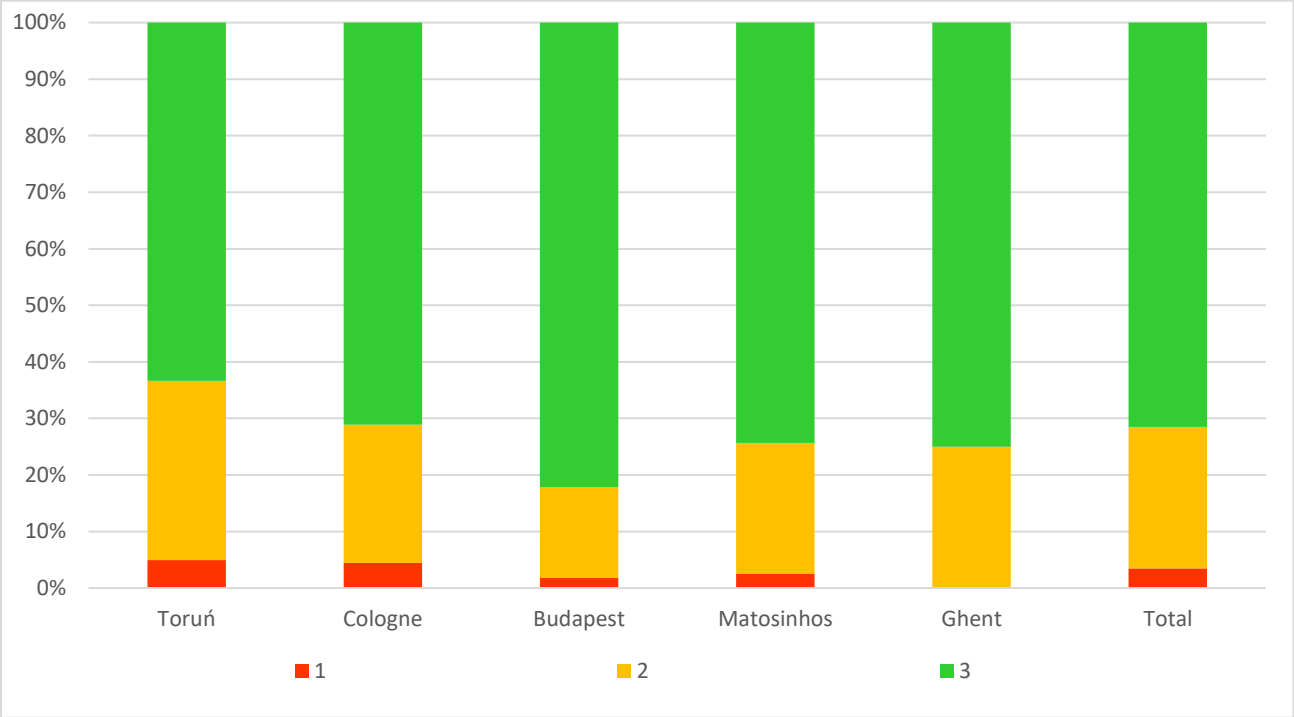
The findings indicate a relatively high level of perceived safety in the analysed cities and may reflect a generally positive evaluation of respondents' everyday living environments.

The analysis nevertheless reveals some differences between the analysed cities. The highest level of perceived safety was recorded in Budapest, where as many as 82.1% of respondents declared feeling safe in their neighbourhood. Relatively high values were also observed in Ghent (75.0%), Matosinhos (74.4%), and Cologne (71.1%).

In Toruń, the share of positive responses was relatively lower (63.4%), while at the same time the city recorded the highest proportion of ambivalent answers ("sometimes yes, sometimes no" – 31.7%). This may indicate more diverse experiences related to perceptions of safety in the urban environment.

Statistical analysis did not reveal significant differences between the analysed cities regarding the sense of safety in the area of residence ($\chi^2(8)=7.746$; $p=0.459$).

Figure 199 Figure P.19.1. The structure of responses to the question: 'Do you feel safe in the neighbourhood where you live?'



Explanation: 1 – Weakly; 2 - Neither weakly nor strongly; 3 - Strongly

Source: Own elaboration on the basis of the questionnaire survey

The sense of safety regarding the city as a whole is noticeably lower than the level of safety experienced in respondents' immediate neighbourhoods. Less than half of respondents (48.6%) declared that they feel safe in the city overall, while as many as 42.0% selected the ambivalent response ("sometimes yes, sometimes no"). At the same time, 9.4% of respondents declared that they do not feel safe in their city.

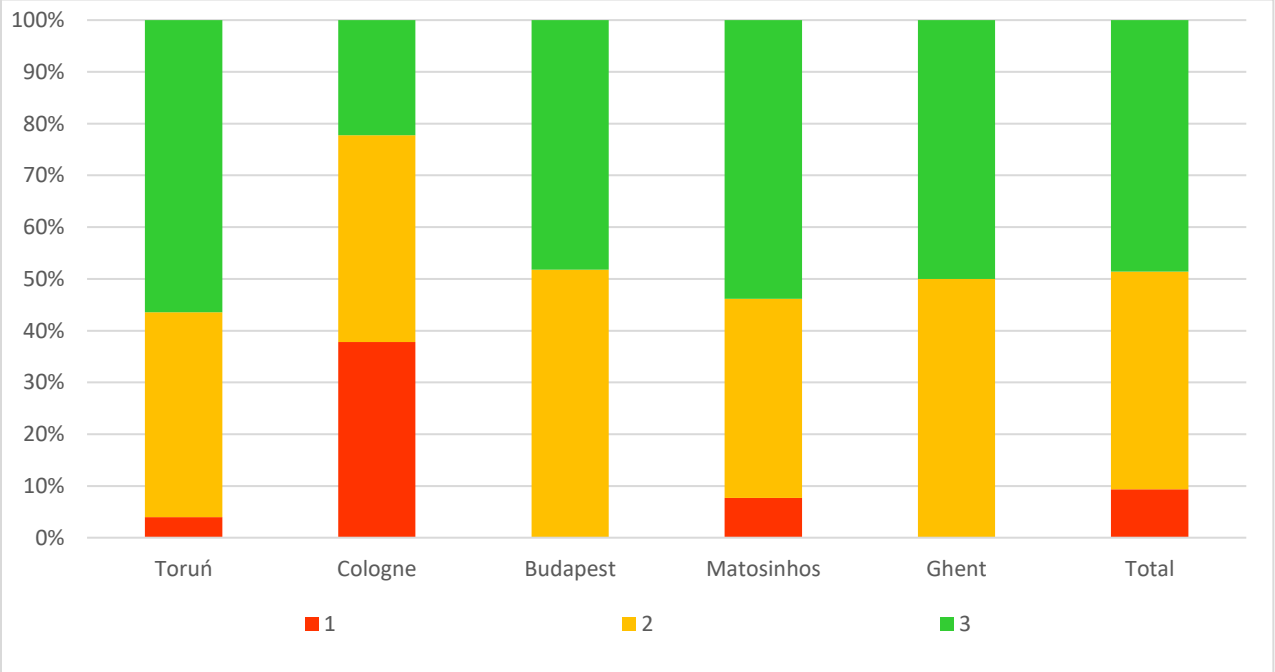
Statistical analysis indicates significant differences between the analysed cities ($\chi^2(8)=49.577$; $p<0.001$). The highest level of perceived safety at the scale of the entire city was recorded in Toruń, where 56.4% of respondents declared that they feel safe.

Relatively high values were also observed in Matosinhos (53.8%), Ghent (50.0%), and Budapest (48.2%).

A markedly different situation was observed in Cologne, where only 22.2% of respondents declared feeling safe in the city, while as many as 37.8% provided a negative response. This was by far the highest proportion of negative responses among all analysed locations.

In Budapest and Ghent, the proportion of ambivalent answers ("sometimes yes, sometimes no") also remained very high, reaching around half of respondents. These findings may suggest more diverse experiences related to functioning in the urban environment.

Figure 200 Figure P.19.2. The structure of responses to the question: 'Do you feel safe generally in the entire city?'



Explanation: 1 – Weakly; 2 - Neither weakly nor strongly; 3 - Strongly

Source: Own elaboration on the basis of the questionnaire survey

3.3.1.3.6. General characteristics of respondents

The age structure of respondents differed between the analysed cities, and this relationship was statistically significant (χ^2=52.377; p=0.013). The largest group consisted

of respondents aged 45–49 years (32.3% of all respondents), followed by those aged 40–44 years (27.4%) and 50–54 years (18.8%). Respondents under the age of 30 formed the smallest groups.

In Toruń, respondents aged 40–44 years (35.6%) and 45–49 years (26.7%) predominated. A relatively high proportion of respondents aged 35–39 years (20.8%) also distinguished Toruń from the other cities.

In Cologne, the largest share consisted of respondents aged 45–49 years (37.8%), followed by those aged 50–54 years (24.4%). Compared with the other cities, the proportion of respondents aged 35–39 years was noticeably lower (6.7%).

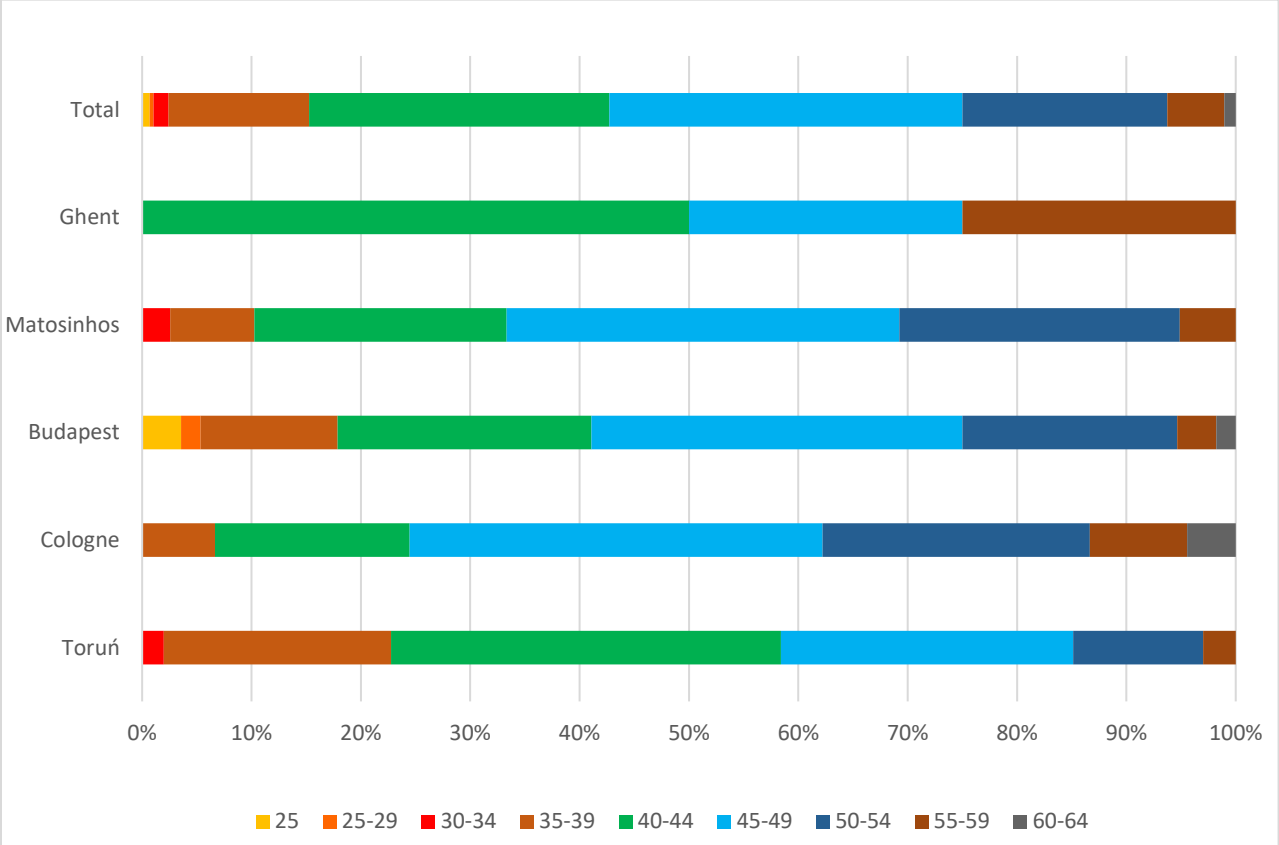
In Budapest, the age structure was more balanced, although the largest group was again respondents aged 45–49 years (33.9%), followed by those aged 40–44 years (23.2%) and 50–54 years (19.6%). Budapest was the only city where respondents younger than 30 years were recorded.

In Matosinhos, the largest shares were respondents aged 45–49 years (35.9%) and 50–54 years (25.6%). Compared with the other cities, Matosinhos had a relatively high proportion of older respondents, particularly those aged 50–54 years.

In Ghent, half of the respondents were aged 40–44 years (50.0%), while another 25.0% were aged 45–49 years and 55–59 years. No respondents younger than 40 years were recorded in Ghent.

Overall, the findings indicate that the study sample was dominated by middle-aged respondents, particularly those between 40 and 54 years old, with only a limited representation of younger individuals. The differences between cities suggest distinct demographic profiles of respondents participating in the study.

Figure 201 Figure P.20. Structure of respondents by age groups in years (%)



Source: Own elaboration on the basis of the questionnaire survey

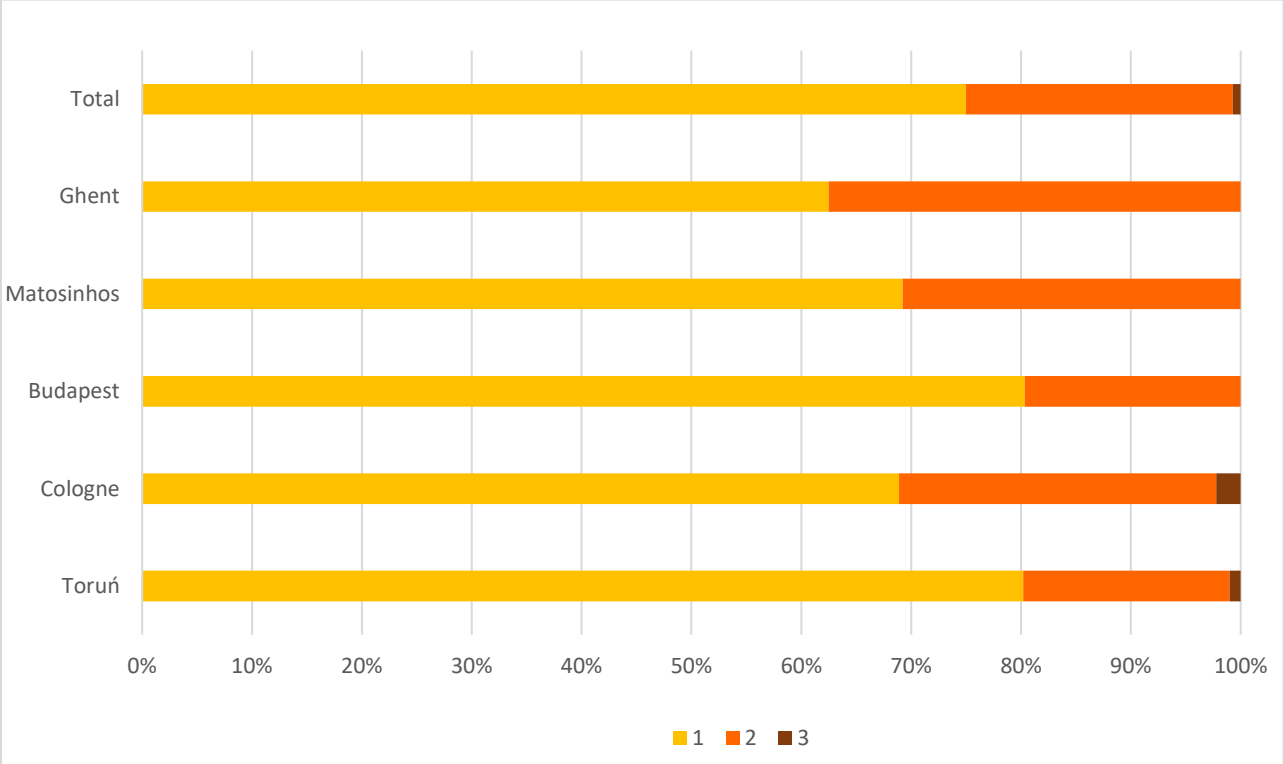
The gender structure of respondents was relatively similar across all analysed cities, and the relationship between gender and city was not statistically significant (χ^2=8.354; p=0.400). Women constituted a clear majority of respondents (75.0%), while men accounted for 24.3% of the sample.

The highest share of women was recorded in Budapest (80.4%) and Toruń (80.2%), whereas relatively lower proportions were observed in Ghent (62.5%) and Matosinhos (69.2%). In contrast, the highest proportions of men were found in Ghent (37.5%) and Matosinhos (30.8%).

Responses indicating “other gender / prefer not to say” appeared only sporadically and were recorded exclusively in Toruń and Cologne.

Overall, the gender structure of respondents reveals a clear predominance of women across all studied cities, which may reflect the greater involvement of mothers in issues related to children’s mobility and the organisation of everyday family travel.

Figure 202 Figure P.21. Structure of respondents by gender (%)



Explanation: 1 – Woman; 2 – o Man; 3 - Other / Prefer not to say

Source: Own elaboration on the basis of the questionnaire survey

Respondents' place of residence differed significantly across the analysed cities, and this relationship was statistically significant (χ^2=62.257; p<0.001).

Most respondents declared that they lived in the same neighbourhood as their youngest child's school (45.1%) or in another part of the city (42.7%). A relatively small proportion of respondents lived outside the city (12.2%).

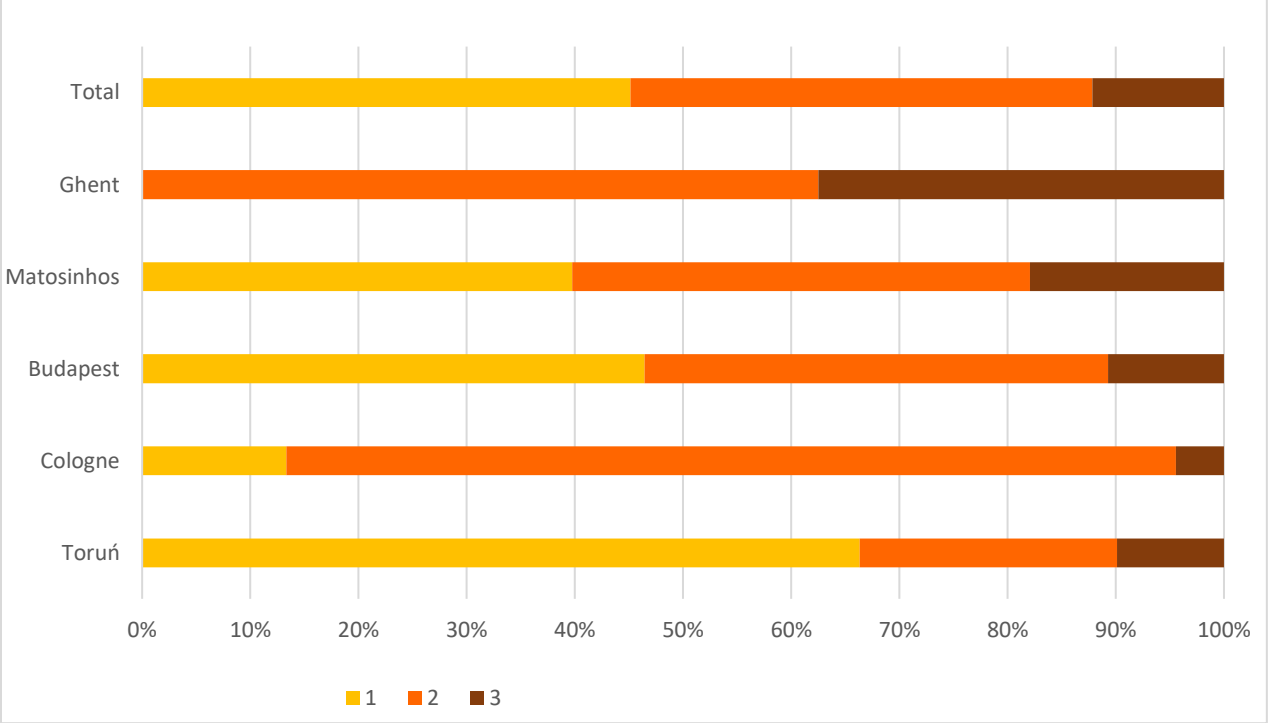
Toruń stood out with the highest share of respondents living in the same neighbourhood as their youngest child's school (66.3%). This proportion was substantially higher than in the other cities, particularly compared with Cologne (13.3%) and Ghent (0.0%).

In contrast, respondents in Cologne were predominantly living in a different part of the city than their child's school (82.2%), which clearly distinguished Cologne from the other locations. A relatively high share of this category was also observed in Ghent (62.5%).

The highest proportion of respondents living outside the city was recorded in Ghent 37.5%) and Matosinhos (17.9%), whereas the lowest share was found in Cologne (4.4%).

Overall, the findings indicate different spatial patterns linking family residence and children's school location. In Toruń, everyday family activities appeared to be more locally concentrated, whereas Cologne and, to some extent, Ghent reflected a more spatially dispersed pattern of family functioning.

Figure 203 Figure P.22. The structure of responses to the question: 'Where do you live in the city?' (in a relations to the youngest child's school)(%)



Explanation: 1 - In the same neighbourhood as the school; 2 - In the different neighbourhood as the school; 3 - Outside the city

Source: Own elaboration on the basis of the questionnaire survey

The assessment of respondents' household financial situation differed across the analysed cities, and this relationship was statistically significant (χ^2=31.808; p=0.045). The largest group of respondents declared that they did not need to limit everyday expenses and could afford some larger purchases (39.6%). Another 31.9% stated that they needed to monitor their spending but were able to manage their everyday needs.

The highest share of respondents declaring a relatively good financial situation ("we do not need to limit everyday expenses") was recorded in Ghent (62.5%), Budapest (42.9%), and Cologne (40.0%). In contrast, Matosinhos had the highest proportion of respondents reporting the need to control expenses despite coping with daily needs (38.5%).

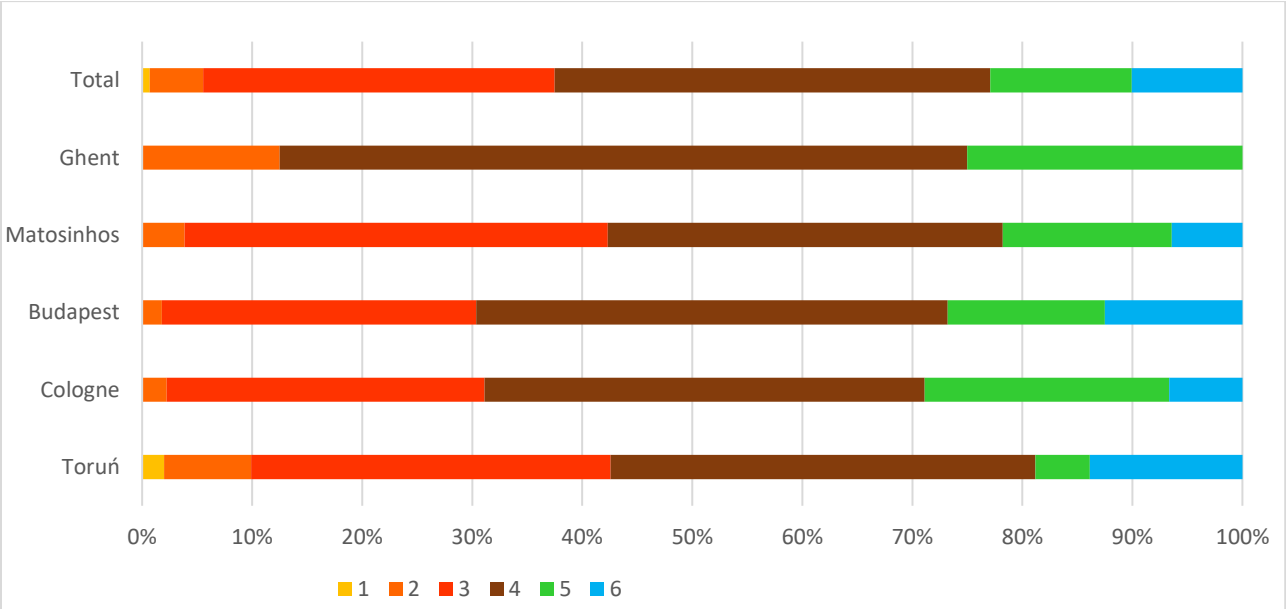
Respondents declaring a very good financial situation ("we do not need to limit any expenses") were most common in Ghent (25.0%) and Cologne (22.2%), while the lowest share was recorded in Toruń (5.0%).

Only a relatively small proportion of respondents indicated financial difficulties. Merely 0.7% declared that they did not have enough money even for basic needs, while 4.9% reported having resources only for basic necessities.

In Toruń, a relatively high proportion of respondents also preferred not to answer the question regarding their household financial situation (13.9%).

Overall, the findings indicate that most respondents assessed their financial situation as stable or good, although differences between cities were visible, particularly between Ghent and Cologne on the one hand, and Toruń and Matosinhos on the other.

Figure 204 Figure 205 P.23. The structure of responses to the question: 'Financial situation in your household'



Explanation: 1 - We don't have enough money even for basic needs; 2 - o We only have money for basic needs; 3 - We have to watch our spending, but we manage day-to-day; 4 - We don't have to limit daily expenses and can meet most needs; 5 - We don't have to limit our spending on all needs; 6 - I prefer not to answer

Source: Own elaboration on the basis of the questionnaire survey

Respondents' educational attainment was generally high across all analysed cities; however, statistically significant differences were observed between the locations

($\chi^2(16)=32.347$; $p=0.009$). The largest group consisted of respondents with higher education qualifications (64.9%), while 8.0% held a doctoral degree. Respondents with secondary education accounted for 21.5% of the sample, whereas only 5.6% reported vocational or primary education.

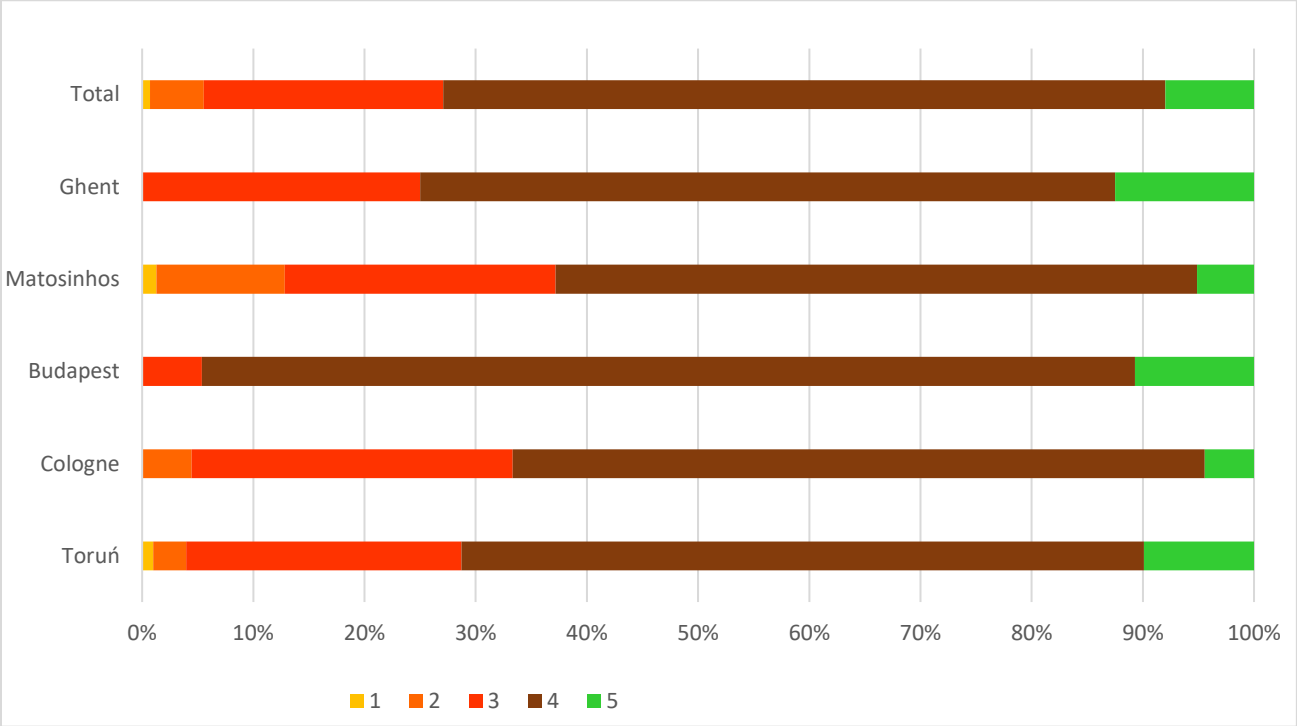
The highest proportion of respondents with higher education was recorded in Budapest (83.9%), clearly distinguishing this city from the other locations. Relatively high shares were also observed in Cologne (62.2%), Ghent (62.5%), and Toruń (61.4%). The lowest proportion was recorded in Matosinhos (57.7%).

Respondents with secondary education constituted a particularly large group in Cologne (28.9%) and Ghent (25.0%), while their share was considerably lower in Budapest (5.4%). Vocational education was most frequently reported in Matosinhos (11.5%), whereas no such responses were recorded in Budapest or Ghent.

Doctoral degree holders were most common in Ghent (12.5%) and Budapest (10.7%), while the lowest proportions were observed in Cologne (4.4%) and Matosinhos (5.1%).

Overall, the findings indicate that the sample was strongly dominated by respondents with higher education qualifications, which is characteristic of surveys involving parents of school-aged children. At the same time, the observed differences between cities suggest distinct socio-educational profiles among the respondents participating in the study.

Figure 206 Figure. P.24. The structure of responses to the question: 'What is your highest level of education?'



Explanation: 1 - Primary school; 2 - Vocational education (professional); 3 - Secondary school; 4 - Higher education / University; 5 - Doctoral degree

Source: Own elaboration on the basis of the questionnaire survey

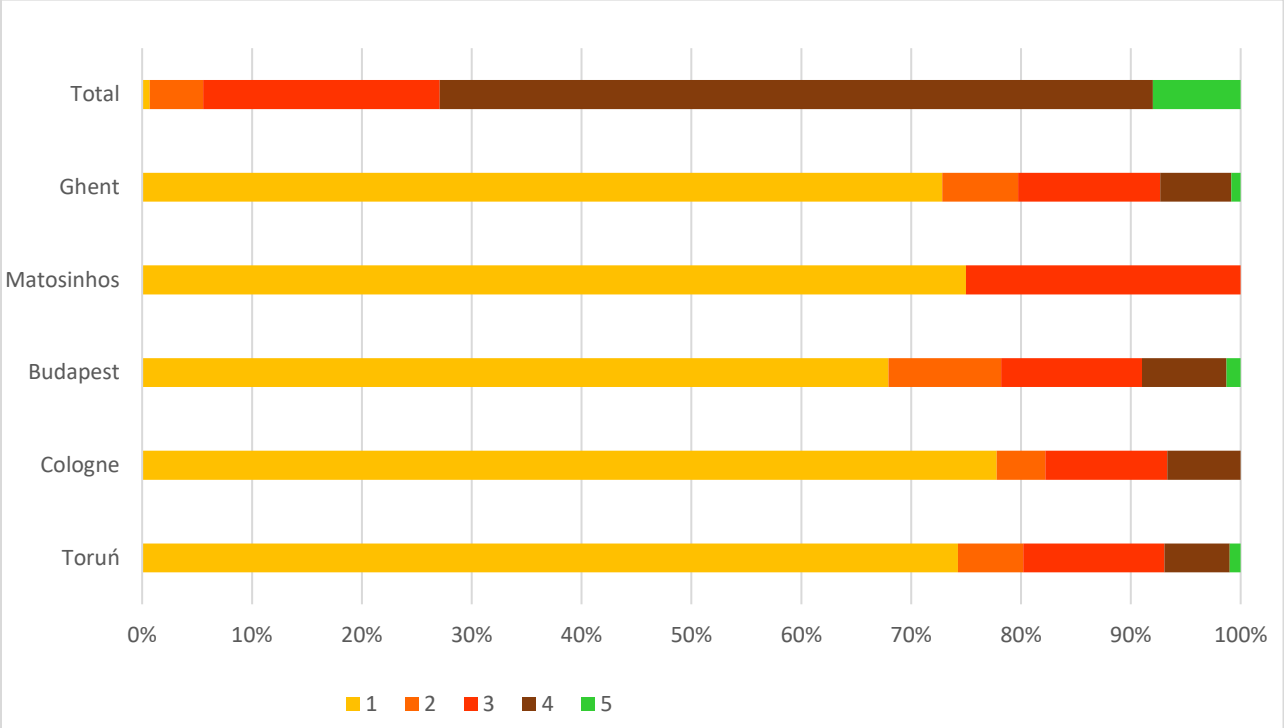
The structure of respondents' households was very similar across all analysed cities. Statistical analysis did not reveal significant differences between locations ($\chi^2(12)=6.396$; $p=0.895$), indicating that household type was not associated with respondents' city of residence.

The overwhelming majority of respondents lived in two-generation households consisting of parents and children (72.8%). This was the dominant household type in all analysed cities, with proportions ranging from 67.9% in Budapest to 77.8% in Cologne. The second most common category was single-parent households, in which one parent raises the child. This type of household was reported by 12.9% of respondents. The highest proportion was recorded in Matosinhos (25.0%); however, given the small sample size, this result should be interpreted with caution. Multi-generational households, including grandparents, parents, and children, accounted for 6.9% of all households. The highest proportion was observed in Budapest (10.3%), whereas no such households were reported in Matosinhos. Blended families, consisting of partners raising children from

previous relationships, represented 6.5% of the surveyed households. Their share was relatively similar across all analysed cities, ranging from 5.9% to 7.7%. Other household types occurred only sporadically and accounted for less than 1% of all responses.

Overall, the findings indicate that regardless of the city, the two-generation family remains the dominant household model, while alternative family arrangements play a supplementary role and occur with similar frequency across all analysed locations.

Figure 207 Figure. P.25. The structure of responses to the question: 'What does your household look like?'



Explanation: 1 - Two-generation family (parents and children); 2 - Multi-generation family (grandparents, parents, children); 3 - Single-parent family (one parent raises the child); 4 - Blended family (partners are in new relationships but have children from previous relationships); 5 - Other

Source: Own elaboration on the basis of the questionnaire survey

3.3.1.3.7. Summary for parents and carers

The empirical material collected among parents provides a comprehensive picture of everyday mobility practices, transport preferences, place attachment, and aspirations

regarding the future of urban environments. The findings demonstrate that parents' mobility choices are shaped by a combination of accessibility, convenience, independence, and local infrastructural conditions. At the same time, respondents express a clear preference for cities that enable the fulfilment of everyday needs within short distances and support sustainable forms of mobility.

Key tendencies

Mobility patterns and transport choices

Public transport constitutes an important component of everyday mobility, with nearly two-thirds of respondents declaring its use. However, substantial differences exist between cities, with particularly high levels of public transport use in Cologne and Budapest, and much lower levels in Matosinhos. Walking remains a common practice, with 37.8% of respondents declaring that they regularly walk entire routes, while 43.8% use bicycles or scooters. Non-use of public transport is most frequently associated with preferences for more comfortable and private modes of travel, long travel times, and insufficient service provision. For everyday commuting and meeting basic needs, the private car remains the dominant transport mode. Nearly half of respondents (48.3%) drive a car daily, whereas active modes of transport are used less frequently. Travel speed, independence, comfort, and flexibility emerge as the principal motivations behind everyday transport choices. While everyday mobility practices remain strongly influenced by car use, respondents express considerable interest in cycling and public transport when asked about their preferred mode of urban travel.

Leisure mobility and family travel practices

Leisure-time mobility is also strongly influenced by private car use. The most common leisure transport mode is travelling by car as a driver (42.7%), followed by walking (17.7%), public transport (13.5%), and cycling (11.5%). Convenience, speed, and independence are the most important factors shaping leisure mobility decisions. The findings further indicate that parents continue to play a major role in organising children's mobility, although this role varies considerably between cities. The strongest dependence on parental car transport is observed in Matosinhos, particularly for children aged 10–18. In contrast, Cologne records the lowest levels of transporting children by car, suggesting greater child autonomy and wider availability of alternative mobility options.

Sense of place and safety

Parents generally report strong attachment to their local neighbourhoods. More than two-thirds of respondents (70.8%) feel "at home" in the area where they live, whereas identification with the city as a whole is noticeably weaker (52.1%). A similar pattern

emerges for perceived safety. While 71.5% of respondents feel safe in their immediate neighbourhood, only 48.6% express the same feeling at the city level. These findings suggest that place attachment and perceived safety are primarily rooted in familiar local environments and tend to weaken as the spatial scale expands from the neighbourhood to the city as a whole.

Urban aspirations

Parents strongly support the principles associated with the city of short distances. More than three-quarters of respondents (75.3%) consider proximity to shops, services, schools, and leisure opportunities within walking or cycling distance to be important. The most preferred vision of the future city is a compact urban environment where everyday needs can be met on foot (85.8%). Fast and efficient public transport systems (50.7%) and urban environments supportive of walking and cycling (40.6%) are also highly valued. In contrast, future visions based primarily on private cars, shared mobility systems, or flying transport technologies attract considerably less support.

Characteristics of the analysed urban environments

Budapest: Budapest is distinguished by its extensive use of public transportation, both in everyday mobility and as a preferred future transport mode. Respondents report high levels of neighbourhood safety and strong support for compact cities and efficient public transport systems. At the same time, cycling remains limited, with safety concerns constituting a major barrier.

Cologne: Cologne combines intensive use of public transport with high levels of walking and cycling. Respondents place particular emphasis on independence, environmental sustainability, and health-related motivations when choosing transport modes. Despite strong support for sustainable mobility, Cologne records comparatively low levels of perceived safety at the city scale.

Ghent: Ghent stands out as the city most strongly shaped by cycling culture. Bicycle use dominates both everyday and leisure mobility, while car dependency remains exceptionally low. Respondents display the strongest levels of place attachment, urban identification, and support for compact, walkable urban environments.

Matosinhos: Matosinhos is characterised by a high dependence on private cars, both for adults' everyday mobility and for transporting children. Public transport and cycling play a comparatively limited role. Nevertheless, respondents report strong attachment to their neighbourhoods and express considerable support for the idea of a compact city where daily needs are easily accessible.

Toruń: Toruń represents a relatively balanced mobility environment, combining car use, walking, cycling, and occasional public transport. Respondents frequently rely on app-

based transport services and report relatively high levels of independent mobility. At the same time, place attachment and neighbourhood safety perceptions are somewhat lower than in several other analysed cities, although perceived safety at the city scale remains comparatively high.

3.3.2. Mobility cultures of children and youth

3.3.2.1. Introduction and Research Methodology

The research methodology was based on an exploratory approach aimed at providing a detailed description of reality and identifying mobility patterns rather than testing predefined hypotheses. This approach was particularly well suited to the broad scope of the data collected, despite certain challenges associated with planning the final outcomes of the study.

• Preliminary assumptions related to work with the databases

- Data structure obtained. Family-level matching was successfully carried out to a limited extent in Poland, Germany, and Portugal. The dataset includes 21 cases with matched C (Children) and Y (Youth) responses, 49 cases with matched Y and R (Parents/Representatives) responses, and 46 cases with matched C and R responses, including a total of 5 complete C+Y+R records.
- Issue with question R8A (number of children within a specified age group) in Portugal and Hungary. It is likely that some respondents entered the age of the child rather than the number of children. This issue requires further resolution. In Portugal, the problem affects only three respondents despite the correct wording of the question and can be easily corrected. In Hungary, however, question R8A appears to have been incorrectly formulated.
- Issue with the Brussels dataset. Separate surveys using distinct questionnaires for children and youth were not conducted. Instead, both groups were surveyed using the children's questionnaire. Consequently, it was necessary to separate these two subpopulations, which was done on the basis of the “age” variable.

The initial database structure consisted of three separate study populations, with only limited possibilities for comparisons based on small matched subsamples.

The following modifications were adopted, resulting in the final database structure:

1. The database structure is based on separate C (Children) and Y (Youth) populations, which were subsequently merged into a single population covering respondents aged 10–18 years.
2. Based on the C (Children) and Y (Youth) questionnaires, a common set of variables was created wherever equivalent questions had been asked in both subpopulations. These shared variables were supplemented with variables specific to only one of the subpopulations.
3. The database was extended by incorporating 21 matched C (Children) and Y (Youth) records, where both respondents originated from the same household.
4. P (Parents and Carers) records were subsequently linked to the combined C+Y structure (44 parents of children and 41 parents of youth respondents, including 5 parents linked to both a child and a youth respondent).
5. Finally, the database includes 198 stand-alone P (Parents and Carers) records without corresponding C or Y respondents. These records will not be included in analyses based on the C and Y populations; however, they remain part of the integrated database and enable independent analyses of the adult population.

As a result, a sample of 1,190 students (Children and Youth) was obtained, including a limited number of linked parental responses (n = 95). In addition, a separate survey of the parent population was conducted, yielding a total sample of 288 parents and carers.

• Construction of scales (composite diagnostic indicators) based on questionnaire items

The analytical framework is primarily based on the dataset collected from children and youth respondents across all participating cities:

No.	**Symbol and number of a question in the survey form**	**The question text**	**Type of a question**
1	C1Y4	How did you come to school this morning?	Singe choice
2	C2Y5i1, C2Y5i2, C2Y5i3, C2Y5i4, C2Y5i5, C2Y5i6, C2Y5i7, C2Y5i8, C2Y5i9, C2Y5i10, C2Y5i11	Why did you travel to school this way?	Multiple choice
3	C3Y6i1, C3Y6i2, C3Y6i3, C3Y6i4, C3Y6i5, C3Y6i6, C3Y6i78, C3Y6i89	How do you generally come to school?	Single choice in a few options
4	C4Y8	What do you do most often after school?	Singe choice
5	C5Y9	How do you move to the place you visit most often after school?	Singe choice
6	C6i1Y10i6, C6i2Y10i7, C6i3Y10i8, C6i4Y10i9,	Why do you travel this way to the place you visit most often after school?	Multiple choice

	C6i5Y10i10, C6i6Y10i11, C6i7Y10i12, C6i8Y10i13, C6i9Y10i14, C6i10Y10i16, C6i11Y10i17, C6i13Y10i18, C6i14Y10i19		
7	C8Y12	If you could choose, how you would like to move around the city?	Singe choice
8	C9Y13i1, C9Y13i2, Y13i3,	With whom do you most like to explore (multiple choice): A. The neighbourhood of your place of residence, B. The neighbourhood of your school, C. The entire city	Single choice in a few options
9	C10Y14	How important is it for you that daily needs (school, shops, places to spend free time) are available within walking or cycling distance from your home?	Singe choice
10	C11i1Y16i1, C11i2Y16i2, C11i3Y16i3, C11i4Y16i4, C11i5Y16i5, C11i6Y16i6	What version of the city would you like to live in when you are a grown up?	Up to 3 options
11	L1C12L1Y17, L2C12L2Y17, L3C12L3Y17	Do you feel "at home": A. in the neighbourhood where you live? B. in the neighbourhood of your school? C. generally in the entire city, do you feel it is your city?	Single choice in a few options
12	L1C13L1Y18, L2C13L2Y18, L3C13L3Y18	Do you feel safe: A. in the neighbourhood where you live? B. in the neighbourhood of your school? C. generally in your city?	Single choice in a few options
13	C14Y23, C15Y24, C16Y25	Age, gender, place of residence	Singe choice

Among these variables, some scales contained missing data, primarily in the Brussels dataset, which was collected without the constraints imposed by the CAWI (Computer-Assisted Web Interviewing) technique. Unlike the online questionnaire used in other locations, this approach allowed respondents to leave questions unanswered. For the following questions measured on ordinal scales, missing values were imputed using city-specific mean values.

3	C3Y6i1, C3Y6i2, C3Y6i3, C3Y6i4, C3Y6i5, C3Y6i6, C3Y6i78, C3Y6i89	How do you generally come to school?	Single choice in a few options
9	C10Y14	How important is it for you that daily needs (school, shops, places to spend free time) are available within walking or cycling distance from your home?	Singe choice
11	L1C12L1Y17, L2C12L2Y17, L3C12L3Y17	Do you feel "at home": A. in the neighbourhood where you live? B. in the neighbourhood of your school? C. generally in the entire city, do you feel it is your city?	Single choice in a few options
12	L1C13L1Y18, L2C13L2Y18, L3C13L3Y18	Do you feel safe: A. in the neighbourhood where you live? B. in the neighbourhood of your school? C. generally in your city?	Single choice in a few options
13	C14Y23	Age, gender, place of residence	Singe choice

For the remaining questions from the above-described set (administered to all respondents), unanswered items were interpreted as indicating that a given response option had not been selected

Assumptions underlying the construction of mobility scales/dimensions (composite diagnostic indicators): Given that mobility in urban space is a multidimensional phenomenon, measures of actual behaviour in the urban environment, mobility preferences, and expectations regarding urban space were complemented by indicators reflecting the emotional dimension of mobility. The objective was therefore to identify mobility cultures within urban space, understood as groups within the Children and Youth population that are internally coherent in terms of their characteristics while differing from one another across these characteristics.

To enable the analytical identification of mobility cultures, the set of survey questions was transformed into a set of mobility scales (dimensions). This approach facilitates both the classification of respondents and the precise characterisation of groups representing distinct mobility cultures. The following mobility dimensions were identified:

3.3.2.2. Modes of Urban Mobility

A specific configuration of mobility-related variables resulted in the first mobility dimension, referred to as **"Modes of Urban Mobility."**

a) Eleven indicators, denoted by the symbol *spporX*, describing modes of travel to school (C1Y4), travel after school (C5Y9), and preferred modes of travel (C8Y12), were used to derive five internally coherent and mutually distinct factors representing different patterns of movement within the city (*spporf*):

1. **Mode of travel:** public transport vs. walking
2. **Mode of travel:** public transport vs. travelling as a car passenger
3. **Mode of travel:** private car vs. personal bicycle
4. **Mode of travel:** shared/public bicycle and car driver vs. scooter
5. **Mode of travel:** shared/public bicycle vs. access to a private car

Structure Matrix

	Component				
	1	2	3	4	5
sppor1 mode of travel: walking	-,916				
sppor5 mode of travel: public transport	,719	,597	,330		
sppor6 mode of travel: travelling as a car passenger		-,960			
sppor2 mode of travel: personal bicycle			-,948		

sppor4 mode of travel: scooter				-,873	
sppor8 mode of travel: Ride-hailing					,724
sppor3 mode of travel: public bicycle				,454	-,499
sppor7 mode of travel: private car			,320	,301	,492

b) Seventy-eight declarations concerning respondents' usual mode of travel to school were analysed, resulting in four factors (*D3M6f*):

1. **Usual travel to school: modern mobility modes**
2. **Usual travel to school: walking vs. being driven by car**
3. **Usual travel to school: individual travel (walking, travelling as a car passenger) vs. public transport**
4. **Usual travel to school: being driven by car (as a passenger) vs. personal bicycle**

Structure Matrix

	Component			
	1	2	3	4
C3Y6s3. How do you usually travel to school? By a shared bicycle (rented by the minute)	,727			
C3Y6s4. How do you usually travel to school? By a traditional or electric scooter	,657			
C3Y6s78. How do you usually travel to school? By an app-based car service (e.g. Uber) or taxi	,559			
C3Y6s6. How do you usually travel to school? As a passenger in a car		,816	,368	-,327
C3Y6s1. How do you usually travel to school? On foot		-,790	,435	
C3Y6s5. How do you usually travel to school? By public transport (e.g. bus or tram)			-,933	
C3Y6s2. How do you usually travel to school? By a personal bicycle				,941

3.3.2.3. Motivation for Mobility Choices

Eleven indicators, denoted by the symbol *motywX*, capturing declared motivations for travel choices both to school (C2Y5) and after school (C6Y10), resulted in five internally coherent and mutually distinct factors related to mobility motivations (*motywf*):

1. Motivation for mobility choices: for oneself and the environment
2. Motivation for mobility choices: easy conformity
3. Motivation for mobility choices: cautious compliance

4. Motivation for mobility choices: necessity
5. Motivation for mobility choices: weather conditions

Structure Matrix

	Component				
	1	2	3	4	5
motyw09 Mobility motivation: For health and physical fitness	,706				-,352
motyw08 Mobility motivation: I care about the environment	,663				
motyw01 Mobility motivation: I do not have to wait for anyone; I am independent and self-reliant	,634				
motyw04 Mobility motivation: Everyone travels this way here		,731			
motyw03 Mobility motivation: My friends travel this way		,724			
motyw06 Mobility motivation: There is a public transport stop nearby (bus or tram)		,615	-,370		
motyw02 Mobility motivation: My parents travel this way			,814		
motyw07 Mobility motivation: I feel safe on the road	,400		,554		
motyw10 Mobility motivation: I have no other choice				,806	
motyw05 Mobility motivation: It is close to home	,348			-,641	
motyw11 Mobility motivation: Because of the weather conditions					-,909

1. **Modes of Urban Mobility** and 2. **Motivation for Mobility Choices** are the basis for describing mobility styles in urban space.

The complementary elements are:

2. **Commitment to the vision of a clean, sustainable, and environmentally friendly urban environment associated with the 15-Minute City concept** (C10Y14)

3. **Aspirations**, that is, the vision of a *"dream city"* and expectations in a situation free from constraints (C11Y16), resulted in 3 internally coherent and mutually distinct factors (*mimarf*):

1. **Dream city:** supercars vs. quiet, healthy, and green
2. **Dream city:** shared vehicles
3. **Dream city:** in the clouds vs. fast on the ground

Structure Matrix

	Component		
	1	2	3
C11i5Y16i5 Y16.C11. In which version of a city would you like to live when you grow up (maximum 3 answers)? Everything is close by and there is plenty of green space	,713		
C11i1Y16i1 Y16.C11. In which version of a city would you like to live when you grow up (maximum 3 answers)? With supercars of the future	-,681		
C11i4Y16i4 Y16.C11. In which version of a city would you like to live when you grow up (maximum 3 answers)? With opportunities for enjoyable cycling and scooter riding	,655		
C11i3Y16i3 Y16.C11. In which version of a city would you like to live when you grow up (maximum 3 answers)? With shared vehicles		,930	
C11i2Y16i2 Y16.C11. In which version of a city would you like to live when you grow up (maximum 3 answers)? With fast buses and trains			,892
C11i6Y16i6 Y16.C11. In which version of a city would you like to live when you grow up (maximum 3 answers)? With flying in the city	-,383	-,369	-,539

5. Further variables included in the construction of the mobility dimensions were based on classical linear indicators representing the key theoretical parameters used to describe movement in urban space. These indicators also have a three-category version designed to facilitate the straightforward illustration of their relationships with other variables. The three categories—low, medium, and high—result from dividing the continuous scale at cut-off points determined through distribution analysis.

5a. Assessment of the emotional quality of urban space (sense of place and safety in urban space)

Sense of place and safety indicators in urban space, as well as the composite indicator:

Main statistics

	Scale mean if item deleted	Scale variance if item deleted	Corrected Item–Total Correlation	Cronbach's Alpha if Item Deleted
L1C12AL1Y17A. Do you feel “at home” in the neighbourhood where you live?	11,71	4,838	,340	,663
L2C12BL1Y17B. Do you feel “at home” in the neighbourhood of your school?	12,35	4,074	,433	,635
L3C12CL1Y17C. Do you generally feel “at home” in Toruń? Do you feel that it is your city?	11,98	4,361	,410	,641

L1C13AL1Y18A. Do you feel safe in the neighbourhood where you live?	11,71	4,782	,391	,649
L2C13BL1Y18B. Do you feel safe in the neighbourhood of your school?	12,04	4,265	,449	,627
L3C13CL1Y18C. Do you generally feel safe in Toruń?	12,10	4,423	,456	,626

Reliability analysis conducted using Cronbach's Alpha confirmed the validity of combining these items into scales. Although six items ultimately resulted in six separate scales, each scale captures a specific aspect of the phenomenon more accurately and measures it more precisely than a single item.

These six scales, defined for all students, may constitute an important dimension of mobility, as they reflect the overall satisfaction with and acceptance of the organisation of urban space, although this was not measured directly.

5b. Assessment of progressiveness and orientation towards mobility-friendly urban space

progressiveness

A linear index forming a scale whose negative pole represents an exploratory approach to urban space (e.g. prioritising parking areas over green spaces), while its positive pole reflects a sustainability-oriented, environmentally friendly, and self-limiting approach commonly associated with urban movements and sustainable urban development principles. The index aggregates expert-selected aspects supporting this dimension from among the questions administered to all respondents.

Reliability Statistics

Cronbach's Alpha	Number of Items
,569	19

Main statistics

	Scale mean if item deleted	Scale variance if item deleted	Corrected Item–Total Correlation	Cronbach's Alpha if Item Deleted
pC1Y4 How did you come to school this morning?	5,5597	5,651	,408	,515
pC2Y5i6 Why did you travel to school this way? (It is close to home, there is a public transport stop nearby)	6,0126	6,071	,257	,545

pC2Y5i8 Why did you travel to school this way? (It is close to home, I care about the environment)	6,1403	6,380	,205	,555
pC2Y5i9 Why did you travel to school this way? (It is close to home, for health and physical fitness)	6,1571	6,393	,223	,554
pC3Y6s1 How do you generally come to school? (walking)	5,8874	6,542	,002	,591
pC3Y6s2 How do you generally come to school? (personal bicycle)	6,1303	6,460	,139	,563
pC3Y6s3 How do you generally come to school? (shared bicycle)	6,2269	6,766	-,003	,572
pC3Y6s4 How do you generally come to school? (scooter)	6,2017	6,733	,008	,574
pC3Y6s5 How do you generally come to school? (public transport)	5,7000	6,190	,136	,568
pC5Y9 How do you move to the place you visit most often after school?	5,5050	5,865	,333	,531
pC6i6Y10i11 Why do you travel this way to the place you visit most often after school? (There is a public transport stop nearby)	5,9941	6,189	,188	,556
pC6i8Y10i13 Why do you travel this way to the place you visit most often after school? (I care about the environment)	6,1462	6,372	,219	,554
pC6i9Y10i14 Why do you travel this way to the place you visit most often after school? (For health and physical fitness)	6,1487	6,403	,202	,556
pC8Y12 If you could choose, how you would like to move around the city?	5,5529	5,993	,249	,546
pC10Y14 How important is it for you that daily needs (school, shops, places to spend free time) are available within walking or cycling distance from your home?	5,7773	6,217	,124	,570
pC11i1Y16i1 What version of the city would you like to live in when you are a grown up? (Supercars of the future)	5,6672	5,916	,255	,544
pC11i2Y16i2 What version of the city would you like to live in when you are a grown up? (Fast buses and trains)	5,8874	6,132	,176	,559
pC11i4Y16i4 What version of the city would you like to live in when you are a grown up? (With opportunities for cycling and scooter riding)	5,9151	6,027	,230	,549
pC11i5Y16i5 What version of the city would you like to live in when you are a grown up? (Everything is close by and there is plenty of green space)	5,6706	5,997	,219	,551

- Removed after Cronbach's Alpha testing; Cronbach's Alpha increased to 0.600 with 16 items

Its extension may take the form of an indicator constructed from questions administered only to selected respondents, individually rescaled so that the number of items on which it is based does not automatically influence the final score. For respondent X, the indicator

is calculated as the percentage of "progressive" choices among all choices available to that respondent. Consequently, the same score would be obtained by a respondent selecting 3 out of 4 progressive options and by a respondent selecting 6 out of 8 progressive options.

This approach would enrich the substantive content of the indicator by incorporating a broader range of survey questions, for example those included in the more extensive surveys conducted in Toruń or Cologne, at the cost of introducing some error related to differences in questionnaire scope.

5c. Engagement in Mobility: Assessment of the Level of Activity vs. Passivity in Urban Mobility

Constructed in the same manner as Scale 5b.

Reliability Statistics

Cronbach's Alpha	Number of Items
,485	20

Main statistics

	Scale mean if item deleted	Scale variance if item deleted	Corrected Item–Total Correlation	Cronbach's Alpha if Item Deleted
zC1Y4 How did you come to school this morning?	4,5168	5,010	,344	,427
zC2Y5i1 Why did you travel to school this way? (I am independent and do not have to wait for anyone)	4,6092	5,318	,239	,454
zC2Y5i6 Why did you travel to school this way?	4,5782	5,808	-,036	,508
zC2Y5i8 Why did you travel to school this way? (I care about the environment)	4,7059	5,520	,217	,462
zC2Y5i9 Why did you travel to school this way? (for health and physical fitness)	4,7227	5,375	,366	,444
zC3Y6s1 How do you generally come to school? (walking)	4,4529	5,370	,142	,473
zC3Y6s2 How do you generally come to school? (By a personal bicycle)	4,6958	5,446	,255	,456
zC3Y6s3 How do you generally come to school? (By a shared bicycle)	4,7924	5,892	,016	,486
zC3Y6s4 How do you generally come to school? (scooter)	4,7672	5,794	,092	,481
zC4Y8 What do you do most often after school?	4,2521	5,539	,053	,495

zC5Y9 How do you move to the place you visit most often after school?	4,4597	5,007	,319	,431
zC6i1Y10i6 Why do you travel this way to the place you visit most often after school? (I am independent and do not have to wait for anyone)	4,6126	5,371	,211	,459
zC6i6Y10i11 Why do you travel this way to the place you visit most often after school? (I feel safe in the city)	4,5597	5,816	-,043	,510
zC6i8Y10i13 Why do you travel this way to the place you visit most often after school? (I care about the environment)	4,7118	5,472	,263	,456
zC6i9Y10i14 Why do you travel this way to the place you visit most often after school? (For health and physical fitness)	4,7143	5,400	,324	,448
zC8Y12 If you could choose, how you would like to move around the city?	4,3084	5,211	,197	,460
zC10Y14 How important is it for you that daily needs (school, shops, places to spend free time) are available within walking or cycling distance from your home?	4,3429	5,391	,117	,480
zC11i2Y16i2 What version of the city would you like to live in when you are a grown up? (samochody przyszłości)	4,4529	5,713	-,013	,508
zC11i4Y16i4 What version of the city would you like to live in when you are a grown up? (With opportunities for cycling and scooter riding)	4,4807	5,273	,195	,461
zC11i6Y16i6 What version of the city would you like to live in when you are a grown up? (With flying in the city)	4,5277	5,858	-,068	,517

- Removed after Cronbach's Alpha testing; Cronbach's Alpha increased to 0.653 with 13 items

5d. Individual vs. Social Mobility: Assessment of the Individual versus Social Dimension of Mobility in Urban Space

Constructed in the same manner as 5b.

Reliability Statistics

Cronbach's Alpha	Number of Items
,443	15

Main statistics

	Scale mean if item deleted	Scale variance if item deleted	Corrected Item–Total Correlation	Cronbach's Alpha if Item Deleted
sC1Y4 How did you come to school this morning?	3,1076	2,907	,422	,333
sC2Y5i2 Why did you travel to school this way? (My parents travel this way)	3,5916	3,372	,191	,414
sC2Y5i3 Why did you travel to school this way? (My friends travel this way)	3,6151	3,458	,147	,426
sC2Y5i4 Why did you travel to school this way? (Everyone travels this way)	3,7042	3,549	,179	,422
sC2Y5i8 Why did you travel to school this way? (I care about the environment)	3,6840	3,685	,025	,451
sC3Y6s5 How do you generally come to school? (Public transport)	3,2437	3,271	,156	,425
sC3Y6s6 How do you generally come to school? (By car as a passenger)	3,3790	3,300	,146	,428
sD4M8 What do you do most often after school?	3,6235	3,648	,014	,458
sD5M9 How do you move to the place you visit most often after school?	3,1908	3,085	,274	,383
sD6i2M10i7 Why do you travel this way to the place you visit most often after school? (My parents travel this way)	3,6672	3,565	,112	,434
sD6i3M10i8 Why do you travel this way to the place you visit most often after school? (My friends travel this way)	3,6521	3,495	,153	,425
sD6i4M10i9 Why do you travel this way to the place you visit most often after school? (Everyone travels this way)	3,7286	3,651	,116	,434
sD6i8M10i13 Why do you travel this way to the place you visit most often after school? (I care about the environment)	3,6899	3,676	,038	,448
sD8M12 If you could choose, how you would like to move around the city?	3,4084	3,226	,196	,411
sD11i3M16i3 What version of the city would you like to live in when you are a grown up? (With shared vehicles)	3,6555	3,752	-,047	,469

- Removed after Cronbach's Alpha testing; Cronbach's Alpha increased to 0.517 with 11 items

- Analytical Scales (Mobility Dimensions)

To describe students' (children and youth aged 10–18 years) attitudes towards the city and transport, five key analytical scales (also referred to as synthetic diagnostic indicators) were developed:

- **Progressiveness:** A theoretical construct measuring engagement in sustainable, environmentally friendly development and a self-limiting approach to transport choices (e.g. choosing a bicycle instead of a car) (theoretical indicator values ranging from 0 to 1 after variable normalisation).
- **Engagement:** A measure of activity versus passivity in mobility (points assigned for walking and cycling, no points assigned for car use) (theoretical indicator values ranging from 0 to 1 after variable normalisation).
- **Social Orientation:** An indicator determining whether transport choices are made independently or under the influence of parents or peers (theoretical indicator values ranging from 0 to 1 after variable normalisation).
- **Sense of Belonging:** The average score of the sense of place dimension (i.e. sense of familiarity with space); an indicator measuring the extent to which a student feels comfortable in particular urban environments (indicator values correspond to the original 1–3 scale used in the source questions).
- **Safety:** The average score of perceived safety across different urban situations (indicator values correspond to the original 1–3 scale used in the source questions).

Scales (**synthetic diagnostic indicators**)	**Indicator description**	**Range of indicator values**
1. Progressiveness	Sustainable, pro-environmental vs. unsustainable approach	0,19-0,55 (normalized)
2. Engagement in mobility	Active engagement in mobility – activity vs. passivity in mobility	0,10-0,49 (normalized)
3. Individual vs. social aspect of mobility	Individual (independent) vs. social aspect of mobility – do they travel around the city alone or with others?	0,09-0,51 (normalized)
4. Sense of place	Sense of familiarity with space (place attachment). Feeling "at home" in urban space; the extent to which they perceive it as their own space	Scale 1–3, mean 2.37
5. Sense of safety	Sense of safety in the place of residence and across the whole city	Scale 1–3, mean 2.43

• **Advanced Statistical Techniques**

Factor Analysis: To avoid the excessive influence of highly correlated variables, factor analysis was employed. This made it possible to reduce several dozen survey items to a

smaller number of factors that more effectively captured the underlying patterns of behaviour. Segmentation (Identification of Mobility Cultures): Based on the harmonised variables and derived factors, the population was segmented into five groups (mobility cultures) sharing similar characteristics. These groups are internally coherent and differ from one another in terms of mobility styles as well as demographic characteristics (age and gender).

Clustering Method. The central element of the analysis is the segmentation of the Children and Youth population using the **k-means clustering method**, applied to a set of indicators describing:

• mobility styles (factors *spporf1–spporf5* and direct indicators of the frequency of using particular modes of transport),

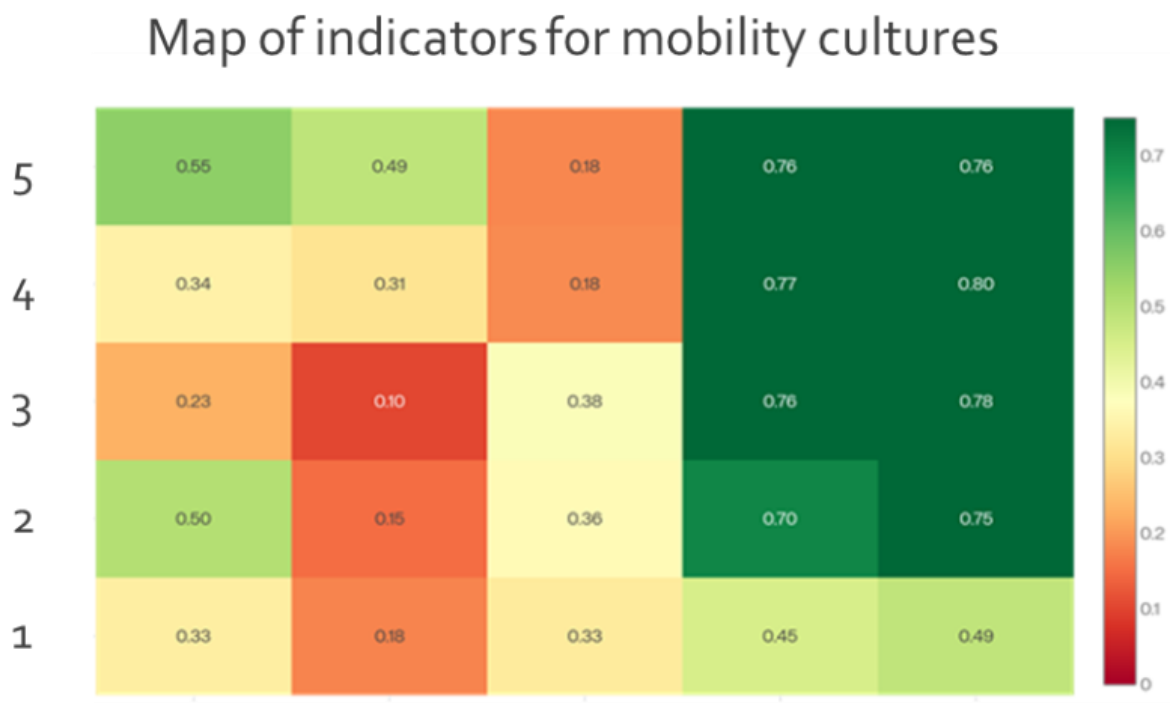
• motivations (motivational factors),

• attitudes (progressiveness, engagement, and the individual versus social dimension of mobility),

• perceptions and safety (perception and safety scales),

• preferences regarding the “dream city”.

The analysis is treated as exploratory in nature. Its purpose is not to test a single hypothesis but rather to identify a meaningful, stable, and interpretable segmentation of the population into internally coherent and externally differentiated groups.



Explanation:

1 - A Fortress in Hostile Territory; 2 - Adapting to Urban Constraints; 3 - Inherited Car Dependency; 4 - Close to School and Beyond; 5 - Cycling-Conscious Residents

A – progres; B – engagement in mobility; C - Individual vs. social aspect of mobility; D – Sense of place; E – sense of safety in urban space

Source: Own elaboration on the basis of the questionnaire survey

Several clustering solutions were tested (including 4- and 5-segment solutions). Ultimately, a five-cluster solution (*v2cl5*) was adopted as the primary segmentation model. In addition, alternative solutions (*v0cl4*, *v1cl5*, and *v1cl4a*) were examined, allowing the robustness of certain structures and the boundaries between segments to be assessed.

Eta-Squared Index

The Eta-squared statistic was used to identify which parameters (e.g. age, distance to school) most strongly differentiated the identified mobility cultures.

3.3.2.4. Characteristics of the Five Mobility Cultures

Using the statistical methods described above, five distinct mobility cultures were identified. Four of these (Cultures 1–4) each represent approximately 20–25% of the surveyed population. The smallest group consists of the **"conscious cyclists."**

The following analysis highlights the complexity of transport-related behaviours, which are shaped not only by infrastructure but, above all, by social and psychological factors.

Population Distribution

The k-means classification resulted in the division of the study population into five segments of broadly similar size (with the exception of the fifth group):

A Fortress in Hostile Territory	Adapting to Urban Constraints	Inherited Car Dependency	Close to School... and Beyond	Cycling-Conscious Residents
21,6%	23,3%	23,7%	23,9%	7,5%

Mobility Culture	N	%
1. Fortress in Hostile Territory [Fortress]	257	21,6%
2. Acceptance of Urban Necessity [Acceptance]	282	23,7%
3. Inherited Motorisation [Inherited]	277	23,3%
4. Close to School [Close]	285	23,9%
5. Conscious Cyclists [Cyclists]	89	7,5%

The first four mobility cultures are almost equal in size and together account for more than 92% of the sample. The **Conscious Cyclists** represent a distinct and clearly minority mobility culture, comprising 7.5% of respondents.

Demographic Profile

The mobility cultures differ significantly in terms of respondents' age and gender characteristics:

Mobility Culture	Mean age	Percentage of girls	Percentage of boys
1. Fortress in Hostile Territory [Fortress]	12,6	49,4%	42,0%

2. Acceptance of Urban Necessity [Acceptance]	14,7	54,3%	37,9%
3. Inherited Motorisation [Inherited]	14,4	45,7%	48,9%
4. Close to School [Close]	12,6	47,9%	47,9%
5. Conscious Cyclists [Cyclists]	14,1	40,4%	57,3%

The **Fortress** and **Close** cultures are younger, with a mean age of approximately 12.6 years, and are dominated by children (around two-thirds of respondents). The **Acceptance** and **Inherited** cultures are older, with a mean age of approximately 14.5 years, and are characterised by a predominance of youth respondents. The **Conscious Cyclists** display a noticeable overrepresentation of boys (57.3%).

1. Fortress in Hostile Territory [Fortress]

This mobility culture is characteristic of the youngest respondents, predominantly girls, who often live at a considerable distance from their school. Their mobility style is dominated by fear, with anxiety serving as the key mechanism driving defensive mobility behaviour. They tend to perceive the city as an unfriendly environment and display a generally negative attitude towards urban space. As a result, their mobility relies almost entirely on being driven by their parents, who constitute their primary point of reference. Mobility in this group is therefore largely imposed (necessity combined with parental chauffeuring) and does not constitute a genuine mobility culture so much as the absence of one. Although they occasionally experiment with shared bicycles or scooters, they do so without enthusiasm, while public transport is used only when no alternative is available. In their vision of a dream city, green space plays an important role; paradoxically, however, they still imagine this city as a space primarily designed for and accessible by cars.

2. Acceptance of Urban Necessity [Acceptance]

This group consists primarily of the oldest students, with a slight predominance of girls, who travel long distances to school. They are the principal users of public transport, for whom it represents the only realistic and acceptable travel option. Its convenience and efficiency are highly valued. The group is characterised by a certain duality. While they strongly support the principles of sustainable development at the declarative level, in practice they rarely choose walking or cycling. Their transport choices are influenced by peer-group pressure rather than by parental influence. Although they feel attached to their place of residence, they tend to dislike urban spaces located farther away from it. Their vision of a dream city is one that is quiet and green, where efficient public transport would make all destinations feel close and accessible. Their aspiration is

therefore not to change the mode of transport but to improve the quality of the existing transport system.

3. Inherited Motorisation [Inherited]

This category is characterised by the highest level of mobility passivity, with mobility taking place almost exclusively by car. It includes both respondents who are driven by their parents and those who are already of legal driving age and possess their own vehicles; approximately 70% of this group consists of older boys. For the younger members of the group, obtaining a driving licence immediately after turning 18 is often an important aspiration. The car-oriented culture observed in this segment is reproduced through family socialisation, as respondents tend to adopt the attitudes and behaviours of their parents, who are themselves strongly attached to private car use. Members of this group appreciate the opportunities offered by the city but also display a strong tendency towards conformity. They declare that they could give up car use only under ideal weather conditions, which, in practice, they perceive as almost never occurring. They dream of owning supercars and reject the idea of shared mobility. In their ideal vision of the city, priority is given to efficient motorised traffic rather than to green space.

4. Close to School [Close]

This group consists of the youngest respondents (often girls) who live close to their school. They walk primarily because of the short distance, but this in turn fosters autonomy and a strong sense of belonging. Their mobility is pragmatic rather than ideological; however, they possess a solid foundation for developing an active mobility culture as they grow older. Importantly, members of this group feel the most comfortable and the safest in the city compared with all other groups. Regardless of distance, they tend to choose physically active modes of travel, walking or cycling whenever possible, while also making use of shared bicycles and scooters. They consciously reject being driven by car and display a high degree of independence. Their vision of a dream city is based on shared mobility and an abundance of green space.

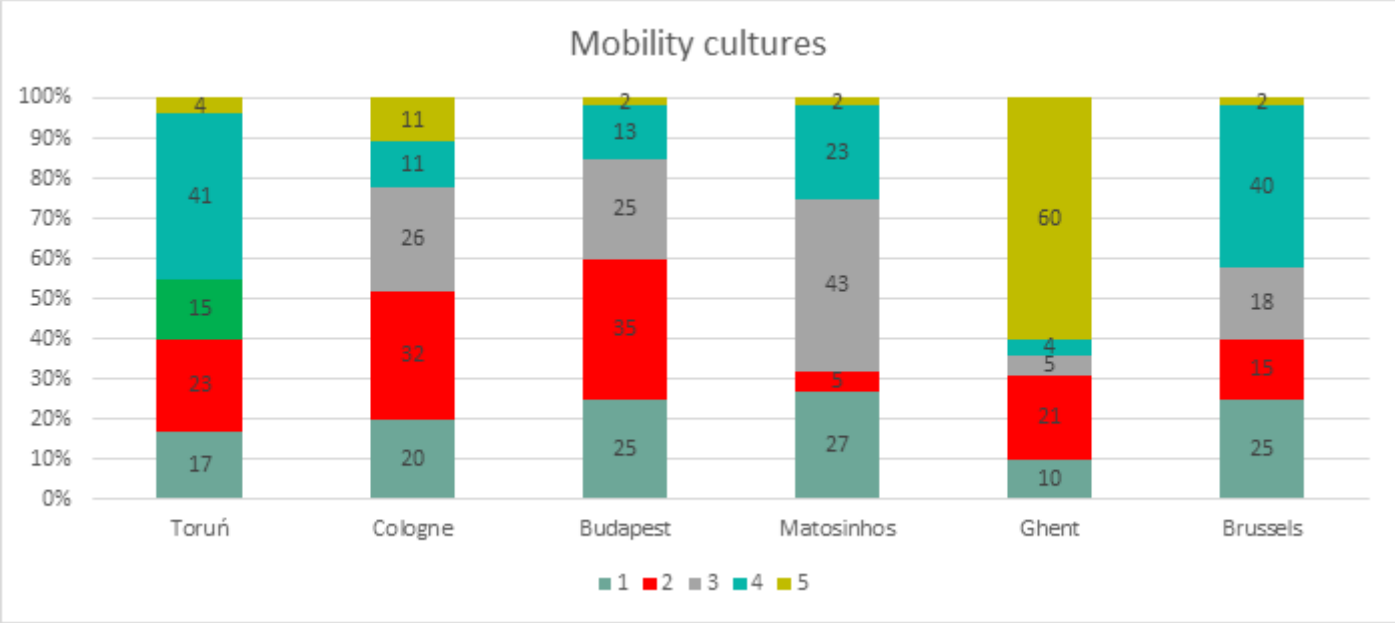
5. Conscious Cyclists [Cyclists]

This is the smallest group, dominated by older boys, for whom the bicycle is the only acceptable mode of transport, regardless of weather conditions or travel distance. They are openly opposed to both private car use and public transport. For members of this group, cycling is not merely a means of transport but a central element of identity. The consistency between their behaviour, emotions, motivations, and aspirations is almost complete. This group represents the ideal model sought by sustainable mobility policies, although replicating such a mobility culture requires not only appropriate infrastructure (cycling paths and traffic-calmed streets) but also a supportive urban environment (e.g. Ghent). From the city, they primarily expect functionality: peace and quiet, abundant green space, and a substantially denser cycling network that would enable even more efficient bicycle travel.

3.3.2.5. Comparison of Cities and Geographical Context

A comparative analysis of the cities included in the study suggests that mobility cultures are primarily local in nature rather than being determined by national or broader geographical contexts. The distribution of mobility cultures across cities reveals several distinct cultural and geographical patterns:

City	Fortress (1)	Acceptance (2)	Inherited (3)	Close (4)	Cyclists (5)
PL Toruń	17,1%	22,7%	14,7%	41,4%	4,0%
DE Köln	20,2%	31,8%	26,5%	10,6%	10,9%
HU Budapest	24,8%	34,7%	25,2%	12,6%	2,7%
PT Matosinhos	26,7%	5,3%	42,7%	23,3%	2,0%
NL Gent	10,5%	21,1%	5,3%	3,5%	59,6%
NL Brussels	25,0%	15,4%	17,8%	40,4%	1,4%



Explanation: 1 - A Fortress in Hostile Territory; 2 - Adapting to Urban Constraints; 3 - Inherited Car Dependency; 4 - Close to School and Beyond; 5 - Cycling-Conscious Residents

Source: Own elaboration on the basis of the questionnaire survey

- **Territorial Conclusions:**
- • **Ghent (Belgium)** is dominated by the **Conscious Cyclists** culture. A distinctly cycling-oriented culture (59.6%), unique across the entire study, reflects the well-established cycling culture of Flanders. This city exhibits the highest level of bicycle-oriented mobility observed in the research, characterised by a strong emphasis on independence and individualism.
- • **Toruń (Poland)** and **Brussels (Belgium)** are distinguished by the predominance of the **Close to School** culture (41.4% and 40.4%, respectively), which may suggest specific patterns of school distribution and catchment-area organisation in these cities. The similar profiles of the two cities challenge the conventional East–West European divide. In the case of Brussels, the profile differs substantially from that of nearby Ghent, further undermining the notion of national mobility models.
- • **Matosinhos (Portugal)** is characterised by the predominance of the **Inherited Motorisation** culture (42.7%), a result consistent with the high level of motorisation and limited alternatives to car use in Portugal.
- • **Budapest (Hungary)** and **Cologne (Germany)** are distinguished by the predominance of the **Acceptance** culture (34.7% and 31.8%, respectively), suggesting that public transport functions as a well-developed and realistic alternative to private car use. The strong similarity observed in both cities points to mobility structures that are resistant to differences in urban administrative hierarchy and suggests the existence of certain universal urban attitudes irrespective of capital-city status.

- • The **Fortress** culture is relatively evenly distributed across the study area, although it is somewhat overrepresented in Matosinhos and Brussels.

The study demonstrated that neither the size of a metropolitan area nor its location within the former Eastern Bloc determines the mobility behaviour of young people. The case of Toruń is particularly important in this regard: more than 40% of respondents expressed preferences for walking and cycling, placing the city alongside Western European urban centres.

At the same time, the contrast between Ghent and Brussels demonstrates that markedly different mobility cultures can exist within the same country. These differences appear to be rooted in local conditions and city-specific policies rather than in national characteristics.

Final Conclusions

• Geographical location (the East–West divide within Europe) and city size are not the key determinants of young people's mobility cultures. Instead, local and psychosocial factors play the decisive role.

• Toruń possesses substantial and largely untapped social capital. The fact that more than 40% of young respondents prefer active mobility places the city among the leading European examples in this regard.

• A strong policy intervention is required to protect and reinforce the pro-environmental mobility habits of the youngest respondents (Groups 2 and 4). Without appropriate measures, there is a risk of a "motorisation of adulthood" process, whereby young people who currently engage in active mobility become absorbed into patterns of passive, car-dependent transport.

• Parental role models (among children) and peer-group influence (among older youth) are stronger moderators of mobility behaviour than the available infrastructure, highlighting the need for educational and socio-behavioural interventions.

• Perceived safety and subjective comfort in urban space (placemaking) are key factors in moving away from the "fortress model" towards more open and active forms of urban mobility.

3.3.2.6. Transport Patterns: Everyday Mobility

An analysis of the declared mode of travel to school reveals pronounced differences between the mobility cultures:

Mode of transport	TOTAL	Fortress	Acceptance	Inherited	Close	Cyclists
On foot	22,1%	13,0%	5,3%	9,1%	65,1%	6,8%
By a personal bicycle	5,7%	2,0%	0,4%	0,0%	0,0%	69,3%
By public transport	39,6%	37,8%	83,7%	31,5%	12,2%	14,8%
By car (as a passenger)	28,5%	42,9%	8,2%	51,1%	20,9%	5,7%
By scooter	1,1%	1,6%	0,4%	1,4%	1,1%	1,1%

The data on travel-to-school modes confirm the validity of the mobility culture labels. The **Acceptance** group are the undisputed champions of public transport use (83.7%), with this single mode of transport accounting for almost their entire everyday mobility pattern. Members of the **Close to School** culture walk to school in 65.1% of cases, demonstrating how proximity determines mobility behaviour. In contrast, the **Cyclists** travel by bicycle in 69.3% of cases, while the **Inherited Motorisation** group are driven to school by car in more than half of all cases (51.1%). The **Fortress** culture records the highest proportion of car-dependent travel, with 42.9% of respondents being driven by car.

Post-school mobility patterns are largely consistent with those observed for travel to school. However, a clear increase in active mobility is visible among the **Close** group (50.5% travelling on foot) and the **Cyclists** group (68.5% travelling by personal bicycle). Public transport remains the dominant mode of travel for the **Acceptance** culture (74.7%) and is also widely used by most of the other groups, with the exception of the **Close** and **Cyclists** cultures.

A comparison between actual transport behaviour and stated preferences reveals significant aspirational discrepancies:

Mobility Culture	Preference for car travel	Preference for cycling	Preference for public transport	Preference for walking
Fortress	25,4% (pasażer) + 0% (kier.)	21,1%	12,5%	14,8%
Acceptance	11,0% + 10,6%	13,1%	39,4%	15,6%
Inherited	29,3% + 23,9%	6,2%	18,1%	8,0%
Close	14,4%	20,8%	9,2%	35,2%
Cyclists	0%	76,4%	7,9%	6,7%

The **Inherited Motorisation** culture would prefer to travel by car as a driver in 23.9% of cases, making it the only mobility culture displaying such a strong aspiration to drive a private vehicle. Members of the **Fortress** culture also favour car travel when given a choice (25% in total), but prefer to remain passengers rather than drivers. The **Cyclists** demonstrate almost complete consistency between actual behaviour and stated preferences, with bicycle use accounting for 69% of current travel behaviour and 76% of preferred travel choices.

Motivations for Mobility Choices

The analysis of declared motivations within a multidimensional framework reveals fundamentally different justifications for similar as well as different transport behaviours.

Motivations specific to individual mobility cultures:

- **Fortress:** compulsory motivations dominate, particularly "no other choice" (27.6%) and being driven by parents (22.2%). This is the only mobility culture in which fear functions as the primary driver of mobility rather than as a value-based consideration.
- **Acceptance:** "no other choice" (28.4%) combined with the proximity of a public transport stop (58.2%) creates a culture characterised by the pragmatic acceptance of public transport as an unavoidable option.
- **Inherited Motorisation:** the motivation "my parents travel this way" reaches its highest value in this group (35.0%). The cultural transmission of car-oriented behaviour through family socialisation constitutes the key mechanism reproducing this mobility culture.
- **Close to School:** proximity to home (43.5%) combined with independence (28.1%) means that walking is both a pragmatic and an emancipatory form of mobility.
- **Conscious Cyclists:** proximity (50.6%), independence (39.3%), health and physical fitness (38.2%), and concern for the environment (31.5%) together form a multidimensional and ideologically coherent motivational structure.

Motivation	Fortress	Acceptance	Inherited	Close	Cyclists
Independence	12,8%	16,0%	13,7%	28,1%	39,3%
My parents travel this way	22,2%	5,0%	35,0%	16,5%	12,4%
Close to home	18,3%	24,1%	20,2%	43,5%	50,6%
Public transport stop nearby	18,3%	58,2%	12,3%	3,5%	14,6%
Health and physical fitness	3,9%	5,0%	2,9%	10,5%	38,2%
Concern for the environment	7,8%	12,4%	4,0%	7,7%	31,5%
No other choice	27,6%	28,4%	17,7%	11,9%	9,0%

The mechanisms underlying the reproduction of mobility cultures identified in the data point to three qualitatively distinct processes through which mobility cultures are formed.

First, **family transmission** can be observed. In the case of the **Inherited Motorisation** culture, mobility patterns are reproduced directly from parents. This process is likely reinforced by greater access to private cars within the household.

Second, **structural constraint** characterises the **Fortress** and **Acceptance** cultures, both of which are largely dependent on the transport options available to them. For the **Acceptance** culture, this dependency is perceived as a natural state of affairs, whereas for the **Fortress** culture it is experienced as a form of constraint resulting from the lack of viable alternatives.

Third, among the **Conscious Cyclists**, a process of **value-based transformation** is evident. Members of this group have shifted towards motivations rooted in values, particularly health (38.2%) and environmental concern (31.5%). Health-related, environmental, and autonomy-oriented motivations combine to form a coherent and ideologically grounded mobility culture, one that may even transcend the mobility patterns inherited from parents. Their high level of independence (39.3%) makes them the group most resistant to social pressure.

Emotional Profile – Experiencing Mobility

The emotional dimension of mobility reveals a pronounced spatial gradient. Feelings of safety and belonging decrease as individuals move further away from their private sphere (home → school → city).

Emotions associated with walking

Emotion	Fortress	Acceptance	Inherited	Close	Cyclists
Freedom/independence	22,1%	45,8%	31,6%	28,7%	58,1%
Fun/enjoyment	19,2%	40,5%	29,9%	28,7%	41,9%
Stress/anxiety	14,4%	7,8%	4,3%	6,6%	4,7%
Boredom	32,7%	15,0%	19,7%	8,8%	25,6%
Fatigue	20,2%	14,4%	15,4%	11,8%	16,3%

The **Fortress** culture stands out as an extreme case, exhibiting the highest levels of stress (14.4%), boredom (32.7%), and fatigue (20.2%) associated with walking. In contrast, the **Conscious Cyclists** report the highest level of perceived freedom (58.1%), while

the **Acceptance** culture records the highest proportions of enjoyment and freedom among the non-cyclist groups.

Emotions associated with cycling/scooter use

Emotion	Fortress	Acceptance	Inherited	Close	Cyclists
Freedom/independence	23,1%	37,3%	23,1%	17,6%	60,5%
Speed	43,3%	57,5%	44,4%	50,0%	93,0%
I care about the environment	16,3%	28,1%	20,5%	14,0%	74,4%
Fun/enjoyment	42,3%	51,0%	41,9%	45,6%	74,4%
Do not use	18,3%	10,5%	12,8%	11,8%	0,0%

The **Conscious Cyclists** experience cycling in a qualitatively different way from all other groups. Feelings of freedom (60.5%), environmental commitment (74.4%), and enjoyment (74.4%) are substantially higher than in the other mobility cultures. These values indicate a deep integration of cycling into personal identity, rather than it being merely a mode of transport.

Emotions associated with travelling by public transport

motion	Fortress	Acceptance	Inherited	Close	Cyclists
Convenience	25,0%	54,2%	36,8%	27,9%	65,1%
Speed	34,6%	57,5%	46,2%	41,2%	48,8%
Stress/anxiety	21,2%	8,5%	8,5%	16,2%	18,6%
Boredom	26,9%	19,0%	17,9%	18,4%	44,2%
Fun/enjoyment	8,7%	12,4%	7,7%	5,1%	14,0%

The **Acceptance** culture, as the most frequent user of public transport, perceives it as both convenient and fast (57.5%). In contrast, the **Fortress** culture associates public transport with stress (21.2%) and boredom (26.9%).

A surprisingly high level of boredom is also reported by the **Conscious Cyclists** (44.2%). Although they rarely use public transport, their perception of its passivity appears to contrast sharply with their active mobility lifestyle.

Emotions associated with travelling by car as a passenger

motion	Fortress	Acceptance	Inherited	Close	Cyclists
Convenience	64,4%	81,7%	76,9%	69,1%	90,7%

Speed	58,7%	75,8%	66,7%	63,2%	76,7%
Stress/anxiety	51,9%	55,6%	55,6%	51,5%	51,2%
Boredom	27,9%	36,6%	44,4%	28,7%	37,2%
Fun/enjoyment	13,5%	5,9%	0,9%	2,9%	16,3%

Travelling by car as a passenger is generally perceived as comfortable and safe across all mobility cultures. The car functions as a "safety capsule" in the perceptions of respondents.

The **Inherited** culture records the highest level of enjoyment associated with travelling by car (44.4%), which is consistent with its cultural embedding within a car-oriented lifestyle. The **Fortress** culture, by contrast, stands out for its relatively high level of boredom when travelling as a car passenger (13.5%), a finding that is consistent with the broader passivity and spatial discomfort characterising this mobility culture.

Sense of Safety and Belonging in Urban Space

The affective indicators display the greatest variation across spatial contexts, ranging from the neighbourhood of residence, through the area surrounding the school, to the city as a whole:

Spatial Context	Fortress	Acceptance	Inherited	Close	Cyclists
Feel "at home" – neighbourhood of residence	46,7%	80,0%	83,6%	73,9%	80,7%
Feel "at home" – neighbourhood of school	9,4%	26,8%	40,7%	48,9%	31,5%
Feel "at home" – entire city	18,3%	54,4%	61,3%	66,4%	71,9%
Feel safe – neighbourhood of residence	45,9%	75,2%	80,4%	80,1%	70,5%
Feel safe – neighbourhood of school	12,9%	53,2%	58,0%	60,5%	50,6%
Feel safe – entire city	11,3%	35,1%	44,2%	55,8%	46,1%

The results reveal several key regularities. The **Fortress** culture performs consistently worst across all dimensions: only 9.4% feel "at home" in the school neighbourhood, and just 11.3% feel safe in the city as a whole. These figures are alarming, indicating a profound crisis in the relationship with urban space.

A clear spatial gradient (home → school → city) is present across all mobility cultures, although it is most pronounced in the **Fortress** and **Acceptance** groups. The **Close** culture achieves the highest levels of perceived safety in the entire city (55.8%),

suggesting that proximity to school generates not only functional convenience but also emotional embeddedness in urban space.

The **Cyclists** paradoxically report relatively lower levels of perceived safety in the school neighbourhood (50.6%) despite their highly active mobility style. This may reflect insufficiently safe cycling infrastructure.

The **Inherited Motorisation** culture reports relatively high levels of comfort despite its passive, car-dependent mobility pattern. In this case, the car functions as a "safety capsule," providing emotional comfort without exposure to the urban environment.

Place of Residence as a Determinant of Culture

The declared place of residence strongly differentiates the mobility cultures:

Place	Fortress	Acceptance	Inherited	Close	Cyclists
In the school neighbourhood	14,4%	15,2%	18,6%	76,2%	32,6%
In the city, further away	63,4%	66,7%	63,9%	23,8%	61,8%
Outside the city	22,2%	18,1%	17,5%	0,0%	5,6%

The **Close** culture is almost entirely concentrated in the school neighbourhood (76.2%), while none of its members live outside the city (0.0%). The **Fortress** culture shows the highest share of respondents living outside the city (22.2%), which partly explains its profile: long distances to school combined with a lack of autonomous transport options generate a defensive mobility style.

Vision of the Future: Aspirations vs. Expectations

Dream City

Option	Fortress	Acceptance	Inherited	Close	Cyclists
Supercars of the future	32,9%	27,8%	73,4%	37,0%	22,7%
Fast buses and trains	24,0%	68,7%	24,8%	23,0%	39,8%
Shared vehicles	16,7%	12,8%	4,7%	20,4%	5,7%
Bicycles and scooters	32,5%	40,2%	11,3%	36,7%	69,3%
Close and green environment	59,8%	76,2%	32,5%	61,1%	68,2%

Flying in the city	26,0%	11,7%	50,0%	24,8%	30,7%

The hierarchy of expectations is diagnostically meaningful. The **Inherited Motorisation** culture aspires to supercars (73.4%) and flying in cities (50%), while simultaneously rejecting walking and cycling alternatives (only 11.3% for bicycles). This is a culture in which the logic of the individual vehicle dominates. The **Acceptance** culture, in contrast, primarily desires a city that is close and green (76.2%), alongside improved buses and trains (68.7%). This can be interpreted as a set of progressive values, but implemented through collective rather than individual solutions. The **Cyclists** aspire to a city oriented towards bicycles and scooters (69.3%) and greenery (68.2%), which is fully consistent with their current mobility behaviour. The **Fortress** culture does not exhibit a coherent vision. It combines "close and green" aspirations (59.8%) with expectations related to cars (32.9%) and flying (26%), indicating eclectic and internally inconsistent urban imaginaries lacking a unified underlying philosophy.

What is missing in the city:

Need	Fortress	Acceptance	Inherited	Close	Cyclists
Cheaper/free public transport	77,1%	86,1%	83,3%	86,4%	80,8%
Outdoor spaces	83,3%	83,6%	81,4%	79,7%	88,5%
Better public transport	68,8%	82,8%	81,4%	71,2%	88,5%
More greenery	75,0%	83,6%	66,7%	78,0%	80,8%
Children's voice in planning	62,5%	77,9%	78,4%	76,3%	84,6%
Calmer car traffic	56,2%	54,1%	36,3%	61,0%	76,9%
Cycling paths	52,1%	61,5%	45,1%	62,7%	73,1%

The most frequently indicated deficits reveal an interesting convergence across mobility cultures. The results show a high level of similarity in perceived needs, particularly with regard to cheaper public transport and green spaces. The main differences concern cycling infrastructure and calmer car traffic, which are especially important for the **Cyclists** culture (73.1% and 76.9%, respectively). In contrast, the **Inherited Motorisation** group is clearly the least interested in reducing car traffic intensity (36.3%).

Associations with Modernity

Mobility culture is expressed not only through behaviour but also through perceptions of modernity. Respondents were asked what they associate with "being up to date."

Association	Fortress	Acceptance	Inherited	Close	Cyclists
Electric scooter	52,1%	50,0%	59,8%	52,5%	42,3%
Electric car	22,9%	27,9%	32,4%	35,6%	3,8%
Electric bicycle	20,8%	17,2%	14,7%	20,3%	11,5%
Public transport	12,5%	23,0%	19,6%	13,6%	19,2%
Walking	12,5%	15,6%	8,8%	20,3%	19,2%
Car-sharing	6,3%	9,8%	8,8%	0,0%	15,4%

Electromobility (electric scooters and electric cars) dominates across all mobility cultures as a symbol of modernity. The **Cyclists** are the only group that does not associate electric cars with modernity to a meaningful extent (3.8% compared to 28–36% in other cultures), and at the same time the only group for which car-sharing is perceived as a modern solution (15.4%). The **Inherited Motorisation** culture associates modernity more strongly with motorised transport than other groups, including electric cars (32.4%).

Value of Walkability and Cyclability

The question concerning the importance of being able to reach school, shops, and leisure places on foot or by bicycle clearly differentiates the mobility cultures.

Importance rating	Fortress	Acceptance	Inherited	Close	Cyclists
Not important (total)	16,3%	14,2%	22,8%	16,2%	2,2%
Neither important nor unimportant	45,9%	30,9%	39,5%	38,4%	24,7%
Important (total: rather + very)	37,8%	54,9%	37,7%	45,5%	73,0%
Of which: very important	29,6%	22,3%	19,9%	35,1%	44,9%

The **Cyclists** consider walkable and cyclable accessibility important in 73.0% of cases (including 44.9% who rate it as "very important"). The **Inherited Motorisation** culture is the only group in which more than 20% of respondents consider it "not important" (22.8%). A surprisingly high level of importance is also observed in the **Acceptance** culture (54.9% important), indicating a pro-environmental attitude that does not necessarily translate into active mobility behaviour.

Final Remarks

In summarising the analysis of the model of factors determining mobility, several key mechanisms can be identified that synthesise the collected data and outline directions for interpreting the attitudes of young urban residents.

First, place of residence emerges as the strongest determinant of mobility culture. Proximity to school is not merely a logistical convenience but a foundation for building autonomy and emotional embeddedness in urban space. The **Close** group, living in the immediate vicinity of educational institutions, is the only group that develops a natural sense of "belonging" to the entire city, rather than only to its own neighbourhood.

The model also reveals a concerning emotional gradient: the further individuals move away from home, the more sharply their sense of safety declines, a pattern most evident in the **Fortress** culture. In this context, the car ceases to be merely a means of transport and becomes a mobile protective barrier against a city perceived as hostile. This generates a risk of reinforcing defensive attitudes in which the lack of transport alternatives (structural constraint) deepens anxiety towards public space.

The analysis highlights a clash of three forces shaping future mobility habits. On the one hand, there is **family transmission**, which in the **Inherited Motorisation** group uncritically reproduces the car-based model as a symbol of status and the primary source of enjoyment. On the other hand, there is **value-based transformation** among the **Cyclists**, who are the only group whose choices are grounded in a coherent value system (health and environment), making them the most resistant to external pressure. Between these two lies the **Acceptance** group, which, despite progressive declarations, remains constrained by pragmatic and transport-related necessity.

The study demonstrates that for most young people, modernity is still associated with electromobility (scooters, electric cars), which does not necessarily entail a shift from individualised to shared mobility. The clear aspiration to become a driver in the **Inherited Motorisation** group, contrasted with its absence among **Cyclists**, suggests that the future of urban mobility will be shaped primarily in the domain of needs and aspirations rather than infrastructure alone.

The presented model shows that changing mobility habits among young people requires more than building cycling infrastructure. What is necessary is a redefinition of young people's relationship with the city—from perceiving it as a hostile distance to be overcome (the **Fortress** model) towards understanding it as a friendly living environment (the **Close** and **Cyclist** models).

3.3.2.7. Research limitations

The study was not without limitations, which should be taken into account when analysing and interpreting the results obtained:

1. Not all Civic Labs (CLs) conducted the survey at the same time. In different cities, data collection took place in different months, which may have influenced variations in perceptions and use of different modes of transport depending on the season. In the vast majority of CLs, the surveys were conducted between March and April 2026. The exception was Brussels, where the survey was carried out in October 2025.
2. In addition, different research techniques were applied across CLs. In most cities, the survey was conducted using the CAWI (Computer-Assisted Web Interview) method, whereas in the Brussels CL the PAPI (Paper and Pencil Interview) technique was used. This variation in data collection methods affected the presence of missing data (non-responses to individual questions), which occurred in the material collected via PAPI. In CAWI-based surveys, it was not possible to skip questions due to the design of the questionnaire, which required responses to all items.
3. In the Brussels CL, the youth group aged 13–18 was surveyed using a questionnaire intended for children. As a result, some responses to questions specifically designed for adolescents could not be collected in this city.
4. Additionally, the results may have been influenced by the purposive sampling strategy. The sample size may also represent a limitation—fewer questionnaires were collected in the Brussels and Ghent CLs compared to other CLs. Not all CLs also collected data across all three respondent groups. For instance, in the Brussels CL, despite preparing a questionnaire, no completed surveys were obtained from parents/carers.

3.3.3. Multiple regression model: the relationship between youth's opinions and preferences and their dimensions of mobility

The final stage of the data analysis involved the construction of a multiple regression model. This model focused exclusively on the youth subgroup, for whom, in

addition to the set of standard questions asked to children, an additional set of questions was administered:

bMbrs = struct(2,6=1)(else=0)(city<7)

n=562

Brussels was excluded from this analysis, as the same questionnaire for both children and youth was applied there.

In examining the relationships between young people's opinions and preferences, the analysis focused on three key dimensions of mobility: **progressivity**, **engagement (active vs. passive mobility)**, and **individual vs. social mobility**.

Progressivity

I. Overall model evaluation

Model fit

R = 0.586 → indicating a moderately strong relationship between the predictors and the dependent variable
R^2 = 0.344 → the model explains 34.4% of the variance in the level of progressivity
Adjusted R^2 = 0.310 → after adjusting for the number of predictors, approximately 31% of the variance is still explained

The model demonstrates good explanatory power for social science data, where values in the range of 0.3–0.4 are typically considered acceptable and satisfactory.

Model significance (ANOVA)
$F(27, 534) = 10.353$; $p < 0.001$

The model as a whole is statistically significant, indicating that the set of variables related to mobility opinions and practices significantly explains variation in progressivity.

II. Interpretation of key predictors

A. Strongest positive predictors of progressivity

1. Access to public transport
"My public transport stop is nearby"
$\beta = 0.315$; $p < 0.001$
contributing 28.5% to the explanatory power of the model

Accessibility of public transport infrastructure emerges as the strongest positive predictor of progressivity.

2. Pro-environmental attitudes

"I care about the environment"
$\beta = 0.186$; $p < 0.001$

A stronger declared concern for the environment is associated with a higher level of orientation towards sustainable solutions.

3. Active mobility (bicycle/scooter)

$\beta = 0.189$; $p < 0.001$

Users of active modes of transport exhibit higher levels of progressivity.

4. Health-related motivation

$\beta = 0.140$; $p = 0.001$

Framing mobility as a component of health and physical fitness is associated with a higher level of pro-environmental orientation.

B. Significant negative predictor

Family patterns
"My parents travel this way"
$\beta = -0.129$; $p = 0.001$

A stronger reliance on family-based mobility patterns is associated with lower levels of progressivity.

A possible interpretation is that intergenerational transmission of mobility behaviours may reinforce more traditional and less sustainable mobility practices.

C. Weaker but significant predictors

1. Public transport (use)
$\beta = 0.080$; $p = 0.033$

The actual use of public transport shows a positive but relatively weak association with progressivity.

2. Cycling/scooter use
$\beta = 0.189$; $p < 0.001$

Use of active mobility modes (cycling and scooters) is strongly and positively associated with progressivity.

3. "For health" motivation
$\beta = 0.140$; $p = 0.001$

Health-related motivations for mobility are positively associated with higher levels of progressivity.

3. Non-significant variables (no effect in the model)

The following variables were found to be statistically non-significant:

convenience

speed

fashion/trendiness

independence

safety

peer influence (in most cases)

weather conditions

Overall, progressivity is not primarily driven by comfort, social norms, or external technical conditions. Instead, it is mainly shaped by:

accessibility of infrastructure

actual mobility practices

environmental attitudes

III. Importance of Johnson's relative weights

The largest contributions to explaining this dimension of mobility are observed for:

access to public transport stop (28.5%)

pro-environmental attitudes (15.8%)

active mobility (11.5%)

The model indicates that progressivity has a **structural–attitudinal character**, rather than being purely behavioural.

IV. Conclusion

The multiple regression model demonstrates that young people's mobility opinions and practices significantly explain the level of progressivity ($R^2 = 0.344$; $F(27, 534) = 10.353$; $p < 0.001$). The strongest predictors include access to public transport, active modes of mobility, and declared environmental concern.

The results indicate that pro-environmental orientation in urban mobility is primarily **structural and attitudinal in nature**, while factors related to convenience, social norms, and subjective comfort play a limited role.

Model	R	R2	Adj. R2	SE
1	,586[a]	,344	,310	,13516

Anova

Model		Sum sq	df	Mean sq	F	sig.
1	Regression	5,107	27	,189	10,353	,000[b]
	Residual	9,756	534	,018		
	Total	14,863	561			

	Niestd.		Stand.	t	sig.	corr		Johnson's relative weights
	B	SE	Beta			corr	partial	34,4%
(Constant)	,236	,023		10,128	,000			
dY1 Y.1. Do you use public transport (e.g. bus, tram)?	,044	,021	,080	2,141	,033	,171	,092	4,6%
dY2 Y.2. Do you travel by bicycle or scooter?	,061	,012	,189	5,082	,000	,225	,215	11,5%

dY3 Y.3. Do you walk all the way to your destinations?	,006	,012	,017	,462	,644	,063	,020	0,5%
dY7i1 Y.7. Why do you most often travel to school this way? It is the fastest way.	,013	,013	,040	1,023	,307	,101	,044	1,1%
dY7i2 Y.7. Why do you most often travel to school this way? It is the most convenient way.	,020	,013	,062	1,511	,131	,098	,065	1,2%
dY7i3 Y.7. Why do you most often travel to school this way? It is the cheapest way.	,028	,018	,067	1,597	,111	,202	,069	4,2%
dY7i4 Y.7. Why do you most often travel to school this way? I can travel whenever I want.	-,007	,017	-,016	-,385	,701	,101	-,017	0,5%
dY7i5 Y.7. Why do you most often travel to school this way? It is a fashionable way.	-,034	,048	-,028	-,710	,478	,027	-,031	0,2%
dY7i6 Y.7. Why do you most often travel to school this way? I don't have to wait for anyone; I am independent.	-,007	,017	-,018	-,447	,655	,103	-,019	0,5%
dY7i7 Y.7. Why do you most often travel to school this way? My parents travel this way.	-,057	,016	-,129	-3,461	,001	-,179	-,148	7,2%
dY7i8 Y.7. Why do you most often travel to school this way? My friends travel this way.	,022	,017	,051	1,247	,213	,182	,054	3,0%
dY7i9 Y.7. Why do you most often travel to school this way? Everyone travels this way.	-,037	,022	-,066	-1,631	,104	,064	-,070	0,4%
dY7i10 Y.7. Why do you most often travel to school this way? It is close to home.	,006	,014	,017	,456	,649	,091	,020	0,8%
dY7i11 Y.7. Why do you most often travel to school this way? There is a public transport stop nearby (bus, tram).	,107	,014	,315	7,460	,000	,383	,307	28,5%
dY7i12 Y.7. Why do you most often travel to school this way? I feel safe on the road.	-,006	,022	-,010	-,268	,789	,001	-,012	0,3%
dY7i13 Y.7. Why do you most often travel to school this way? I care about the environment.	,098	,020	,186	4,810	,000	,323	,204	15,8%

dY7i14 Y.7. Why do you most often travel to school this way? For health and physical fitness.	,072	,021	,140	3,371	,001	,228	,144	7,8%
dY7i15 Y.7. Why do you most often travel to school this way? I can do other things during the trip (e.g. study, listen to music, talk).	,006	,014	,016	,394	,694	,211	,017	3,8%
dY7i16 Y.7. Why do you most often travel to school this way? I have no other choice.	,020	,014	,053	1,444	,149	,032	,062	0,6%
dY7i17 Y.7. Why do you most often travel to school this way? It depends on the weather.	-,008	,016	-,018	-,485	,628	,101	-,021	0,5%
dY7i18 Y.7. Why do you most often travel to school this way? This does not apply to me; I do not travel to school.	,055	,047	,043	1,177	,240	-,024	,051	0,1%
dY7i19 Y.7. Why do you most often travel to school this way? Other reasons	,023	,030	,029	,771	,441	-,066	,033	0,2%
dY10i1 Y.10. Why do you most often travel to your most frequently visited place after school this way? It is the fastest way.	-,009	,013	-,027	-,711	,478	,074	-,031	0,2%
dY10i2 Y.10. Why do you most often travel to your most frequently visited place after school this way? It is the most convenient way.	,005	,014	,016	,393	,694	,099	,017	0,7%
dY10i3 Y.10. Why do you most often travel to your most frequently visited place after school this way? It is the cheapest way.	,032	,018	,071	1,829	,068	,157	,079	3,0%
dY10i4 Y.10. Why do you most often travel to your most frequently visited place after school this way? I can travel whenever I want.	,038	,017	,091	2,225	,026	,149	,096	2,9%
dY10i5 Y.10. Why do you most often travel to your most frequently visited place after school this way? It is a fashionable way.	,003	,039	,003	,073	,942	,023	,003	0,0%

ngagement in Mobility (active vs. passive mobility)

I. Overall model evaluation

Model fit

R = 0.714 → indicating a strong relationship between the predictors and the dependent variable
R^2 = 0.510 → the model explains 51.0% of the variance in the level of engagement in mobility
Adjusted R^2 = 0.485 → after adjustment, 48.5% of the variance is still explained

The model demonstrates very good explanatory power for social science data, where values above 0.5 are generally considered strong.

Model significance (ANOVA)

Model quality is high for social science research, indicating that the selected predictors are appropriate and well-specified.

$F(27, 534) = 20.596$; $p < 0.001$

The model as a whole is highly statistically significant, meaning that the set of variables related to mobility behaviours and motivations significantly explains the level of engagement in mobility (ranging from passive to active mobility).

II. Key interpretation – what increases active mobility engagement

A. Strongest positive predictors (increase in active mobility)

1. Health-related motivation
"For health and physical fitness"
$\beta = 0.270$; $p < 0.001$
strongest predictor (21.5%)

Active mobility engagement is most strongly associated with perceiving travel as a form of maintaining health and physical fitness.

2. Active mobility (bicycle/scooter)

$\beta = 0.238$; $p < 0.001$
16.5% contribution to explanatory power

Individuals who already use bicycles or scooters show higher overall levels of mobility engagement.

3. Environmental concern

$\beta = 0.165$; $p < 0.001$
9.6% contribution

Pro-environmental attitudes facilitate the transition from passive to active mobility behaviours.

4. Independence and autonomy

"I don't have to wait for anyone; I am independent"
$\beta = 0.133$; $p < 0.001$

A sense of autonomy in transport choices supports higher levels of active mobility engagement.

5. Accessibility and local conditions

"My home is nearby" ($\beta = 0.127$; $p < 0.001$)
"It is the cheapest way" ($\beta = 0.100$; $p = 0.003$)

Spatial and economic factors also support active mobility, although their importance is lower compared to health-related motivations and pro-environmental attitudes.

B. Negative and constraining factors

1. Access to public transport
"My public transport stop is nearby"
$\beta = -0.126$; $p = 0.001$

Proximity to public transport infrastructure reduces the level of active mobility, suggesting a substitution effect: easy access to collective transport discourages walking and cycling.

2. Lack of alternatives (constraint)
"I have no other choice"
$\beta = -0.082$; $p = 0.010$

Forced mobility (lack of choice) is associated with lower levels of active engagement in mobility.

C. Secondary factors (significant but weaker predictors)

"I can travel whenever I want" → β = 0.115; p = 0.001
"It is the fastest way" → β = 0.081; p = 0.018

Flexibility and time-efficiency matter for active mobility engagement, but they play a secondary role compared to health-related motivations and underlying attitudes.

3. Non-significant variables

The following variables showed no statistically significant effect:

convenience

fashion/trendiness

peer influence

safety

weather conditions

most social motivation factors

Overall, engagement in mobility is not primarily determined by social norms or comfort-related considerations. Instead, it is shaped mainly by:

health-related motivations

active mobility habits

environmental attitudes

urban spatial structure

III. Johnson's relative weights – structure of model explanation

Key factors:

health-related motivation – 21.5%

bicycle/scooter use – 16.5%

environmental attitudes – 9.6%

autonomy – 8.3%

proximity to destination – 7.6%

travel flexibility – 5.5%

The model shows a clear dominance of **behavioural and attitudinal factors**, rather than purely infrastructural determinants.

IV. Interpretation

The multiple regression model indicates that the level of engagement in mobility (ranging from passive to active behaviours) is significantly explained by the analysed variables ($R^2 = 0.510$; $F(27, 534) = 20.596$; $p < 0.001$).

The strongest predictors of active mobility are health-related motivations, the use of bicycles or scooters, and pro-environmental attitudes. The results suggest that the transition from passive to active mobility is primarily **behavioural and attitudinal in nature**, while social and comfort-related factors play a marginal role.

At the same time, access to public transport shows a **substitution effect**, reducing the level of active mobility engagement by offering an easily available alternative to walking and cycling.

Model	R	R2	Adj. R2	SE
1	,714[a]	,510	,485	,11867

Anova

Model		Sum sq	df	Mean sq	F	sig.
1	Regression	7,831	27	,290	20,596	,000[b]
	Residual	7,520	534	,014		
	Total	15,350	561			

	Niestd.		Stand.	t	sig.	corr		Johnson's relative weights
	B	SE	Beta			corr	partial	51,0%
(Constant)	,142	,020		6,964	,000			
dY1 Y.1. Do you use public transport (e.g. bus, tram)?	-,055	,018	-,097	-3,032	,003	-,141	-,130	2,6%
dY2 Y.2. Do you travel by bicycle or scooter?	,079	,011	,238	7,414	,000	,368	,306	16,5%

dY3 Y.3. Do you walk the entire route?	,030	,011	,090	2,812	,005	,213	,121	4,1%
dY7i1 Y.7Why do you most often travel to school this way?It is the fastest way.	,027	,011	,081	2,382	,018	,113	,103	1,4%
dY7i2 Y.7. Why do you most often travel to school this way?It is the most convenient way.	,000	,012	,000	-,008	,994	,017	,000	0,2%
dY7i3 Y.7. Why do you most often travel to school this way?It is the cheapest way.	-,013	,016	-,031	-,847	,397	,127	-,037	0,7%
dY7i4 Y.7. Why do you most often travel to school this way?I can travel whenever I want.	,043	,015	,102	2,803	,005	,270	,120	5,1%
dY7i5 Y.7. Why do you most often travel to school this way?It is a fashionable way.	-,031	,042	-,025	-,727	,467	,102	-,031	0,4%
dY7i6 Y.7. Why do you most often travel to school this way?I don't have to wait for anyone; I am independent.	,055	,014	,133	3,799	,000	,325	,162	8,3%
dY7i7 Y.7. Why do you most often travel to school this way?My parents travel this way.	-,024	,014	-,054	-1,662	,097	-,028	-,072	0,5%
dY7i8 Y.7. Why do you most often travel to school this way? My friends travel this way.	,019	,015	,045	1,274	,203	,102	,055	0,8%
dY7i9 Y.7. Why do you most often travel to school this way? Everyone travels this way.	-,031	,020	-,055	-1,550	,122	,004	-,067	0,4%
dY7i10 Y.7. Why do you most often travel to school this way?It is close to home.	,047	,012	,127	3,842	,000	,305	,164	7,6%
dY7i11 Y.7. Why do you most often travel to school this way?There is a public transport stop nearby (bus, tram).	-,044	,013	-,126	-3,463	,001	-,189	-,148	4,7%
dY7i12 Y.7. Why do you most often travel to school this way?I feel safe on the road.	-,010	,019	-,017	-,516	,606	,109	-,022	0,5%
dY7i13 Y.7. Why do you most often travel to school this way?I care about the environment.	,088	,018	,165	4,920	,000	,320	,208	9,6%
dY7i14 Y.7. Why do you most often travel to school this way?For health and physical fitness.	,140	,019	,270	7,490	,000	,473	,308	21,5%
dY7i15 Y.7. Why do you most often travel to school this way?I can do other things during the trip (e.g. study, listen to music, talk).	-,023	,013	-,063	-1,800	,072	-,025	-,078	0,8%
dY7i16 Y.7. Why do you most often travel to school this way? I have no other option.	-,032	,012	-,082	-2,587	,010	-,170	-,111	2,9%
dY7i17 Y.7. Why do you most often travel to school this way?It depends on the weather.	-,011	,014	-,025	-,747	,455	,105	-,032	0,5%
dY7i18 Y.7. Why do you most often travel to school this way?This does not apply to me; I do not commute to school.	,134	,041	,102	3,248	,001	,071	,139	1,6%

dY7i19 Y.7. Why do you most often travel to school this way? Other reasons.	-,009	,026	-,011	-,357	,721	-,076	-,015	0,4%
dY10i1 Y.10. Why do you most often travel to your most frequently visited place after school this way? It is the fastest way.	-,019	,011	-,056	-1,687	,092	-,002	-,073	0,3%
dY10i2 Y.10. Why do you most often travel to your most frequently visited place after school this way? It is the most convenient way.	,001	,012	,003	,094	,925	,060	,004	0,2%
dY10i3 Y.10. Why do you most often travel to your most frequently visited place after school this way? It is the cheapest way.	,046	,016	,100	2,972	,003	,170	,128	2,8%
dY10i4 Y.10. Why do you most often travel to your most frequently visited place after school this way? I can travel whenever I want.	,049	,015	,115	3,262	,001	,265	,140	5,5%
dY10i5 Y.10. Why do you most often travel to your most frequently visited place after school this way?It is a fashionable way.	,025	,034	,024	,747	,456	,028	,032	0,1%

Individual (independent) vs. socialized mobility

I. Overall model evaluation

Model fit

R = 0.659 - indicating a moderately strong relationship between the predictors and the dependent variable
R^2 = 0.435 - the model explains 43.5% of the variance in the dependent variable
Adjusted R^2 = 0.406 → after correction, 40.6% of the variance is explained

The model demonstrates good explanatory power, indicating that the analysed opinions and behaviours substantially shape the studied phenomenon (dependent variable).

Model significance (ANOVA)

$F(27, 534) = 15.213$; $p < 0.001$

The model as a whole is statistically significant, meaning that the set of independent variables meaningfully explains variation in the analysed construct.

II. Key explanatory factors of the dependent variable

A. Strongest positive predictors

1. Family patterns (strongest effect in the model)
"My parents travel this way"
$\beta = 0.354$; $p < 0.001$
25.0% contribution to explanatory power

The strongest predictor is the intergenerational transmission of mobility behaviours, highlighting the crucial role of learning and imitation in shaping the dependent variable.

2. Social norms: peers and general conformity

"My friends travel this way" → $\beta = 0.172$; $p < 0.001$
"Everyone travels this way" → $\beta = 0.171$; $p < 0.001$

Strong social norms and peer pressure play a significant role, reinforcing specific mobility patterns through mechanisms of conformity and social imitation.

3. Infrastructure and accessibility

"My public transport stop is nearby" → $\beta = 0.140$; $p < 0.001$

Access to public transport infrastructure supports the analysed form of mobility, highlighting the importance of structural conditions.

4. Active mobility and health (mixed effect)

"For health and physical fitness" → $\beta = -0.109$; $p = 0.005$

Although in other models health-related motivation is positively associated with active mobility, in this specification it shows a negative relationship, suggesting a different mobility profile. This may indicate that socially mediated mobility is not necessarily equivalent to physically active mobility.

5. Spatial proximity

"My home is nearby" - $\beta = -0.162$; $p < 0.001$

Short distances are associated with more individualised forms of mobility rather than the socialisation of mobility practices.

B. Significant factors limiting the dependent variable

1. Lack of participation in school mobility

"I do not commute to school" - β = -0.106; p = 0.002

The absence of daily commuting limits opportunities for the formation of socialized mobility patterns.

2. Instrumental motives (partially negative effects)

"It is the fastest way" - β = -0.078; p = 0.033
"I can travel whenever I want" - β = -0.086; p = 0.028

Instrumental and convenience-oriented motives are negatively associated with the analysed construct, suggesting that highly pragmatic mobility choices may reduce the level of mobility socialization.

Orientation towards efficiency and autonomy fosters more individualised forms of mobility.

3. Health-related mobility

"For health and physical fitness" - β = -0.109; p = 0.005

A health-oriented approach may support more individual forms of movement rather than socially mediated mobility patterns.

C. Non-significant variables (no effect)

The following variables showed no statistically significant impact:

ecology

fashion/trendiness

safety

convenience

weather conditions

most pragmatic motives (cost, speed in part of cases)

Overall, the socialization of mobility is not driven by comfort or individual functional preferences, but is primarily rooted in:

family-based patterns

social norms

infrastructure accessibility

Structure of explanatory mechanisms

The model reveals three key mechanisms:

(1) Family transmission mechanism (strongest): dominant parental influence
(2) Social norms mechanism: peers and the "everyone does it" effect
(3) Structural mechanism: access to public transport infrastructure

IV. Interpretation

The multiple regression model indicates that the dependent variable is explained to a moderately high degree by the set of predictors ($R^2 = 0.435$; $F(27, 534) = 15.213$; $p < 0.001$). The strongest predictor is family mobility patterns, highlighting the key role of intergenerational transmission of mobility behaviours. Significant importance is also attributed to peer norms and the accessibility of transport infrastructure.

At the same time, factors related to individual autonomy, time efficiency, and spatial proximity tend to foster the individualisation of mobility rather than its socialisation. The results suggest that the analysed phenomenon is primarily **socially embedded and transmission-based**, shaped by norms and the structure of everyday relationships.

Model	R	R2	Adj. R2	SE
1	,659[a]	,435	,406	,13044

Anova

Model		Sum sq	df	Mean sq	F	sig.
1	Regression	6,989	27	,259	15,213	,000[b]
	Residual	9,086	534	,017		
	Total	16,075	561			

	Niestd.		Stand.	t	sig.	corr		Johnson's relative weights
	B	SE	Beta			corr	partial	43,5%
(Constant)	,190	,022		8,445	,000			
dY1 Y.1. Do you use public transport (e.g. bus, tram)?	,105	,020	,182	5,281	,000	,179	,223	7,0%

dY2 Y.2. Do you travel by bicycle or scooter?	-,046	,012	-,137	-3,957	,000	-,202	-,169	6,2%
dY3 Y.3. Do you walk the entire route?	-,040	,012	-,116	-3,373	,001	-,186	-,144	4,9%
dY7i1 Y.7Why do you most often travel to school this way?It is the fastest way.	-,026	,012	-,078	-2,136	,033	-,007	-,092	0,7%
dY7i2 Y.7. Why do you most often travel to school this way?It is the most convenient way.	,013	,013	,039	1,024	,306	,151	,044	1,7%
dY7i3 Y.7. Why do you most often travel to school this way?It is the cheapest way.	,016	,017	,035	,908	,364	,058	,039	0,5%
dY7i4 Y.7. Why do you most often travel to school this way?I can travel whenever I want.	-,037	,017	-,086	-2,206	,028	-,037	-,095	1,0%
dY7i5 Y.7. Why do you most often travel to school this way?It is a fashionable way.	-,100	,047	-,078	-2,139	,033	-,012	-,092	0,8%
dY7i6 Y.7. Why do you most often travel to school this way?I don't have to wait for anyone; I am independent.	-,001	,016	-,002	-,063	,949	-,046	-,003	0,4%
dY7i7 Y.7. Why do you most often travel to school this way?My parents travel this way.	,161	,016	,354	10,230	,000	,323	,405	25,0%
dY7i8 Y.7. Why do you most often travel to school this way? My friends travel this way.	,076	,017	,172	4,552	,000	,228	,193	8,2%
dY7i9 Y.7. Why do you most often travel to school this way? Everyone travels this way.	,098	,022	,171	4,518	,000	,239	,192	8,4%
dY7i10 Y.7. Why do you most often travel to school this way?It is close to home.	-,061	,013	-,162	-4,559	,000	-,222	-,194	7,9%
dY7i11 Y.7. Why do you most often travel to school this way?There is a public transport stop nearby (bus, tram).	,050	,014	,140	3,578	,000	,277	,153	8,5%
dY7i12 Y.7. Why do you most often travel to school this way?I feel safe on the road.	,024	,021	,039	1,120	,263	,016	,048	0,4%
dY7i13 Y.7. Why do you most often travel to school this way?I care about the environment.	,000	,020	,000	,003	,997	,001	,000	0,3%
dY7i14 Y.7. Why do you most often travel to school this way?For health and physical fitness.	-,058	,021	-,109	-2,821	,005	-,174	-,121	4,3%
dY7i15 Y.7. Why do you most often travel to school this way?I can do other things during the trip (e.g. study, listen to music, talk).	,023	,014	,064	1,695	,091	,226	,073	4,4%
dY7i16 Y.7. Why do you most often travel to school this way? I have no other option.	,017	,014	,042	1,234	,218	,090	,053	1,0%
dY7i17 Y.7. Why do you most often travel to school this way?It depends on the weather.	,023	,016	,053	1,501	,134	,101	,065	1,4%
dY7i18 Y.7. Why do you most often travel to school this way?This does not apply to me; I do not commute to school.	-,143	,045	-,106	-3,154	,002	-,148	-,135	3,5%
dY7i19 Y.7. Why do you most often travel to school this way?Other reasons.	,029	,029	,035	1,008	,314	,036	,044	0,4%
dY10i1 Y.10. Why do you most often travel to your most frequently visited place after school this way? It is the fastest way.	,014	,012	,043	1,191	,234	,119	,051	1,3%

dY10i2 Y.10. Why do you most often travel to your most frequently visited place after school this way? It is the most convenient way.	,021	,013	,058	1,567	,118	,106	,068	1,3%
dY10i3 Y.10. Why do you most often travel to your most frequently visited place after school this way? It is the cheapest way.	-,015	,017	-,033	-,903	,367	,020	-,039	0,1%
dY10i4 Y.10. Why do you most often travel to your most frequently visited place after school this way? I can travel whenever I want.	-,002	,017	-,004	-,111	,912	,000	-,005	0,2%
dY10i5 Y.10. Why do you most often travel to your most frequently visited place after school this way? It is a fashionable way.	,005	,037	,005	,144	,885	,051	,006	0,2%

Task 3.3.

Collecting everyday experiences through participatory media

FOR D3.1 REPORT

Ewa Korcelli-Olejniczak, Mariusz Kowalski, Krzysztof Zarecki, Zuzanna Michalska (IGSO PAS)

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4. Collecting everyday experiences through participatory media (TASK 3.3.)

4.1. Introduction

Photovoice is a participatory action research method whereby participants identify, represent, and enhance their lives and/or communities through photographic techniques (C.C. Wang, 1999). As a visual research method Photovoice is used to capture and analyze the lived experiences of participants involved in the study. Its intention is to foster social change, and to investigate change in empowerment in vulnerable communities (Budig et al., 2018).

Photovoice has particularly gained interest as a participatory tool in health and educational studies, as well as social sciences (Liebenberg 2018; Sutton-Brown 2014), especially targeting vulnerable social groups and individuals, e.g. refugees, women in Third World countries, dysfunctional communities, the youth (Wang, Burris 1994; Ho, Rochelle, Yuen 2011; Guerrero and Tinkler 2010; Ohmer and Owens 2013). In other words, Photovoice is a process where people, often those with limited power because of poverty, language barriers, race, class, ethnicity, gender, culture, or other circumstances, use video and/or photo images to capture aspects of their environment and experiences and share them with others. As Wang and Burris state (1997, p. 373); “Photovoice can be a tool to reach, inform, and organize community members, enabling them to prioritize their concerns and discuss problems and solutions. Photovoice goes beyond the conventional role of needs assessment by inviting people to become advocates for their own and their community’s well-being”.

Photovoice is especially effective with children because it allows participants to gain power by incorporating their personal voice, experience, and language (Hergenrather et al. 2009). This was the main purpose of applying it as a diagnostic tool In the DUT CONIFER project. The Photovoice method was primarily used to diagnose the school's 15minute surroundings while identifying assets and challenges of civic lab participants, i.e. school children aged 10-18, related to meet-up places near the schools as well as the route to school. Photovoice is an activity that engages the young people to talk (tell a story) about their neighborhood in terms of mobility and sense of place using pictures taken by themselves. Following what Wang and Burris state (1997) the kids „act as recorders, and potential catalysts for change in their own communities".

4.2. Methodology

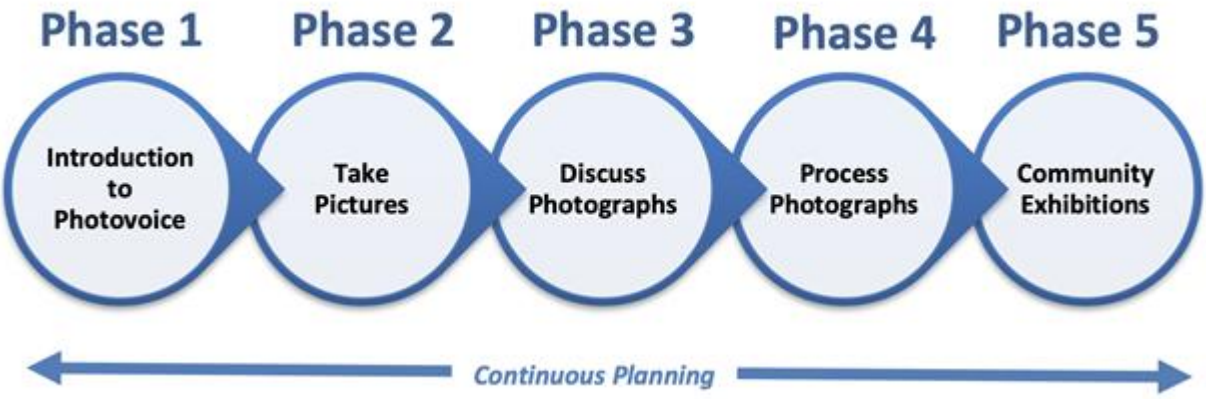
Photovoice has been used to depict the way children aged 10-18 perceive and evaluate their school surroundings, to learn about their emotions related to the places of everyday encounter with their peers in the 15minute school neighborhood, and the positive and negative factors impacting their route to school. Specifically, there were three main objectives of the research:

- To analyze the emotional perceptions of students related to their school surroundings, specifically the places of everyday encounter with their peers, and their route to school through the lens of how they capture the places on photos;
- To engage the children in discussions on how the places photographed picture their city, and their 15mC surroundings, how the spaces and spots strengthen place attachment and support social integration, what advantages, challenges and barriers are depicted, and what can be done to overcome them;
- To empower the children to think in terms of their agency

The research was carried out simultaneously in six cities differing in size and mobility culture; we worked with groups of 10-15 students aged 10-14 or 15-18, in some cases teachers were engaged. The activities included a walkshop, the time in-between when children take photos, and a workshop session. A method script, as well as a document on legal and ethical issues related to Photovoice were developed to guide civic labs and teams through the procedure. The script explained organizational or communication matters for the facilitators such as the duration of the walk- and workshops, the number of children, the locations to be visited, what to focus on while giving instructions as to how the pictures are to be taken, or how the workshop should be structured.

The phases of the data collection and processing were described (**Błąd! Nie można o dnaleźć źródła odwołania.**).

Figure 208 Process overview (source: Apaza, DeSantis 2016).



The data that IGSO PAS collected as method owner included:

1. sets of photos taken by the children in the categories places of encounter and the way to school (1-2 per child in each category) without descriptions
2. sets of photos with the children's narratives
3. maps picturing the location where the pictures were taken
4. a description of the workshops, as well as important reflections by the facilitators.

The data collected serves to diagnose the situation, the results of the research, however, will at a later stage be used to create scenarios and visions.

4.2.1. The analysis

4.2.1.1. Structure of the workshop discussion

The objective of research in WP 3.3 is the reflection and self-reflection on feelings of belonging and sense of place, mobility behaviors, options, awareness of the children's agency to change their community, and discussion, i.e., knowledge exchange on how the community can be changed. In covers the following areas:

- Identifying spaces of everyday encounter with peers/meet-up places;
- Relating to the children's' way to school by capturing obstacles, means of transport, the time accessibility;
- Identifying what causes fear or discomfort in the surroundings;
- Capturing where and what the comfort zones are;
- Identifying factors behind the positive and negative emotions

- Finding solutions

During the workshops, various versions of the SHOWED approach were applied to describe the objects and locations (S) and to discuss what the children actually see in the pictures taken, but also what is actually happening in the situations depicted (H). The children were asked to talk about how the places and situations relate to their lives (O), and why the problems or assets exist (W). Eventually, the educational role of the situations pictured was analyzed (E), and potential solutions were discussed (D). In selected civic labs, during the workshop the children have located the places they photographed on maps of the city and neighborhood. In most of the civic labs, the discussion of solutions was organized in the form of a poster drawing session, during which children identified ways of making their surroundings more resilient, safe and sustainable. The aim of this part was primarily to engage children in a collective and creative activity that built on the findings from the photos taken.

Figure 209 Toruń civic lab workshop. Collaborative Task.

Fot: Ewa Korcelli-Olejniczak.

4.2.1.2. Structure of the research analysis – the RISICCS approach

The photos collected at 11 workshops in 6 civic labs were analyzed according to a structure that allowed for integrating the researcher's knowledge on urban space and mobility with an independent perception of the students - authors of the pictures. The approach was a modification of what Tsang (2020) applied in his research that brought together the researcher-led and the participant-led analyses. It also allowed to include age groups and the type of the neighborhood around the school as variables. The structure of the analysis was as follows:

- Interpretative analysis by the researchers (**RI**)

This approach is based on an analysis of pictures by a group of researchers involved in the study. The researchers discuss the content of the pictures without knowing the narratives behind them. This allows them to define general ideas, situations and problems to be then confronted with the participants' interpretation.

- Analysis of the student's narratives (**SI**)

The analysis of the students' narratives is based on the descriptions of the photographs, and the notes from the workshops prepared by the civic lab teams. In the case of the Toruń workshops, the analysis includes the discussion registered by the leading researchers team. A separate part concerns the emotions that were expressed by the students. The expressions in the narratives are summed up and chat GPT is used to create wordcloud maps that show the results.

In the cities in which more than one workshop was conducted, both the RI and the SI include the distinction between younger and older student groups.

- Cross-comparison between the Researcher's interpretation and the Students' interpretation (**C**)

The aim of this analysis stage is to detect the differences between the two above interpretations, and at the same time to confront the perspectives embedding them in the context of the 15mC concept - the availability of functions serving social encounter in the school's surroundings, and the use of sustainable transportation means in the journey to school.

- Cross-comparison between cities (**C**)

The cross-comparison between cities confronts the results based on six different criteria: the type of neighborhood; the type of school; students' age; dominating objects and situations; assets/advantages and barriers/challenges depicted; emotions expressed. A matrix is elaborated that presents dominating topics shared by a pair of civic labs.

- Synthesis (**S**) and limitations to the study

This part briefly summarizes the results and points to some limitations to the research process, including the organization of the sessions, the engagement of the participants, data collection, and data analysis.

4.3. Research results

4.3.1. Research in the civic labs

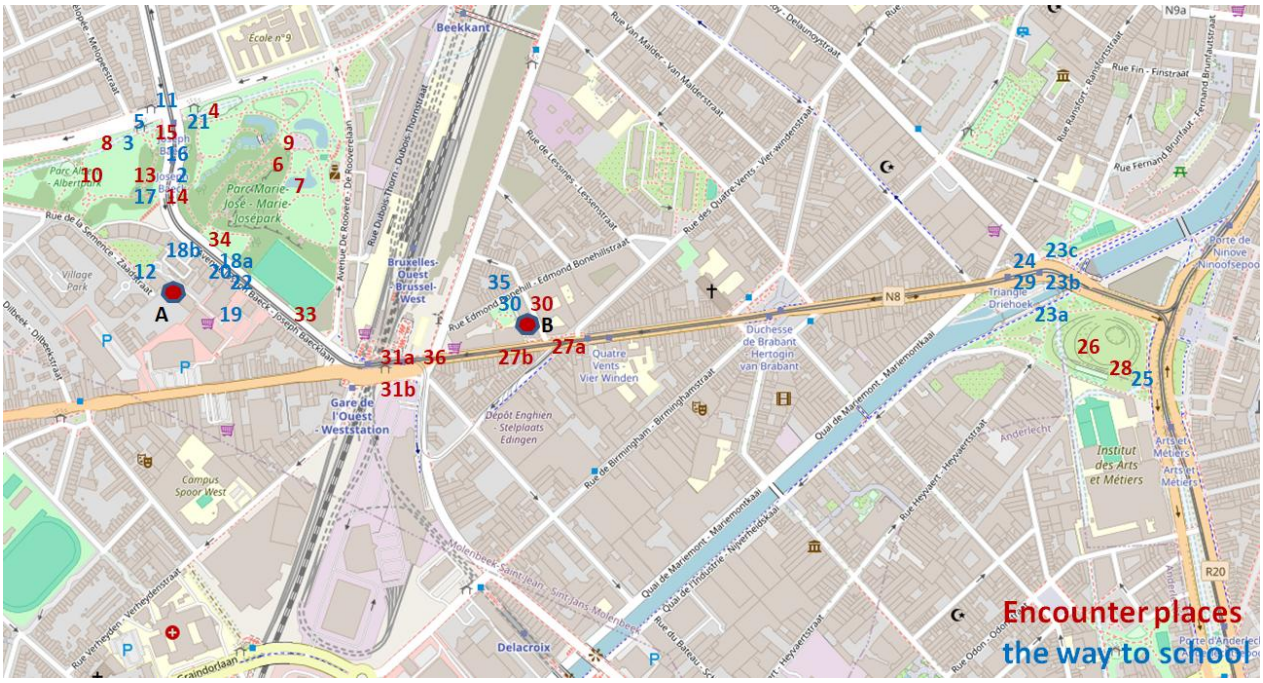
4.3.1.1. Brussels

4.3.1.1.1. Characteristics of the workshop

The Photovoice study was conducted in two schools: TADA (ToekomstATELIERdelAvenir) Saturday School and Egied Van Broeckhoven Secondary School, which were located in the Molenbeek-Saint-Jean/Sint-Jans-Molenbeek district (municipality), near the Western Station. It is on the border between two distinct areas. The lower area, next to the canal, consists of working-class, predominantly migrant, communities. The upper area, close to Brussels' second ring road, features newer construction and is mostly middle-class and residential. The territory of Molenbeek is very heterogeneous and is characterized by an urban mixture including smaller residential and (formerly) industrial neighborhoods. The area along the canal is currently experiencing a large revitalization program.

The first school was a weekend school with about 25 students aged 10-12. The children worked in four groups of 6–7 children, each guided by two adults. The second workshop was held at a secondary school with 18 students aged 11–12. They were divided into three groups of six, each accompanied by two adults, including a researcher, a mobility administration representative, and teachers. The figures below show the location where the photos were taken (Figure 210)

Figure 210. Brussels case study. Photos of encounter places and the way to school. A - TADA (ToekomstATELIERdelAvenir) Saturday School, B – Egied Van Broeckhoven Secondary School. Map data from OpenStreetMap (https://streetmap.pl/).



4.3.1.1.2. Researcher's interpretation

From the researchers perspective, the **meet-up places** of students in Brussels are concentrated around three main types of spaces in the vicinity of the two schools. Those are recreational spaces, consumer spaces, and school spaces. Figure 3 shows specifically where the pictures were taken.

The first category consists of parks and green areas which appear in many photographs. The park is seen as a place for resting, playing, and getting together. An example is the photo "Park", where students describe nature as something that gives a sense of peace, joy, and relief (Figure 211).

Figure 211 Park.

Source: Brussels case study. Photo taken by a student.

Similar functions are attributed to other photos depicting parks, e.g., "Hide and seek" or photos describing spaces with plenty of room to play. At the same time, there are comments concerning site maintenance issues, such as mud in the park or litter.

The second category relates to consumption, especially fast food restaurants. In the photos analyzed, the O'Tacos restaurant is an important meeting place. When reflecting on photos "Fun things" and "Food", students describe this place as a space for regular meetings, where they eat tacos together and talk before school starts.

The third category is school as a social space. In the photograph "Tiring", school appears as an ambivalent place on the one hand, it is sometimes perceived as tiring, associated with the pressure of grades and parental expectations, but on the other hand, as a space for making friends and acquiring knowledge. The data collected also include examples of urban space transformation, such as in the photo depicting a construction site in place of a former park, which indicates changes in the city's structure and the loss of recreational spaces.

The **journey to school** as depicted in the photographs focuses mainly on issues related to traffic, safety, and the quality of the urban environment. One of the most frequently recurring themes is the intensity of car traffic. In the photo In "On the way", students describe a street with a large number of cars stuck in traffic.

The second important topic is pedestrian safety. The photo "The dangerous crossroads!" shows an intersection considered dangerous, where pedestrians cross the street in an uncontrolled manner. A similar problem appears in the photo "Lights are not synchronized" (Figure 212, where unsynchronized lights make it difficult to cross the street safely.

Figure 212. Lights are not synchronised.

Source: Brussels case study. Photo taken by a student.

In the photograph "The dangers", children draw attention to the risk of accidents involving cars and trucks.

The third important theme is public transportation. The material analyzed includes photos of buses and trams, e.g., "People waiting for the tram" and photos related to bus travel. Public transport is sometimes viewed positively as a space for meeting and conversation, but there are also concerns about safety, such as theft on buses.

The fourth important theme is the urban environment. In many photographs, students draw attention to the problem of litter in public spaces, e.g., "No rubbish" and "Bad for the environment". The statements also mention the need for more trees in the city to help reduce CO2 emissions.

4.3.1.1.3. Students' interpretation

The students primarily evaluate their **meet-up places** in terms of emotions or opportunities to spend time with others. The most important category are parks and playgrounds. In one photo, the students describe the park as "very beautiful" and emphasize that it is a place where they can relax, sit, play, and do many different things. Similarly, in the photo, the park is a place where they can talk and play with friends. The photo "Hide and seek" shows trees as an element of the space that encourages play.

At the same time, students draw attention to problems in these places. The photograph "Sorting rubbish" criticizes littering next to trash cans, and the photograph "The dirty river" (Figure 213), the students point to the pollution of the river and its negative impact on animals.

Figure 213 The dirty river.

Source: Brussels case study. Photo taken by a student.

Another important type of meet-up places are restaurants and food outlets, especially O'Tacos. In the photo "Fun things", students describe meeting at this restaurant before class to chat with friends. In the photo "Food", they emphasize the pleasure of eating and spending time together. There are also more unusual elements of urban space that contribute to the positive atmosphere of the place. In the photo "Funny Pirate" (Figure 214), students describe the pirate figure in the park as a funny element that makes people smile.

Figure 214 Funny Pirate.

Source: Brussels case study. Photo taken by a student.

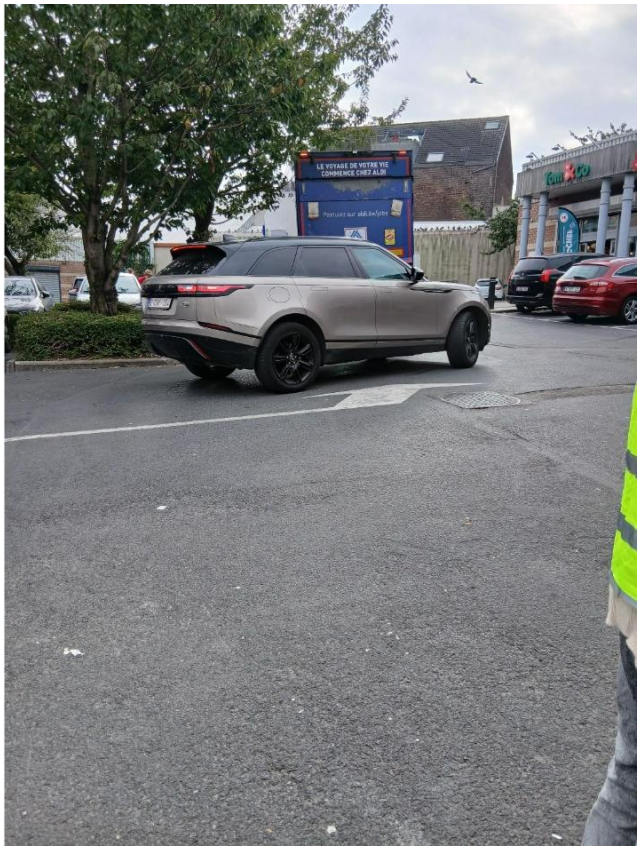
The emotions most often expressed with relation to the meet-up places are: ambivalence, joy, disappointment and appreciation (Figure 215).

Figure 215 Emotions relating to meet-up places.

Source: own elaboration.

The **way to school** is strongly associated with safety and comfort of travel. One of the most important issues is traffic. In the photo "On the way", students describe a street full of cars stuck in traffic. The photo "The dangers" (Figure 216) shows the fear of accidents involving large vehicles.

Figure 216. The dangers.

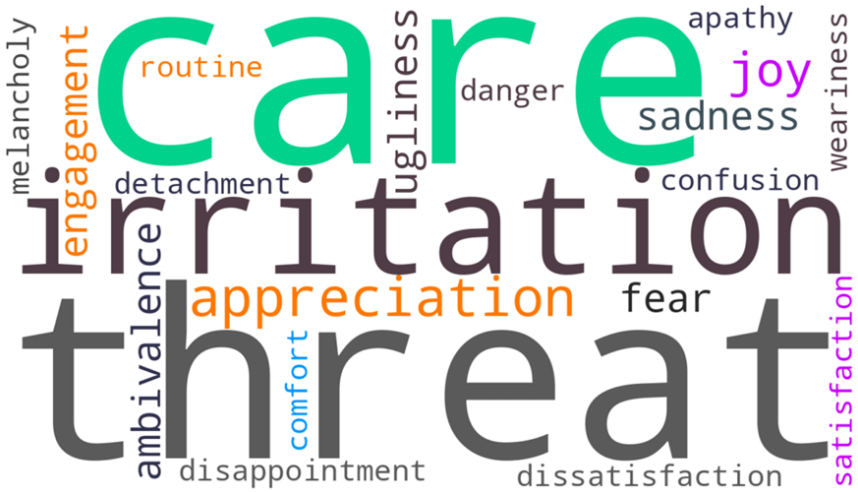


Source: Brussels case study. Photo taken by a student.

Another important topic is the availability of space for pedestrians. The photo "More space for pedestrians" shows a narrow street where pedestrians have very little space to move around. A similar problem appears in the photo, where the lack of a clear division of space between pedestrians, cyclists, and scooter users creates a sense of danger. Still another important theme is public transport. In the photo "People waiting for the tram", students point out the advantages of a tram stop that protects them against rain and allows them to observe an approaching tram. At the same time, children reveal problems related to safety on buses, they mention thefts and an aggressive driver. The students also pay attention to the natural environment in the city. In some photos, they describe trees and vegetation as elements that make the city more beautiful and evoke positive emotions.

Figure 217 shows the emotions attributed to the situations depicted in the photos. Interestingly, care and threat were the most often related to, which pictures both the challenge and the level of social engagement in the problems depicted.

Figure 217. Emotions relating to the way to school.



Source: own elaboration.

4.3.1.1.4. Confronting RI and SI

The comparison of the two perspectives reveals a clear difference in how urban space is interpreted in Brussels. The researcher's interpretation is more structural and analytical in nature; that is, it focuses on types of urban spaces and their functions within the urban system. From this perspective, meeting places are classified as recreational spaces (parks), commercial spaces (restaurants and food outlets, e.g., O'Tacos), or institutional spaces (school), while the route to school is analyzed through the lens of transportation infrastructure, traffic organization, and pedestrian safety. The students' perspective, however, is far more experiential and emotional. Students describe these same places through personal feelings, social relationships, and daily practices. For them, a park is not merely a recreational space, but a place for play, rest, and meeting friends. A restaurant becomes an informal meeting spot before classes, and a tram or bus stop can serve as a space for conversation and waiting together for transportation. At the same time, students point out details that are disturbing for them, and may be less visible in a structural analysis, such as the maintenance of public spaces, lacking pedestrian space, or dangerous intersections. The state of the urban environment plays an important role - students often mention litter, pollution, and the need for more trees. As a result, the city is perceived simultaneously as a space for encounters, mobility, and everyday challenges related to safety and environmental quality.

Ultimately, both perspectives complement each other.

4.3.1.2. Budapest

4.3.1.2.1. Characteristics of the workshop

The Photovoice study was conducted in two schools - the Alternative Secondary school of Economics (12-13 years old children), referred to as the older group or Budapest 1, and Gyermekek Háza Alternative Secondary School and Gymnasium (11-12 years old), referred to as the younger group or Budapest 2. AKG is located in Óbudar, Budapest's 3rd district, located on the Buda side of the Danube. The district extends from the riverbank toward the Buda hills, encompassing both densely built urban areas and large green and hilly zones. Historically, the district incorporates layers of Roman (Aquincum), medieval, and modern urban development, and today functions as a mixed residential, cultural, and recreational area within the metropolitan structure of Budapest. The Gyermekek Háza is located in Hűvösvölgy, a green and family-oriented part of District II (Budapest's Buda side) and is embedded within a broader residential neighborhood in the transition zone between built-up residential fabric and natural landscape elements. The area is known for its proximity to nature, educational institutions, and community-oriented residential life. The area combines suburban calm with access to public transport and local services.

Figure 218. Budapest case study. Photos of meet-up places and the way to school. A - Alternative Secondary school of Economics (Alternatív Közgazdasági Gimnázium - AKG). Map data from OpenStreetMap (https://streetmap.pl/).

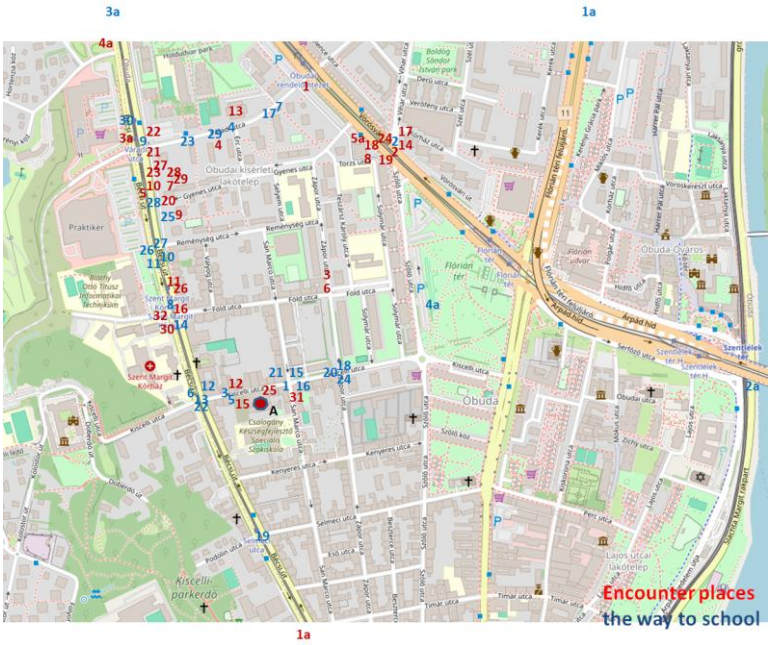
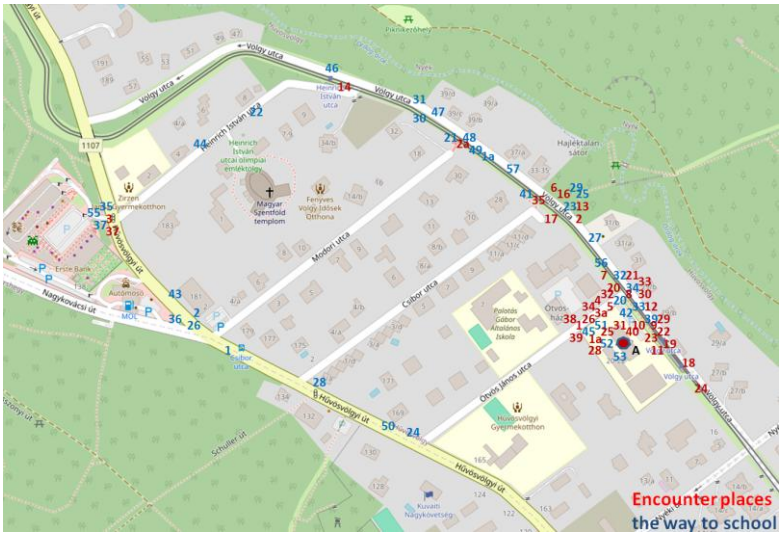


Figure 219. Budapest case study. Photos of meet-up places and the way to school. A - Gyermekek Háza Alternative Secondary School and Gymnasium). Map data from OpenStreetMap (https://streetmap.pl/).



The locations of the pictures analyzed are presented in Figure 218 and Figure 21912.

4.3.1.2.2. Researcher’s interpretation

The older group

Several distinct categories of space prevail in the photographs:

- commercial spaces (shopping malls, supermarkets, multiple McDonald's photos)
- semi-public spaces between blocks of flats (courtyards, benches),
- tram and bus stops,
- neglected places (peeling walls, transformed spaces, spaces with people experiencing homelessness)

From the researcher's perspective, there is a clear commercialization of **meet-up places**, particularly the repetitiveness of photographs of the McDonald's fast food restaurant, as well as shopping malls. At the same time, residential areas appear to be an alternative to meet. They are less formalized, but burdened with social tensions.

The **way to school** is in majority reflected by pictures presenting:

1. littered sidewalks and streets,
2. slippery surfaces,
3. uphill roads,
4. road repairs and construction work,

5. busy thoroughfares,
6. bus stops and trams.

From a researcher's perspective, the route to school in the older group reveals the city as a set of infrastructure exposed to weather conditions. Snow becomes a factor that reveals inequalities in the maintenance of space. At the same time, there is a strong presence of public transport, which indicates its systemic importance.

The younger group

In the photographs by the younger group the following objects and spaces prevail:

1. intersections and pedestrian crossings,
2. forest areas,
3. railway tracks,
4. spaces with a low standard of maintenance (dirt, broken glass, cracked pavement).

The research team sees a clear shift toward transportation infrastructure as a key place for social interaction. The tram and its surroundings are becoming central in the students' lives.

In the images regarding the way to school the below objects and situations dominate:

1. forest roads,
2. the vicinity of the railroad tracks,
3. uphill slopes,
4. narrow sidewalks,
5. poor lighting.

The researcher interprets this as an everyday experience strongly linked to the natural landscape and railway infrastructure. The road to school is a transitional space between nature and the city.

4.3.1.2.3. Students' interpretation

The older group

As highlighted in 3.1.1.1., the photos of meet-up places by the older group are predominated by commercial spaces as meeting places. Shopping malls, supermarkets, and McDonald's were photographed repeatedly, indicating the strong presence of consumer culture in the everyday lives of students. The attitude towards commercial spaces is clearly ambivalent. McDonald's is sometimes described as a good place to sit with friends, offering space for conversation and access to toilets, but at the same time as a symbol of an unhealthy lifestyle or excessive commercialization. A good example is the

photo “McDonald's is good because you can sit with friends and there is a toilet,” (Figure 220) which shows this space as a functional and comfortable meet-up place.

Figure 220. McDonald's is good because you can sit with friends and there is a toilet.

Source: Budapest case study. Photo taken by a student.

Similarly, the photo “good meeting point” points to McDonald's as an easily accessible integration point. At the same time, there is criticism – the photos “hate McDonald’s” and “hate food makes you fat” show a distancing from fast food culture and its impact on health. Shopping malls are seen as places to spend time, but at the same time as too crowded, unaesthetic, or “unsophisticated.” At the same time, semi-public spaces appear – courtyards between blocks of flats, neighborhood benches, or areas around bus stops. These places are less formal in nature, but as interpreted by the students, they carry social tensions related to the presence of people experiencing homelessness, neglected infrastructure, or a sense of insecurity. The students' statements often refer to the presence of homeless people, which generates a sense of discomfort. The theme of social exclusion appears in the photos “a homeless man lives here” and “ugly, many homeless,” where the presence of people experiencing homelessness influences the negative assessment of the place. Parks and larger open spaces, on the other hand, are seen as

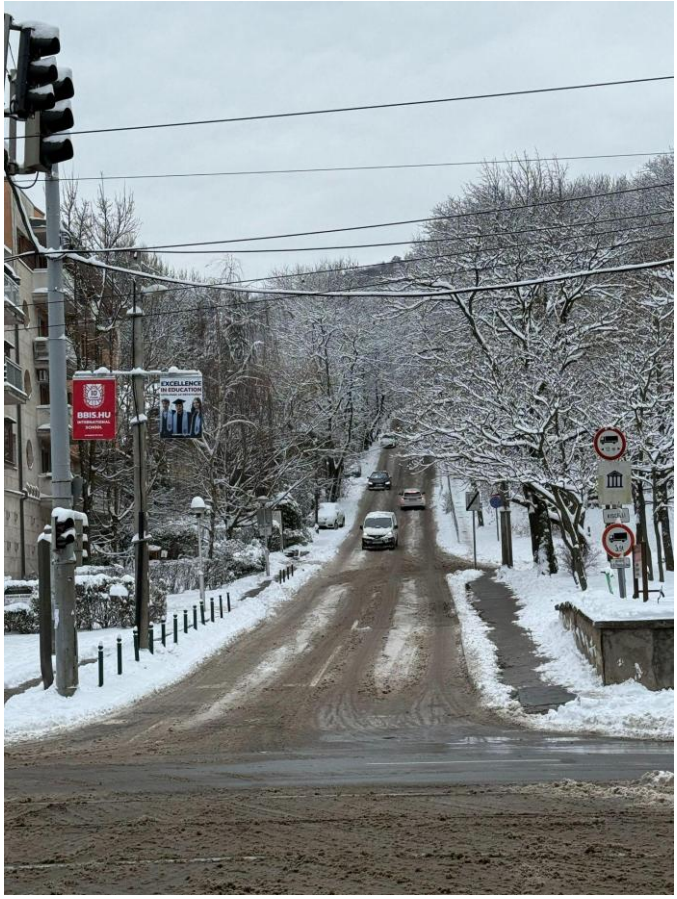
places where you can talk, move around, and hang out freely. The photo “you can freely talk, move and play with friends. Big park area” shows that a larger, open space allows for freedom of movement and conversation. The city appears here as an ambivalent space, on the one hand, it offers infrastructure for meeting and spending time, while on the other, it reveals clear signs of exclusion and degradation. The ambivalence is well described by the below word cloud map (Figure 221)

Figure 221. Emotions relating to meet-up places.

Source: own elaboration.

The way to school in the older group is described in terms of comfort, time, and safety. Unfortunately, the topic has been impacted by a reference to weather conditions, such as unplowed and slippery sidewalks, snow-covered streets, uphill drives, and road works which have become the central theme of the photographs. The snow revealed unevenness in the maintenance of the space and increased the sense of danger. Students point out slippery surfaces, traffic jams, air pollution, and long waits for green lights. The photos “the snow is not cleared” and “slippery, dangerous, you have to watch out” show the danger posed by snow-covered surfaces. “Always high traffic and if it is rainy or snowy then it's slippery” is similar in nature, highlighting both the problem of slipperiness and heavy traffic.

Figure 222. Always high traffic and if it is rainy or snowy then it's slippery.



Source: Budapest case study. Photo taken by a student.

At the same time, public transport, especially trams, was strongly present as a key element of everyday mobility. There is a clear comparison of means of transport: trams are fast and functional, cars are perceived as comfortable and "cozy," and buses as less comfortable. The comparison of means of transport is well illustrated by "tram to Mammut shopping center," where the tram is a natural part of students' mobility. The city is evaluated pragmatically, i.e., through the prism of transportation efficiency and infrastructure quality. The children described the pictures with both positive and negative emotions; the most strongly resonating were threat, dispassion, comfort and joy (Figure 223).

Figure 223. Emotions relating to the way to school.

Source: own elaboration.

The younger group

In the younger group, the photos taken shift the focus towards transportation infrastructure and transitional spaces. Meet-up places are primarily tram stops, intersections, areas around railway tracks, and forest areas centered around the school and the tram. The school is a space where “everyone is present,” which gives it a community character. The school as a place of daily encounters is illustrated by the photos “the school because we meet every day with friends” and “School—I got to meet my friends” (Figure 224).

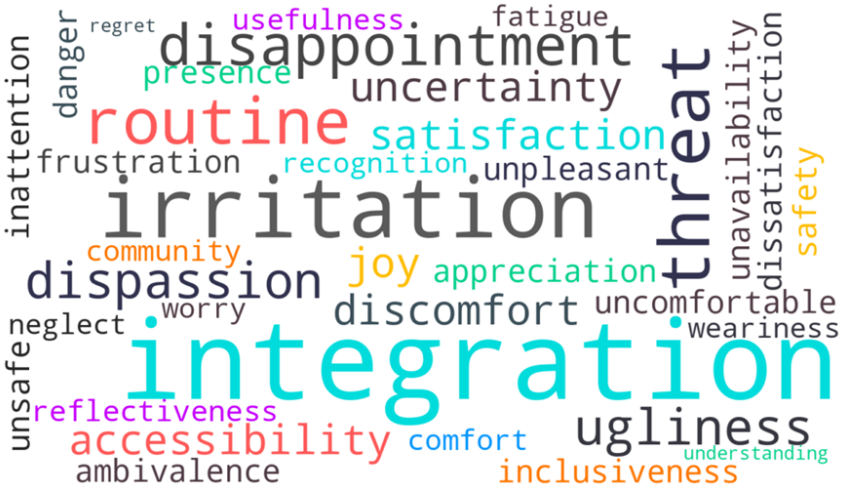
Figure 224. School—I got to meet my friends.

Source: Budapest case study. Photo taken by a student.

The tram is also a place of conversation, crowds, fatigue, and daily rituals at the beginning and end of the day. The tram as a space for interaction is shown in the photos "I meet my friends on the tram or at the tram stop," "a lot of people and kids on the tram, very crowded," and "I always love to meet my friends at the tram."

The forest is sometimes described as a place for pleasant walks and contact with nature, but also as a dark and potentially dangerous space. Students clearly emphasize safety issues such as fear of attack, lack of crossings, and difficulties for wheelchair users. The theme of safety appears in the photo "Someone could attack me anytime," which reveals the fear associated with public spaces. Infrastructure problems are visible in "no pedestrian crossing." Accessibility for people with disabilities is illustrated by the photo "It's hard to access for me, I can get a flat tire on my wheelchair, a lot of rubbish," which shows that space can be a real barrier. Although depicting spaces of encounter, the children when describing their photos often point to infrastructure deficiencies, such as a lack of pedestrian crossings, high curbs, narrow sidewalks, cracked pavement, or broken glass. It is clear that transport infrastructure is not only a backdrop here, but also a central space for the social life of students. The children expressed different emotions regarding the meet-up places. The ones recurring were integration and irritation, but also threat and disappointment (Figure 225).

Figure 225. Emotions relating to meet-up places.



Source: own elaboration.

For the older group, **the way to school** focuses on the condition of the road surface, narrow sidewalks, lack of lighting, litter, and dog feces. Problems with the road surface are shown in the photos “bad condition, bad to walk on it,” “The road is uneven due to potholes,” and “poor road conditions.” Comfort of travel is a key criterion for evaluation. Cars are associated with comfort and the possibility of sleeping, trams with speed and accessibility (low floor), and buses with less comfort. The theme of driving comfort appears in “it's good to come to school by car because it is cozy” and “one can sleep in the car during the way to school (Figure 225)

Figure 226. One can sleep in the car during the way to school.

Source: Budapest case study. Photo taken by a student.

On the other hand, the positive experience of public transport is evident in the photo titled: "low floor tram, fast, not many stops."

The emotions most frequently expressed with regard to the way to school are irritation, ugliness, but also comfort and appreciation (**Błąd! Nie można odnaleźć źródła o dwołania.**).

Figure 227. Emotions relating to the way to school.

Source: own elaboration.

The older group vs the younger group

A comparison of the two schools shows that although the students talk about the same city, they see it through the prism of different experiences. In the older group, the theme of commercialization and functional analysis of transport is more pronounced, while in the younger group, greater emphasis is placed on safety, accessibility, and everyday community. The common denominator is mobility and relationality: the city is primarily a space for moving around and meeting other people.

4.3.1.2.4. Confronting RI and SI

Researchers mainly identify patterns. Those are for example commercialization of space in the older group, or the infrastructuring of meet-up places in the younger group, the influence of weather conditions, and the importance of public transport.

The participants describe the city through:

1.positive and negative emotions, such as anxiety, fatigue or pleasure,

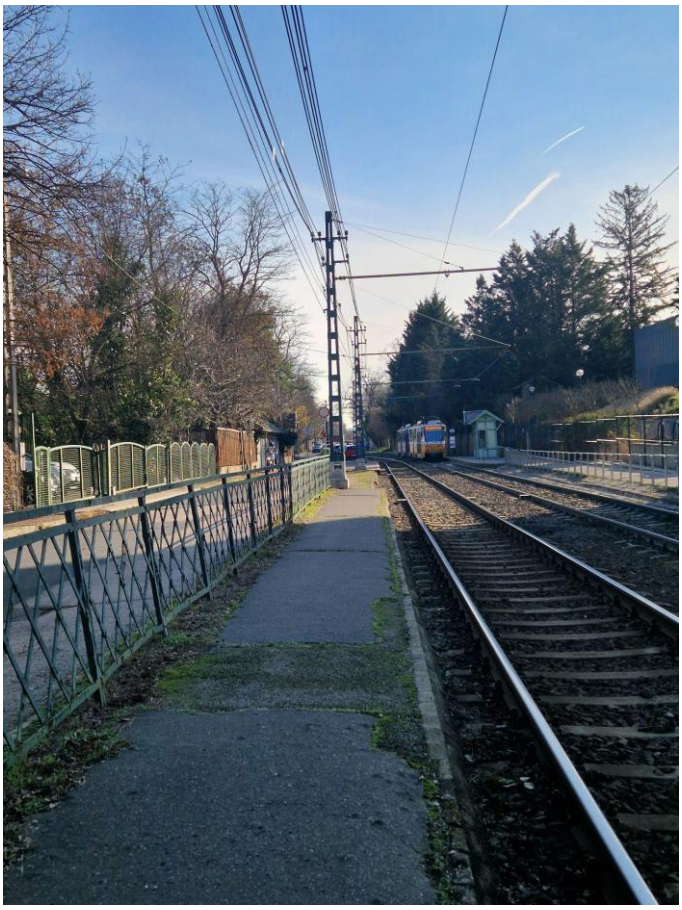
2.comfort,

3.social relationships,

4.daily rituals.

The space that the researcher interprets as a “communication hub” is, for the student, a place to talk with a friend or a moment to say farewell (Fig 21).

Figure 228. We go together with friends to school from here.



Source: Budapest case study. Photo taken by a student.

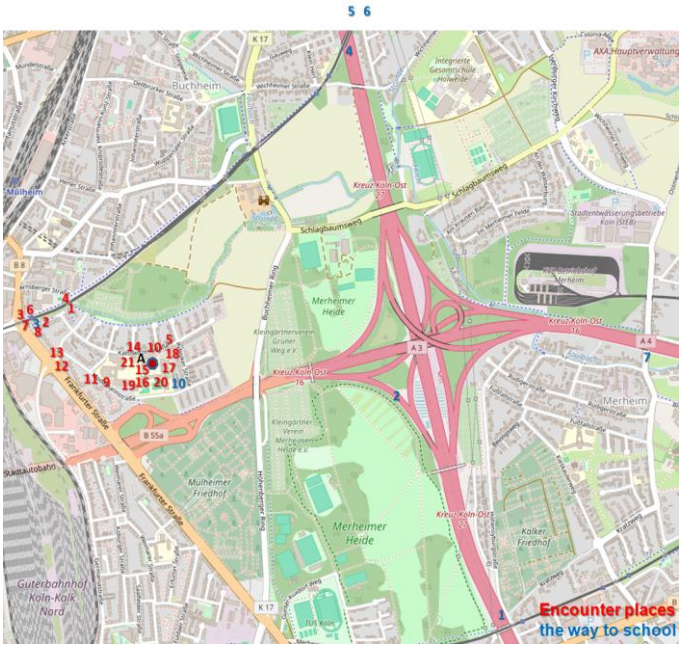
4.3.1.3. Cologne

4.3.1.3.1. Characteristics of the workshop

The Photovoice workshops took place at the "Städtisches Johann-Gottfried-Herder-Gymnasium", located at Kattowitzer Straße 52, Cologne-Buchheim (Kölsch Bochem). The research team worked with a class of children aged 14-15 years. The walkshop and the workshop sessions were separated (November 18, and November 21, 2025). Cologne-Buchheim is a neighborhood on the right bank of the Rhine in Cologne, in the Mülheim district. Since the 19th century, it has been an area of industrial development, with industrial plants and blue collar neighborhoods. In recent decades, a large influx of foreign immigrants has occurred.

The figure below show the locations where the pictures were taken (Figure 229).

Figure 229. Cologne case study. Photos of meet-up places and the way to school. A - Johann-Gottfried-Herder Gymnasium Cologne. Map data from OpenStreetMap (https://streetmap.pl/).



4.3.1.3.2. Researcher's interpretation

The researchers perceive the space emerging from the visual material collected as a system of urban infrastructure to be analyzed in terms of accessibility, safety, functionality, and inclusiveness. When studying the pictures relating to the way to school, the researcher recognizes the relationships between elements: the connection between pedestrian and vehicle traffic, the importance of transport hubs, and the role of aesthetics and greenery in improving the quality of space. Problems are seen as infrastructure deficiencies. With regard to meet-up places, the researcher primarily draws attention to their functionality, the way they serve the participants' needs, in some cases recognizing an ambivalent character of the spaces (functional, but dull, or unlively in their presentation).

4.3.1.3.3. Students' interpretation

From the study of the children's narratives related to the photos an overall picture emerges of an ambivalent city that offers real resources and opportunities, but at the

same time generates tensions, stress, and a sense of lack of control over everyday mobility.

The **meet-up places** primarily serve a social function. The most important ones are simple, easily accessible spaces such as benches in the schoolyard, in the park, around bicycle racks, or nearby food outlets. This is where the daily lives of young people unfold. These become the center of social life, places for conversation, laughter, and getting together. The photographs entitled "Area for socializing on the schoolyard," (Figure 230) and "Chat corner" show benches in the schoolyard as places for conversation, laughter, and spending time together.

Figure 230. Area for socializing on the schoolyard.

Source: Cologne case study. Photo taken by a student.

The children usually argue that space does not have to be aesthetically unique or modern, but the key thing is whether it allows people to be together. The photograph "Togetherness" has a similar meaning, where park benches are a symbol of being together.

At the same time, there is a clear awareness of the limitations of these places. Benches are often uncomfortable, seasonal, quickly occupied, and unavailable after school hours. This approach can be seen in the photographs "Nice, relaxed benches" and "Spending time together," where benches are needed but quickly fill up and do not become a place

to spend free time outside of school. Small courtyards, lengthy renovations, and lack of roofing limit the comfort of using the space. Public space is therefore often perceived as minimal, i.e., providing basic functions (sitting, eating, parking a bicycle), but rarely offering a sense of quality or identification with the place. The photos "Friendships in the breaks," "Eliminating boredom" and "Meeting point and parking area" (Figure 231) show benches and bicycle racks as the only available meeting places, but they are used not because they are comfortable, but because there are no other options.

Figure 231. Meeting point and parking area.

Source: Cologne case study. Photo taken by a student.

Food outlets, which combine a consumer and social function, are also an important element. They are an alternative to home and school, a place to meet after classes, and a space of relative freedom. "The food spot" and "A delicious break" show a nearby restaurant as an important meeting place after school, due to its proximity and convenience. At the same time, there is criticism of the management of school space, such as noisy construction work. "Ugly construction site" points to noise and space taken away from the school courtyard, which makes it difficult to concentrate and relax. The participants also draw attention to the aesthetics of school interiors. The image "Embellishment of the room" reflects the idea that art can improve the aesthetics of a school, but should not replace renovations and improvements to basic conditions.

Overall, it is found on the basis of the children's narratives that the city offers meet-up spaces, but these are often temporary, limited, and insufficiently adapted to the needs of young users. The city appears here as a space that can be pleasant, but is often poorly managed. The emotions related to meet-up places are presented in Figure 232.

Figure 232. Emotions relating to meet-up places.

Source: own elaboration.

The strongest emotions concern the daily commute to school, related with the category the **way to school**. The transit space is perceived as predominated by cars, congested, and inconsistent. Wide, busy streets with a limited number of pedestrian crossings, long waits for green lights, narrow sidewalks, and dangerous railroad crossings without adequate safety measures create a sense of danger and the need for constant vigilance. The photo "Wide and busy street with limited crossing options" (Figure 233) depicts a wide, busy street with no pedestrian crossings.

Figure 233. Wide and busy street with limited crossing options.

Source: Cologne case study. Photo taken by a student.

The series of photos “Dangerous crossing”, “Dangerous”, “Railroad crossing: The dangerous path” and “Railroad crossing: Dangerous” shows railroad crossings without lights or barriers, which are a cause for concern, especially for children and the elderly. However, the central problem is the unreliability of public transport. Delays, canceled trains, overcrowded trams, and chaotic information generate frustration, fatigue, and stress, especially after school hours. Waiting at cold stops in winter, uncertainty about whether the vehicle will arrive at all, and crowded carriages create an experience of daily uncertainty. The frustration associated with rail transport is well illustrated by the photographs “Train Cancellation,” “Frequent Train Delays”, “Waiting, waiting, waiting…” and “Non-arriving trains” and “Late again,” in which delays and canceled trains cause tardiness to school and a feeling of lack of control. The photo “The only option to get home” (Figure 234) sums up the feeling of having no choice due to crowded and irregular transport.

Figure 234. The only option to get home.

Source: Cologne case study. Photo taken by a student.

In response to these difficulties, adaptive strategies are emerging: using bicycles, electric scooters, or combining different modes of transport. The photo "E-Scooter" shows a scooter as a quick solution to the problem of late trams. Bicycle infrastructure, such as parking facilities at terminal stations, is viewed positively as an element that enables greater flexibility. The photograph "Environmentally friendly" shows a bicycle parking lot at a station that facilitates the combination of different modes of transport. At the same time, there is ambivalence towards the environment: for some students, the journey is green and pleasant, for others, it is only "gray" and road-based. The photographs "Too thin sidewalk" and "Thin street to school" illustrate cramped, dangerous pedestrian and road spaces.

In turn, "Nature path" reveals that the experience of the journey to school can be extremely different – for some it is green and pleasant, for others it is only gray and road-like. The photos "Nature" and "Parkway" show the need for more green routes that would serve as both roads and places of relaxation. The journey to school is therefore an ambivalent experience because, on the one hand, the city offers a variety of means of transport and fragments of friendly, green space, but on the other hand, everyday mobility is marked by delays, congestion, and danger.

The emotions related to the way to school are presented in the below figure (Figure 235)

Figure 235. Emotions relating to the way to school.

Source: own elaboration.

4.3.1.3.4. Confronting RI and SI

The difference between the researcher's perspective and that of the participants is most evident at the level of interpreting everyday experiences. The researcher organizes reality, giving it neutral, technical, and systematic names, while the participants describe the city through experience: waiting, fear, fatigue, conversation, boredom, or relief. Where the research team sees an information board, the students see frustration resulting from long train delays. Electric scooters which the team sees as something that blocks the sidewalk, are pictured as a convenient means of transportation and a source of fun for students. Also, a simple parking lot for bicycles and scooters, described by the researchers solely as infrastructure, serves a meet-up place for students after school, and this is how it is described by the latter.

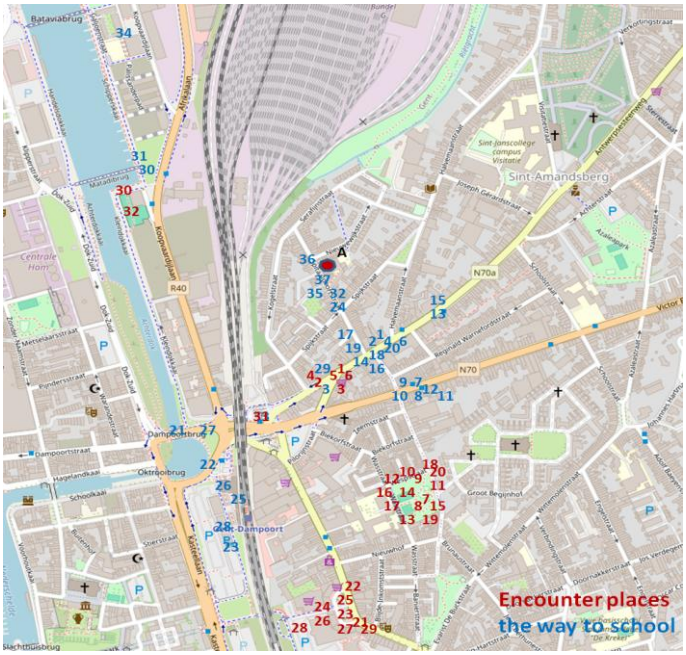
4.3.1.4. Ghent

4.3.1.4.1. Characteristics of the workshop

The Photovoice workshops took place at the Freinetscholen Keerpunt - Buurtschool Oase50, located at Spitaalpoortstraat 50, Dampoort. During the one-day workshop, a total of 30 students from the first and second year of secondary school (aged 12-14) were examined. The Dampoort district is a neighborhood in the Belgian city of Ghent, located east of the city center. About half of the inhabitants are of foreign origin. This is a former

rural suburb of Ghent, now heavily urbanized and incorporated into the city. The pictures below illustrate the location of the photos taken in the school's surroundings and on the route to school (Figure 236)

Figure 236. Ghent case study. Photos of meet-up places and the way to school. A - Freinetscholen Keerpunt - Buurtschool Oase50. Map data from OpenStreetMap (https://streetmap.pl/).



4.3.1.4.2. Researcher's interpretation

From the researcher's perspective, the student's **meet-up places** are concentrated around three main types of space: commercial spaces, recreational spaces, and infrastructural spaces related to the everyday functioning of the city.

The first category consists of commercial spaces. Students often photograph shops and service centers that serve as meet-up places. An example is a series of photos related to the Wibra store, where the place is described as cheap and quiet, so students come there with their friends (e.g., photo "Wibra 3"). At the same time, this space also reveals organizational problems – the photo "Wibra 4" points to a lack of staff and long queues.

The second category are recreational spaces, primarily parks and playgrounds. Vliegerpark is particularly important here, appearing in many photographs as a place for rest and physical activity. The photos "Vliegerpark 1" and "Vliegerpark 3" highlight its

integrative and recreational function, although at the same time there are problems related to infrastructure, such as a lack of benches or incomplete fencing around the playing field ("Vliegerpark 4").

The third category consists of infrastructure spaces – bus stops, streets, and delivery areas at stores. They are not always designed as meet-up places, but in practice they perform this function. An example is the store delivery area, which increases the sense of safety for pedestrians. The city reveals itself as a multifunctional space where meet-up places are created both in spaces designed for recreation and in places of everyday consumption or infrastructure.

The analysis of photos concerning the **route to school** shows that students are strongly focused on issues of safety, maintenance of space, and traffic organization. Many photographs depict the problem of busy streets and the difficulty of crossing them. The photograph "Crossing 3" shows a very busy road that students have to cross every day, causing frustration and a sense of danger. Similarly, the photograph "Busy street" shows fast-moving traffic and a lack of speed control.

The second important theme is the condition of public spaces. Numerous photographs show the problem of litter and illegal dumping (Crossing 4, photographs of street litter and illegal dumping). Students interpret this as a lack of sufficient trash cans and inadequate supervision of public spaces.

The third important issue is cycling and pedestrian infrastructure. Places with a large number of bike racks and separate bike paths are viewed positively. At the same time, there are problems associated with narrow sidewalks or the proximity of bike paths and sidewalks, which leads to conflicts between pedestrians and cyclists. From a researcher's perspective, the route to school appears to be a space of intense traffic and daily safety negotiations between different users of the city.

4.3.1.4.3. Students' interpretation

Students describe their **meet-up** places primarily through emotions and everyday experiences. Space is evaluated not only in terms of functionality, but also atmosphere, aesthetics, and sense of comfort. A good example is the photo "Wibra 3," in which the store is described as a cheap, quiet, and comfortable place to meet friends. At the same time, students notice its imperfections—in the photo "Wibra 4," there is criticism of long queues due to a lack of staff.

Figure 237. Wibra.

Source: Ghent case study. Photo taken by a student.

Playgrounds and parks play an important role in recreational spaces. The photo "The Playground 4" shows a playground as a place for meeting and socializing, which "brings happiness" and allows people to spend time together. Similarly, the photo "Pleasant Features" depicts a space with a sports field as a place where children can meet and be physically active. At the same time, students are very sensitive to neglect of public spaces. The photo "Trash" shows rubbish among plants in a park and evokes a strong sense of dissatisfaction. In the photo "Empty 1," students criticize the empty space in the park, which offers no opportunities for activity. An interesting example of an alternative meeting place is the skatepark described in the photo "Meeting Place Positive – skatepark." Students point to it as a quiet and attractive meeting place, even though it is not very popular. The meet-up places are described by such emotions as (Figure 238):

Figure 238. Emotions relating to meet-up places.

Source: own elaboration.

The **route to school** is strongly linked to their sense of safety and comfort when traveling on a daily basis. One of the most important problems is traffic. The photo “Crossing 3” shows the difficulty of crossing a busy street where drivers rarely let pedestrians pass. Similarly, the photo “Busy street” evokes a sense of fear due to the fast-moving traffic.

The second important issue is the condition of public spaces. The photo “Crossing 4” shows a large amount of trash at an intersection, which evokes feelings of sadness and disappointment. Similar emotions arise in photos depicting illegal dumps or trash on the streets.

The students also point out positive elements of the infrastructure. The photo “Bike racks” shows bicycle racks that give a sense of security and allow for convenient bicycle parking. The photo “Crossing 2” shows a wide and well-lit pedestrian crossing that inspires a sense of safety.

Figure 239. Crossing.

Source: Ghent case study. Photo taken by a student.

Service and community facilities are also an important part of the route to school. The photo “The Café” shows a small café that is a source of pride and makes the street more welcoming.

The emotions expressed in the narratives by the children relating to the way to school are pictured below (Figure 240)

Figure 240. Emotions relating to the way to school.

Source: own elaboration.

4.3.1.4.4. Confronting RI and SI

A comparison of both perspectives reveals a clear difference between structural analysis and everyday experience.

The researcher identifies the main types of urban spaces—commercial, recreational, and infrastructural, and analyzes their functions within the city system. Students, on the other hand, describe the same places through emotions and personal experiences. For example, from a researcher's perspective, the Wibra store is part of the commercial infrastructure, while for students – as in the photo "Wibra 3" – it is a place to meet and talk with friends. Similarly, a park can be interpreted as a recreational space, but for students its significance depends on details – the presence of benches, cleanliness, or opportunities for play.

4.3.1.5. Matosinhos

4.3.1.5.1. Characteristics of the workshops

The research in Matosinhos took place in three schools located in three different parts of the city: in the municipal urban centre (Matosinhos Centre), in a peripheral coastal-rural area (Lavra) and a dense urban-suburban area (São Mamede de Infesta). In the first school – Escola João Gonçalves Zarco (Matosinhos Centre) – 28 students aged 16-17 participated in the workshops. In the second school – Escola José Domingues dos Santos (Lavra) – the group consisted of 14 people aged 13-14. In the third school – Escola Abel Salazar (São Mamede de Infesta) – 18 students aged 16-17 participated.

4.3.1.5.2. Researcher's Interpretation

Abel Salazar

From the researcher's perspective, the photographs taken by students at the Abel Salazar school focus mainly on the quality of pedestrian infrastructure and the relationship between car traffic and the safety of public space users. The most common problem is insufficient space for pedestrians. Many photos show narrow sidewalks, sudden narrowings, or damaged surfaces. In some cases, sidewalks are additionally blocked by improperly parked cars, which makes it difficult to walk and forces pedestrians to step onto the road. Another problem is road safety. The photographs show dangerous situations on the road, such as damaged vehicles or limited visibility on bends. This highlights the conflict between heavy traffic and pedestrian safety. On the positive side, there are examples of infrastructure that improves the comfort of residents: covered bus stops, places to rest in the form of benches, and the presence of greenery in public spaces. Waste management infrastructure, such as waste sorting facilities, is also viewed positively.

Gonçalves Zarco

The photos from this school reveal a strong focus among students on issues related to the maintenance of public spaces. Among the most frequently photographed problems is the degradation of urban infrastructure. Examples include damaged elements of space, such as cracked asphalt, crooked sidewalks, or vandalized infrastructure elements, such as boxes or walls. In many places, there is also the problem of graffiti and vandalism. Another important theme is the difficulties associated with construction work, which limits the ability to move freely around the city. The photographs also point to a lack of regular maintenance of public spaces, such as uncleaned leaves or general mess on the streets. At the same time, the material contains many examples of well-designed urban space. Students photograph places with lots of greenery and benches, wide sidewalks, and modern transport infrastructure, such as well-maintained public transport stops. The presence of inclusive infrastructure, such as parking spaces for people with disabilities, is also noteworthy.

José Domingues dos Santos

The photos from this school focus primarily on issues related to pedestrian safety and traffic management. The most common problems are narrow sidewalks and a lack of pedestrian infrastructure. In some places, sidewalks are additionally blocked by cars, which makes it difficult for pedestrians to move around. The second major problem is dangerous pedestrian crossings. In many photographs, students document crossings

without traffic lights or poorly visible intersections. There are also photos showing the poor condition of the road surface, e.g., potholes in the roadway. Among the positive elements of the space, the students photograph modern residential buildings, bus stops, and wide sidewalks. There are also photos showing natural spaces and open landscapes, as well as elements of safety infrastructure, such as protective barriers.

The figures below show pictures taken by the children of the three schools. In the Matosinhos civic lab there was no clear distinction made between the photos representing meet-up places and those showing the route to school (Figure 241 Figure 242 Figure 243)

Figure 241. Matosinhos case study. A - Gonçalves Zarco School - Matosinhos Center. Map data from OpenStreetMap (https://streetmap.pl/)

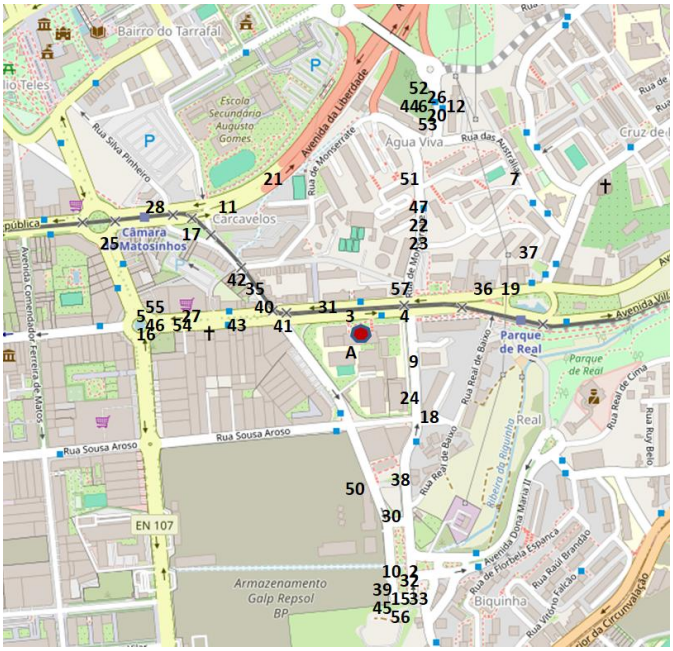


Figure 242. Matosinhos case study. A - José Domingues dos Santos Basic School - Lavra. Map data from OpenStreetMap (https://streetmap.pl/).

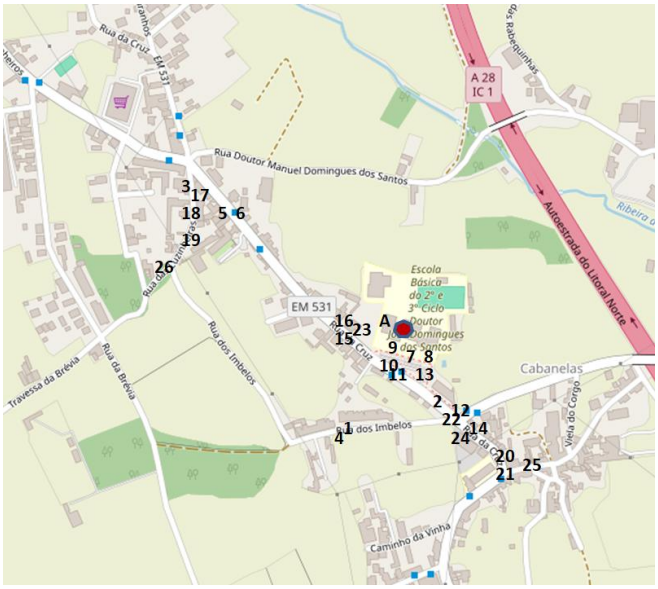


Figure 243. Matosinhos case study. A - Abel Salazar School - São Mamede de Infesta. Map data from OpenStreetMap (https://streetmap.pl/).

4.3.1.5.3. Student's Interpretation

Abel Salazar

The students of the Abel Salazar school describe space primarily through emotions and everyday experiences. Negative emotions are triggered by situations related to lack of safety and lack of respect for pedestrians. A photo showing a badly parked car evokes a sense of injustice and disrespect for other road users. Similarly, in a photo in which students draw attention to a narrow sidewalk, which evokes a sense of danger. The poor condition of infrastructure also evokes strong emotional reactions. Potholes in the sidewalk or poor street lighting are described as causes of anxiety and sadness.

Figure 244. Sidewalk full of potholes.

Source: Matosinhos case study. Photo taken by a student.

Gonçalves Zarco

In the students' comments emotions related to feelings of comfort or discomfort in urban spaces prevail. Negative emotions are primarily caused by damaged elements of the space and a lack of safety. Graffiti arouses outrage or dissatisfaction, and damaged sidewalks cause feelings of fear and uncertainty. Problems related to construction or traffic obstructions are described as a sad and frustrating experience. At the same time,

students clearly appreciate elements that improve the quality of space. Urban greenery is described as a source of peace and a sense of freedom. Parks and spaces with benches are conducive to relaxation and socializing. Transport infrastructure, such as subway stations or public transport, which are associated with convenience and accessibility in the city, are also viewed positively.

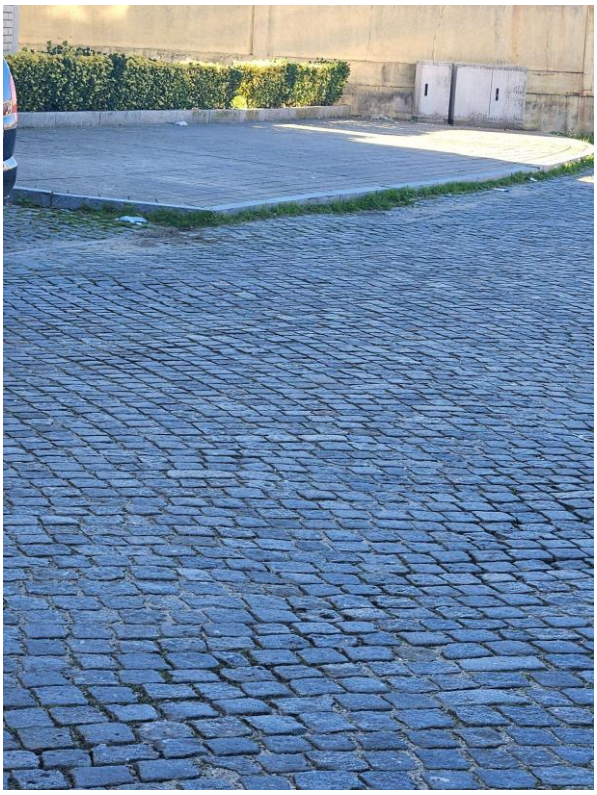
Figure 245. Transport happiness.

Source: Matosinhos case study. Photo taken by a student.

José Domingues dos Santos

Negative emotions are triggered by situations associated with a sense of danger. Narrow sidewalks cause frustration, and potholes in the road are described as a real danger. Particularly strong reactions occur when viewing photos depicting dangerous pedestrian crossings, which evoke anger and a sense of injustice. At the same time, students point to many elements that evoke positive emotions. Modern buildings and well-maintained residential areas are perceived as visually attractive. Public transport, such as bus stops, gives a sense of convenience and accessibility. Infrastructure elements that increase safety, such as barriers or clearly marked walking areas, are also viewed positively.

Figure 246. Safe walk.



Source: Matosinhos case study. Photo taken by a student.

The analysis of photos from the three schools in Matosinhos shows that students perceive the city primarily through their daily experiences of moving around in public spaces.

The most common problems are:

- narrow or damaged sidewalks,
- lack of safe pedestrian crossings,
- incorrectly parked cars,
- littering and vandalism.

At the same time, students clearly appreciate elements that improve the quality of life in the city, such as:

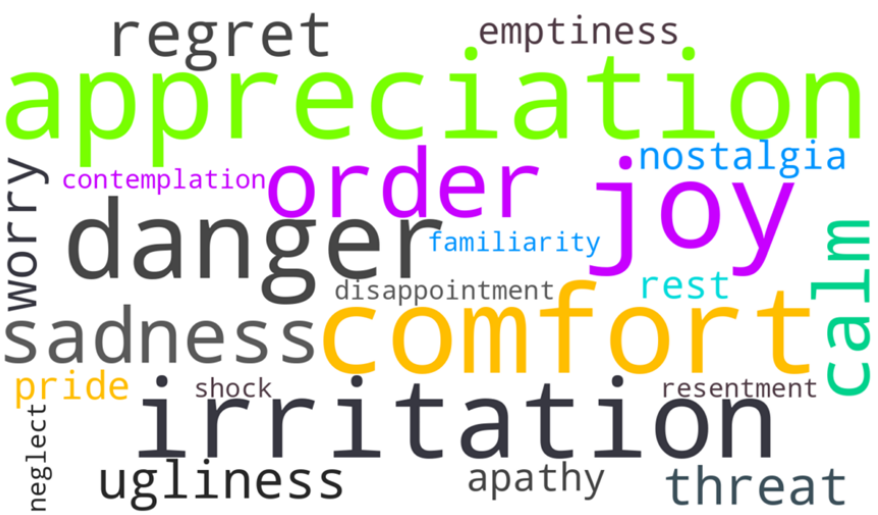
- presence of greenery and parks,
- places to rest (benches),
- well-designed transport infrastructure,

- solutions promoting inclusiveness and accessibility of space.

All three schools therefore paint a similar picture of the city: a space that offers many positive aspects, but at the same time requires improvement in terms of pedestrian safety, infrastructure maintenance, and the quality of the urban environment.

The emotions through which the Matosinhos see their surroundings are presented below (**Błąd! Nie można odnaleźć źródła odwołania. Błąd! Nie można odnaleźć źródła od wołania. Błąd! Nie można odnaleźć źródła odwołania.**)

Figure 247. Abel Salazar Emotions relating to meet-up places and way to school.



Source: own elaboration.

Figure 248. Goçalves Zarco Emotions relating to meet-up places and way to school.

Source: own elaboration.

Figure 249. José Domingues dos Santos Emotions relating to meet-up places and way to school).

Source: own elaboration.

4.3.1.5.4. Confronting RI and SI

A comparison of the two perspectives reveals a clear difference in how researchers and students interpret the urban space photographed. The researcher's perspective is more analytical and systematic, as it focuses on identifying recurring infrastructural problems and categories of urban space, such as the quality of sidewalks, traffic management, public transport accessibility, and the condition of public spaces. In this perspective, photographs are treated as material that allows for the identification of broader patterns of city functioning. The students' perspective, on the other hand, is much more emotional and experiential. Project participants describe space through their own feelings – a sense of security, joy, frustration, or pride. The same elements of space that, from a researcher's point of view, are examples of infrastructure problems (e.g., narrow sidewalks, damaged pavement, or improperly parked cars) appear in the students' statements as sources of specific emotions: fear, anger, or discomfort. On the other hand, elements such as urban greenery, benches, or well-maintained public spaces are interpreted by students primarily as places conducive to rest, relaxation, and positive experiences. Both perspectives complement each other.

4.3.1.6. Toruń

4.3.1.6.1. Characteristics of the workshop

In the Toruń civic lab two walk- and workshop events were organized with participants representing different age groups. The first one was a public high school located in the center of Toruń's Old Town - the historical district, the other a public primary school situated in the Osiedle Reja (Bydgoskie Przedmieście) neighborhood on the right bank of the Vistula river. Toruń's Old Town is a typical tourist and service center with offices, shops, restaurants, hotels and tourist attractions, with only a small share of residential functions. The oldest buildings date back to the Middle Ages, but there are also many structures from later periods.

The Reja housing estate (Osiedle Reja) is one of the newer parts of the Bydgoskie Przedmieście district, located in the western part of Toruń, 3 km from the historic center. The estate consists primarily of multi-family residential buildings built in the 1960s and 1970s. The buildings accommodate schools, preschools, and numerous retail and service establishments, including two large shopping malls. Nearby, in the southern part of the area, there is a small social housing estate.

4.3.1.6.2. Researcher's Interpretation

The older group

The meet-up places presented in the pictures are predominantly semi-public and commercial spaces (cafes, cinema, walls, amphitheater, department store). The team sees a strong tension here between:

the potential of the place (aesthetics, location, atmosphere),

barriers to use (prices, cramped conditions, presence of socially excluded people),

strong focus on cafes, restaurants, parks and semi-public places

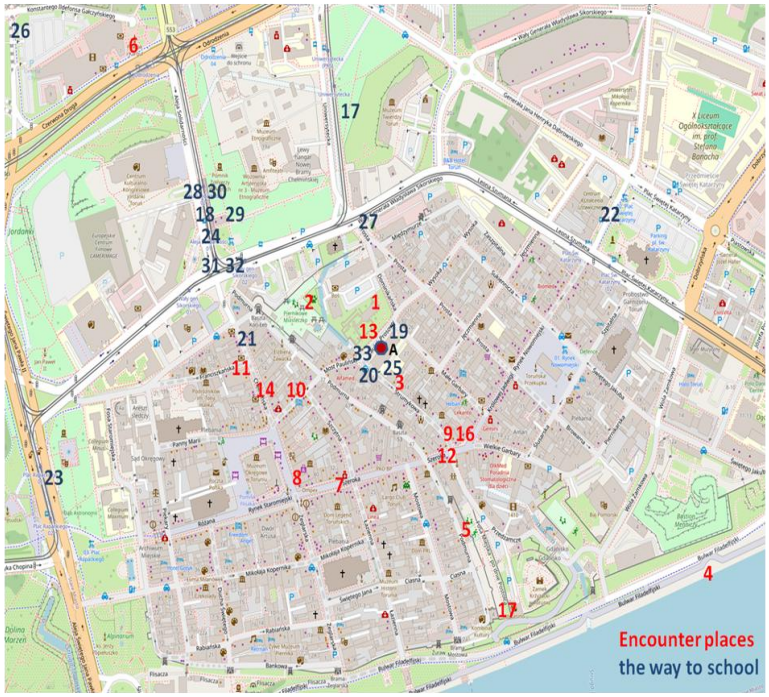
In terms of the route to school, the city appears to be a highly organized infrastructure, but with uneven accessibility. The following are particularly noticeable:

- contradictions between modernity and outdated transport,
- spatial barriers (closed gates, inaccessible elevators),
- fragmentary inclusiveness of urban planning solutions.

From the researcher's perspective, the high school group views the city in terms of functionality and efficiency.

The below figure shows the location of the places and objects photographed by this group Figure 250).

Figure 250 Toruń case study. Photos of meet-up places and the way to school. A – General Secondary School No. 1. Map data from OpenStreetMap (https://streetmap.pl/).



The younger group

The analysis of pictures by the group of students aged 12-13 years shows the city as a strongly localized space of everyday practices, limited almost exclusively to the immediate surroundings of the school and the neighborhood.

In the area of meet-up places, the researcher identifies:

- a dominance of play areas (playgrounds, sports fields, clotheslines),
- the recurring theme of socio-spatial segregation (fences, barracks).

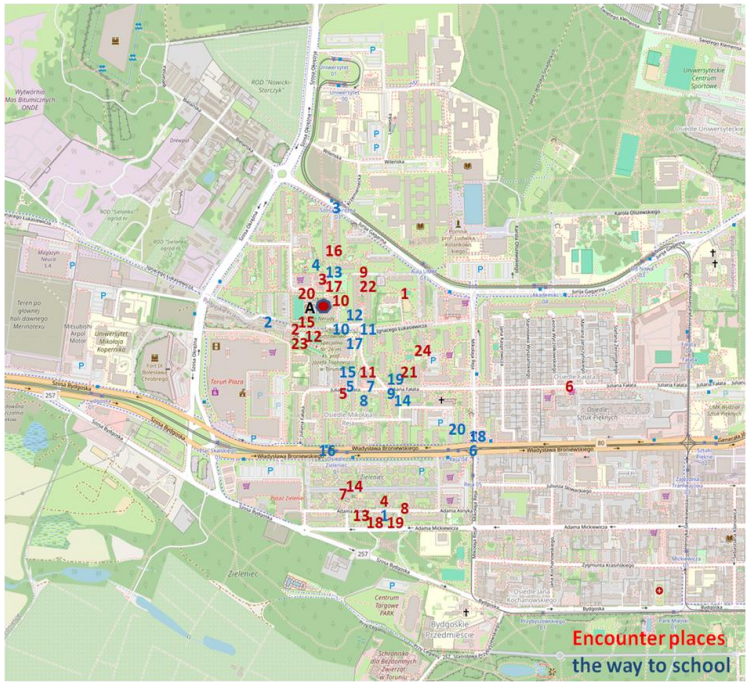
In the area of the route to school, the photographs focus almost exclusively on:

- communication threats,
- lack of pedestrian crossings,
- poor road conditions.

The researcher interprets this as experiencing the city primarily in terms of risk and limitations.

The below map (Fig.42) shows the location of the places and objects photographed by the younger group.

Figure 251. Toruń case study. Photos of meet-up places and the way to school. A – Primary School No. 11. Map data from OpenStreetMap (https://streetmap.pl/).



4.3.1.6.3. Students' Interpretation

The older group

The high school group treats the city as a complex, dynamic structure that directly affects everyday life. For them, urban space is not just a place to live, but something that can be

evaluated, criticized, and improved. Their descriptions clearly show an awareness that the city is a system of interconnected elements: transportation, services, public spaces, safety, and aesthetics. Students in this group often pay attention to whether a given place fulfills its function, whether it is well designed, and whether it meets the needs of residents of different ages and abilities. A good example of a conscious choice of meeting place is the photograph entitled “Na ruinach” (On the Ruins). The author points out that the ruins of a former church serve as an informal space for integration, as they are used mainly in the evenings, have atmospheric lighting, and are conducive to conversation in a larger group. At the same time, the author notes that this place is little known and suggests that it could be better developed, e.g., by building a gazebo. This illustrates the high school students' characteristic way of thinking in terms of the potential of space and the possibilities for its improvement

This group's approach is functional and analytical. The city is treated as a transport, service, and social system that can function better or worse. Students evaluate the space in terms of its usefulness in everyday life, accessibility for different user groups, and the quality of the urban planning solutions used. They often think in terms of “what works and what needs to be improved,” accompanied by specific proposals for changes, such as renovations, roofing, or extending green light times.

The authors judge the space in terms of:

usefulness (whether something makes everyday life easier),

accessibility (for students, people from outside the city, people with disabilities),

quality of urban planning solutions.

Meet-up places are often chosen deliberately. These are cafes, restaurants, cinemas, boulevards, and parks—spaces that facilitate conversation, integration, and relaxation. The city offers them a variety of ways to spend their time, which is seen as a great advantage. At the same time, there is a critical reflection: prices can be too high, some places are financially inaccessible, and others lose their potential due to neglect or the presence of people who disturb the sense of security. In the work entitled “Bulawar” (Boulevard) (Figure 252) recreational space is presented as ambivalent.

Figure 252. The boulevard.

Source: Toruń case study. Photo taken by a student.

On the one hand, it is a place of relaxation, on the other, it is an area occupied by people consuming alcohol and other substances, which affects the sense of security. The author notes that despite monitoring and urban changes, the problem has not been completely solved. This example illustrates well the critical, systemic view of high school students on the management of public space. As another example, a student uses a photo entitled "Droga kawiarnia" (Expensive café) (Figure 253) to criticize high prices, pointing out that you can get a better deal elsewhere for the same amount of money. This is an example of analyzing the city through the prism of affordability.

Figure 253. Expensive cafe.

Source: Toruń case study. Photo taken by a student.

A similar tone appears in the description of another photograph by the same author, entitled "Dom beztowarowy" (Emp(ty)orium), where high rental costs mean that the space remains empty and unused. Here, the city is seen as a structure that generates dead zones through economic decisions. The participants note that urban space can foster relationships, but only if it is well maintained and properly managed. They stress that it is important to be able to spend time with friends, socialize, and relax.

While reflecting on their pictures they mention

- prices (expensive café, department store),
- accessibility and atmosphere of the place (church ruins, cat café),
- quality of space utilization (benches, gazebos, lighting).

The emotions that were expressed in the discussions are presented in Figure 254. Emotions relating to meet-up places..

Figure 254. Emotions relating to meet-up places.

Source: Toruń case study. Photo taken by a student.

When referring to the way to school the students see public transport as one of the city's greatest assets, but at the same time an area requiring constant improvement. They appreciate the extensive tram and bus network, modern rolling stock, and the variety of means of transport, such as scooters and city bikes. At the same time, they are critical of old vehicles, high ticket prices, the lack of accessibility of some solutions, and poorly planned renovations. Photographs by two different authors, “Wiosenny tramwaj” (the spring-time tram) (Figure 255) and “Grzegorz Ciechowski,” show the positive aspects of public transport, such as modern rolling stock, aesthetics, and frequency of service. Trams are almost an element of the city's identity here.

Figure 255. The spring-time tram.

Source: Toruń case study. Photo taken by a student.

At the same time, another student, in his work "Oldschoolowy tramwaj" (Old-school tram) criticizes old vehicles as uncomfortable and unsuitable for the needs of people with disabilities, although he notes their historical charm. This is an example of a mature, multidimensional perspective. It is a systemic view that takes into account the needs of different city users and treats public transport as one of the key elements of quality of life. In the photographs "Zamknięta brama" (Closed Gate) and "Zamknięta winda" (Closed Elevator) the author presents a situation where administrative decisions limit access to school space and lengthen the route to school. The students interpret this as a lack of trust and the city's failure to adapt to the real needs of its users. For them, the journey to school becomes an opportunity for broader reflection on the mobility in the city. In the narratives there is a strong emphasis on public transport: trams, buses, transport hubs. The students see both many pros, such as good frequency, modern rolling stock, a variety of means of transport (scooters, bicycles), but also cons - old stock, high ticket prices, the lack of accessibility (closed gates, elevators), poorly designed renovations.

The students express diverse emotions related to their route to school (Figure 256)

Figure 256. Emotions relating to the way to school.

Source: Toruń case study. Photo taken by a student.

The younger group

The primary school group perceives the city in a much more intuitive and emotional way. For them, urban space is primarily a place for everyday experiences, such as playing, meeting friends, and traveling to school. The city is not seen as a system, but as a collection of specific places associated with memories, a sense of security, or fear. The work entitled "Klasztor" (Monastery) shows a playground on the grounds of a kindergarten as a place strongly associated with childhood memories. The name comes from themed games and personal associations, which perfectly illustrates the emotional approach of younger students to urban space.

Figure 257. The Monastery.

Source: Toruń case study. Photo taken by a student.

Such a view is more direct and rooted in the child's perspective of “here and now.” This group's approach is emotional and experiential. Other photograps, for example one entitled “Bliskie miejsce do spotkań” (A close place to meet) is similar in nature, described as a well-known and frequently visited place, even during the holidays.

The significance of the place stems not from its urban function, but from social relations and habits. The city is primarily the immediate surroundings of the school and home, rather than the entire urban structure. Urban space is mainly assessed through the prism of:

- personal memories,
- feelings of safety or danger,
- social relations (who goes there, what is the atmosphere like).

Meet-up places are close and familiar. These are playgrounds, housing estates, school surroundings, and sports fields. These are spaces that often do not stand out in terms of aesthetics or modernity, but are of great emotional significance. At the same time, these same places can cause anxiety, e.g., due to the destruction of equipment, the presence of older people smoking or drinking alcohol, noise, and aggressive behavior. The theme of ambivalence appears in many works. An example of this is “Letni plac zabaw 2” (Summer Playground 2) where the same playground becomes a source of frustration due to the destruction of infrastructure and the breaking of bottles by children from social housing. Urban space is perceived here as a place of conflict.

Particularly strong negative emotions can be seen in the photos from the series “Koszary” (Barracks) (as many as five photos of the same building by different authors). This place is described as noisy, fenced off, and associated with aggressive behavior on the part of its residents. For elementary school students, it is a symbol of danger and “foreign” territory (Figure 258).

Figure 258. The barracks.

Source: Toruń case study. Photo taken by a student.

What dominates in the pictures are playgrounds, sports fields, housing estates, and school grounds. Childhood memories and emotional attachment are very important. At the same time, the following topic comes up very often:

- stimulants,
- "unpleasant company"
- destruction of infrastructure.

The meet-up places of the younger group are defined by such emotions as (Figure 259):

Figure 259. Emotions relating to meet-up places.

Source: own elaboration.

The way to school is a very personal experience. What matters is whether they can walk safely, whether the route is green and pleasant, and whether they have to dodge parked cars. A well-designed space gives them a sense of calm, while a poorly designed one causes stress and danger. Many works feature the theme of a lack of pedestrian infrastructure, e.g., “Brak bezpieczeństwa” (Lack of safety), “Brak przejścia” (Lack of crossing) or “Brak widoczności” (Lack of visibility) where parked cars prevent safe passage.

Figure 260. Lack of crossing.

Source: Toruń case study. Photo taken by a student.

In turn, the photo "Dobre oznakowanie" (Good crosswalk) shows that a well-designed crossing with traffic lights gives a sense of comfort and peace of mind.

Figure 261. Good crosswalk.

Source: Toruń case study. Photo taken by a student.

The pictures are mainly focused on pedestrian safety. They depict the lack of pedestrian crossings, too fast unsafe driving, poor visibility, illegible signage. Every irregularity is perceived as a real threat.

Figure 262. Emotions relating to the way to school.

Source: own elaboration.

The younger versus the older group

Both groups talk about the same city, but they see it completely differently. Older students look at urban space analytically and critically, recognizing its potential and systemic shortcomings. Younger students focus on emotions, safety, and relationships that arise in specific places. Common positive elements for both groups include greenery, meeting places, and the accessibility of public spaces.

4.3.1.6.4. Confronting RI and SI

With regard to the older group, researchers view the city analytically and critically, focusing on contradictions and tensions — for example, between potential and barriers, modern and ageing infrastructure, or inclusion and exclusion. Their analysis is more diagnostic and structural, addressing systemic issues. Students see the city as a living, dynamic system that directly shapes their everyday life. Their perspective is more experiential and participatory — they relate urban space to how it functions for them and how it can be improved. While researchers emphasize urban design and socio-spatial analyses — infrastructure quality, accessibility, social barriers, and urban planning inclusiveness. and notice spatial contradictions (e.g., closed gates, poor access), as well as social dynamics (exclusion, loitering, pricing barriers) the students evaluate the city through functionality, usability, and comfort. They care about whether spaces are useful, accessible, and aesthetically pleasing. Their criteria include everyday practicality and residents' needs, not just structural qualities. Researchers observe the city from a more external, analytical standpoint. Their interpretation identifies problems and contrasts but doesn't necessarily propose solutions. They map tensions. Students engage with the city personally and creatively. They not only evaluate but also propose solutions and improvements (e.g., renovations, installing monitoring, extending green lights, roofing). Their approach is solution-oriented and proactive. Researchers highlight issues like social exclusion, restricted accessibility, and urban fragmentation, showing concern for planning gaps and inequality. Students demonstrate agency — they feel empowered to shape or critique the environment. They perceive urban space as modifiable and open to improvement rather than something fixed or given.

With respect to the younger group, a comparison of the perspectives of the researcher and the participants also reveals a clear difference between structural analysis and everyday experience, although there is more focus on emotions than in the older group. The researcher organizes observations and identifies patterns and processes, while the participants describe the city through the prism of their own needs, emotions, and practices. An interesting example is the photograph "Autobus pod prąd" (Bus Against Traffic) by the research team entitled "Pasy z muralem" (Crosswalks with Mural). What the

team interpreted as a safe crossing with an aesthetic mural in the background actually describes a real danger in the form of a bus driving against traffic regulations, which almost hit the author. This is an example of a very direct, personal experience of danger in the city.

The situation is similar in the case of the photograph entitled "Plac Bercika" (Bercik Square), which the research team referred to as an "Miejsce integracyjne" (Integration space). The team perceived this place as conducive to spending free time, but it turned out that the author of the photograph had a negative perception of it due to the people who were there (**Błąd! Nie można odnaleźć źródła odwołania.**)

Figure 263 Bercik square.

Source: Toruń case study. Photo taken by a student.

4.3.2. Cross-comparison between civic labs

Considering the objectives of the task, the data collected, and the analyses at the civic lab-level, the cross-comparison between the civic labs, and the individual schools is based on the below topics:

- Differences related to age groups
- Impact of the neighborhood's characteristics
- Barriers and challenges
- Assets and advantages of place and space
- Emotions expressed

It should be noted that only some findings result directly from the photographs interpreted, some are indirectly assessed or reflected by the student's narratives describing the pictures.

4.3.2.1. Differences related to age groups

The Photovoice walk- and workshops were carried out in 11 schools labeled according to the content of the table below (Tab. 1).

Tab. 1. The schools - basic description.

Civic labs	Level of education/category	Catchment area/recruitment
Brussels 1	weekend school	open recruitment
Brussels 2	secondary	open recruitment
Budapest 1	primary	open recruitment
Budapest 2	secondary	open recruitment
Cologne	secondary 1/public	open recruitment
Ghent	secondary	open recruitment
Matosinhos 1	high school	open recruitment
Matosinhos 2	high school	open recruitment
Matosinhos 3	primary	district school
Toruń 1	high school (secondary 2)/public	open recruitment
Toruń 2	primary/public	district school

The tables below show dominating objects photographed (divided into the categories 'meet-up places' and the 'way to school') with a focus on different age groups, in the civic-

lab level analyses referred to as 'younger' (10-13), and 'older' (14-18) students (Tab. 2 and 3).

Tab. 2 Dominating objects in the category meet-up places.

Civic labs	Age groups	Dominating objects photographed
Brussels 1 and 2	10-12/11-12	green areas, fast food restaurants
Budapest (AKG)	13-14	fast food restaurants
Budapest (G)	12-13	traffic infrastructure
Cologne	14-15	benches and tables on the school grounds, fast food restaurants
Ghent	12-14	playground, supermarket
Matosinhos 1	16-17	sidewalk, bus stops, cars
Matosinhos 2	13-14	sidewalk, parks
Matosinhos 3	16-17	sidewalk, bus stops, roads
Toruń (LO 1)	16-18	cafes and restaurants
Toruń (SzP11)	12-13	playgrounds

It is found that the older students focus more on commercial public places than younger children who chose playgrounds and parks (non-commercial public spaces). The factor that decides about this is usually the accessibility of the places, both financial, and mobility-based. Teenagers more often get together in cafes and restaurants in the vicinity of the schools, while younger children choose playgrounds and other recreational spaces.

Tab. 3 Dominating objects in the category way to school.

Civic labs	Age groups	Dominating objects photographed
Brussels (1 and 2)	10-12/11-12	green areas
Budapest 1	13-14	streets
Budapest 2	12-13	traffic infrastructure
Cologne	14-15	railway infrastructure, nature

Ghent	12-14	bicycles, trash
Matosinhos 1	16-17	sidewalks, bus stops, cars
Matosinhos 2	13-14	sidewalks
Matosinhos 3	16-17	sidewalks, bus stops, roads
Toruń 1	16-18	bus terminals
Toruń 2	12-13	pedestrian crossings

In the case of the way to school, the pictures relate to the length of the journey to school. It seems decisive here whether the students walk, use public transit or are driven to school. This determines whether they photograph a means of transportation or a pedestrian area (e.g. a park). Age doesn't seem to play a key role here.

4.3.3.2. Impact of the neighborhood's characteristics

When comparing the photos taken, the characteristics of the neighborhood were considered in terms of

its location within the space of the city, whether central, in the outer ring of the city, or peripheral - suburban

Its socio-special structure and the role of the area's dominating function - city center, historical, touristic, residential etc.

The comparison (Tab. 4) leads to identifying some minor differences. It shows that in the schools characterized by a more central location (Budapest 1, Cologne, Toruń 1, Ghent, Brussels) bars and restaurants were often photographed as meet-up places, while in the other neighborhoods parks, green areas and recreational areas prevail. When considering the location of the school as a factor it should also be noted that to some extent it preconditions mobility behaviors. In the case of central location schools students often use various modes of public transit, in more suburban areas they walk, use bike or scooters. while in the Budapest suburban school the car is mentioned as a safe and comfortable means of transportation.

In the neighborhoods characterized as partially degraded or socially mixed the phenomena of homelessness or social exclusion were indirectly depicted (Toruń 2 and Budapest 1). The aspect of ethnic diversity, although present as a neighborhood

characteristic (Brussels, Cologne, Ghent) is only captured in pictures showing ethnic fast food restaurants or bars.

Tab. 4. Schools by neighborhood characteristics.

Civic labs	Location within city space	Type of socio-spatial structure
Brussels	western outer ring of the central district	two distinct areas: working-class, predominantly migrant, communities and newer construction, mostly middle-class and residential
Budapest 1	northwestern outer ring of the central district	densely built urban areas with a mixed residential, cultural, and recreational functions; degraded housing areas
Budapest 2	northwestern suburbs of the Budapest	a green and family-oriented area within a broader residential suburban neighborhood
Cologne	eastern outer ring of the central district	area of former industrial development, with industrial plants and blue collar neighborhoods. Recently large influx of foreign immigrants
Ghent	eastern outer ring of the central district	a former rural suburb of Ghent, now heavily urbanized. About half of the inhabitants are of foreign origin
Matosinhos 1	the municipal urban centre	dense multi-family buildings and services
Matosinhos 2	northern peripheral coastal and rural area	agricultural-residential suburbs of the city, mainly with single-family houses

Matosinhos 3	dense urban-suburban area in the east	dense multi-family, single-family and service development
Toruń 1	city center - Old Town	historical, touristic, service-oriented, exogenous functions
Toruń 2	western outer city	residential with selected services, social housing

4.3.3.3. Barriers and assets

As presented in the below tables (5-6) in the category 'meet-up places' the pictures taken in Brussels, Matosinhos 1-3 and Ghent reveal a dominance of barriers related to physical space. The other cases rather point to the prevalence of social drawbacks and challenges. In the category 'the way to school' the barriers refer either to maintenance issues (Budapest, Ghent, Matosinhos 2), matters related to physical space (Brussels, Budapest, Matosinhos 1, 3, Toruń 2) or infrastructure (Brussels, Cologne, Toruń 2).

The assets and advantages of the 'meet-up places' can be divided into: green areas as highlighted in Brussels, Budapest (both schools), and Matosinhos 2, recreational areas (Budapest 1, Ghent, Toruń 2), and diverse transportation infrastructure as meet-up space (Budapest, Matosinhos 1 and 3). In the case of Toruń 1, the prestige of the area is mentioned. When referring to the 'way to school', the pictures taken by students in Brussels, Budapest 2, Cologne, Ghent, Matosinhos 1 and 3, and Toruń 1 depict the transportation infrastructure as an asset, while Budapest 1, Matosinhos 2, and Toruń 2 highlight the quality of pedestrian space.

Tab. 5. Barriers and assets related to meet-up places.

Civic labs	Barriers and challenges	Assets and advantages of place and space
Brussels	disorder, trash	provision of green areas
Budapest 1	homelessness	provision of green, recreational areas

Budapest 2	lack of spaces appropriated for social encounter	the school as a friendly place
Cologne	scarcity of spaces appropriated for social encounter	provision of green areas and fast food restaurants
Ghent	trash	provision of playgrounds and sports fields
Matosinhos 1	narrow and potholed sidewalks	provision of waste sorting, satisfaction with bus stops, nature
Matosinhos 2	graffiti and trash	provision of green areas and parks
Matosinhos 3	narrow, potholed and blocked sidewalks	satisfaction with bus stops
Toruń 1	unavailability of services provided and places available (high prices, legal arrangements, administrative issues, safety)	diversity of functions provided, prestige of the area
Toruń 2	social exclusion, threat from dysfunctional resident groups	provision of playgrounds and recreational areas

Tab. 6 Barriers and assets related to the way to school

Civic labs	Barriers and challenges	Assets and advantages of place and space
Brussels	narrow sidewalks, concerns about bus transport	comfortable tram transport
Budapest 1	poor road maintenance	pleasant walks through the park
Budapest 2	poor condition of roads, trash	good tram transport, comfortable car transport
Cologne	unreliability of public transport	variety of transportation options, e.g. scooters and bicycles
Ghent	graffiti and trash	provision of bicycle parking spaces
Matosinhos 1	narrow and potholed sidewalks	provision of waste sorting, satisfaction with bus stops, nature
Matosinhos 2	graffiti and trash	provision of green areas and parks
Matosinhos 3	narrow, potholed and blocked sidewalks	satisfaction with bus stops
Toruń 1	accessibility barriers	comfortable transport hubs, many transportation options
Toruń 2	dangerous crossings/ poor infrastructure for pedestrians	shaded, green areas

4.3.2.4. Emotions expressed

The prevailing positive and negative emotions expressed by the students when describing the photos taken are presented in the tables below. The results are summarized for the categories meet-up places and the way to school (Tab. 7).

Tab. 7. Positive and negative emotions expressed by the students by schoo.l

Civic labs	positive	negative
Brussels	care, joy, appreciation	ambivalence, threat, irritation
Budapest 1	joy, integration, entertainment	threat, dispassion, dissatisfaction
Budapest 2	integration, appreciation, comfort	irritation, ugliness, threat
Cologne	appreciation, integration, satisfaction	ambivalence, irritation, discomfort
Ghent	joy, comfort, safety	dissatisfaction, disappointment, irritation
Matosinhos 1	joy, comfort, appreciation	irritation, danger, sadness
Matosinhos 2	joy, appreciation, calm	irritation, ugliness, discomfort
Matosinhos 3	joy, appreciation, safety	threat, danger, dissatisfaction
Toruń 1	satisfaction, comfort, peace	ambivalence, irritation, inaccessibility
Toruń 2	integration, relaxation, neighborhood	threat, irritation, danger

The schools were clustered separately by positive and negative emotions. When focusing on positive emotions expressed, the following clusters emerge:

Joy & Appreciation, for schools where positive feelings focus on joy and appreciation of the place. The schools belonging to this group are Brussels, Matosinhos 1, Matosinhos 2 and Matosinhos 3.

Social Integration & Belonging, for schools characterized by social connection and integration - Budapest 1, Budapest 2, Cologne and Toruń 2

Comfort & Safety, for schools where positive emotions reflect well-being, safety, and relaxation - Ghent and Toruń 1.

When highlighting the negative emotions, the schools are grouped by the below clusters:

Irritation & Annoyance, for schools where the dominant negative feeling is irritation or frustration - Brussels, Budapest 2, Cologne, Ghent, Matosinhos 1, Matosinhos 2, Toruń 1 and Toruń 2

Threat & Danger, for schools where perceived risk or danger is emphasized - Budapest 1, Budapest 2, Matosinhos 3 and Toruń 2

Dissatisfaction & Disappointment, for schools with more evaluative negative judgments - Budapest 1, Ghent and Matosinhos 3 revealing such emotions as dissatisfaction, disappointment and dispassion

4.4. Synthesizing

Similarity in divergence

While students in all the schools where the Photovoice study was conducted share similar experiences, there are differences in depicting their surroundings impacted by age, mobility preferences, and urban barriers. A divergence also derives from the type of neighbourhood where the school is located (central vs peripheral) socio-economic conditions, and local infrastructure which are factors that shape how young people perceive and use urban space.

It was found that across all schools, age strongly affects where students meet. Older students prefer commercial places such as cafés, bars, and restaurants near schools. Younger children prefer non-commercial public spaces like playgrounds, parks, and recreational areas. Transportation affects the “way to school”. In most schools, how students travel to school influences what they photograph. If they walk, they focus on pedestrian areas and parks, if they use public transit they photograph transportation infrastructure, if they are driven to school they tend to take pictures of vehicles and roads. This factor is more important than age in shaping their observations.

Apart from their age, the main dissimilarities between how the students define meet-up places relate to whether the amenity lies in a central vs peripheral neighbourhood. Schools with a more central location (Budapest 1, Cologne, Toruń 1, Ghent, Brussels) show different meeting patterns than outer areas. The students usually choose bars, cafés, and restaurants. In schools located in peripheral or outer areas the students more often meet

in parks, green spaces, or recreational areas. In regard to transportation preferences, a notable difference appears in Budapest's suburban school, where cars are seen as safe and comfortable, unlike in other cities where walking or transit is emphasized.

When reflecting on the way to school, transportation infrastructure is generally seen as an asset. Many student groups highlight transport infrastructure as a positive feature, especially in Brussels, Budapest 2, Cologne, Ghent, Matosinhos (1 and 3) and Toruń 1. Key barriers related to the way to school concern the physical environment, such as: poor infrastructure, spatial obstacles, maintenance problems. In some school surroundings social issues are observed. Some cities show signs of social inequality. Toruń 2 and Budapest 1 indirectly depict homelessness or social exclusion. As to ethnic diversity visibility, although cities like Brussels, Cologne, and Ghent are ethnically diverse, the phenomenon mainly appears in photos of ethnic restaurants or fast-food places, rather than broader social contexts. Different types of urban assets are reflected by the pictures. Students by schools highlight different strengths, e.g. Brussels, Budapest, Matosinhos 2 - green areas; Budapest 1, Ghent and Toruń 2 - recreational spaces; Budapest 1, Matosinhos 2, Toruń 2 - pedestrian-friendly spaces.

Emotions highlighted

When analyzing the emotion clusters related to the school surroundings, including the way to school (see 3.2.4.), it is obvious that the attitudes and feelings that the students revealed are reflected by a mosaic of positive and negative emotions. The following cases can be identified:

High Joy & Comfort but Irritation or Danger present as in Matosinhos 1, Matosinhos 3 and Ghent

It is found that these cases create pleasant everyday experiences (joy, comfort, appreciation) but still evoke concerns about safety or frustration. Their emotional profile is reflected by joyful and comfortable environments somewhat blurred by irritation and perceived risk.

Integration & Social Belonging vs Threat or Irritation as in Budapest 2, Toruń 2 and Cologne

These places emphasize social belonging and connection, but respondents also perceive conflict, threat, or annoyance. Their emotional profile is displayed by social integration and connection overshadowed by some irritation and perceived threats.

Leisure & Entertainment vs Dissatisfaction as in Budapest 1

This school's location stands out as it mixes fun and entertainment with disengagement or dissatisfaction. Its emotional profile is drawn by entertainment and liveliness, somewhat overshadowed by the lack of satisfaction or emotional detachment.

Calm & Peaceful Environments with Minor Frustrations as in Torun 1 and Matosinhos 2

These places evoke tranquil and relaxing feelings, but respondents still report functional issues or mild annoyance. The emotional profile is composed of a calm and peaceful atmosphere, but also practical frustrations

Care & Appreciation with Ambivalence as in Brussels

The school surroundings in Brussels show a mixed emotional perception, where appreciation coexists with uncertainty or tension. The emotional profile features appreciation and care, with some ambivalence and irritation

The RI and SI confrontation in relation to age groups

An interesting aspect of the analysis are the differences in how researchers and students interpret their school surroundings including their way to school by the two age groups of the study.

When perceiving the photos by older students, researchers analyze the city as a system with structural and social tensions, while the students experience it as a functional environment they can evaluate and improve. The researchers' lens is critical and systemic, whereas the students' lens is practical and change-oriented (Tab. 8)

Tab. 8. Students versus researchers interpretation - older group.

Aspect	Researchers	Students
perspective	analytical, diagnostic	experiential, participatory
focus	contradictions, barriers, inclusiveness	functionality, accessibility, aesthetics

attitude	critical observation	constructive engagement
relation to space	external observer, expert	active participant
output	Identification of tensions	Ideas for improvement

When looking at the researcher's perspective on the photos collected by younger children, an analytical, systematic view of urban spaces, emphasizing infrastructure and safety concerns is adopted. The younger students, in contrast, engage with their environment emotionally, prioritizing personal experiences and social relations over structural considerations. Both perspectives acknowledge the importance of safety, but researchers focus on physical infrastructure, while students emphasize emotional safety and comfort derived from their social experiences. The researcher's view is rooted in the physical characteristics and maintenance of spaces, whereas students relate more to the emotional significance of places, suggesting that urban environments are shaped by social dynamics rather than just their physical attributes (Tab. 9).

Tab. 9. Students versus researchers interpretation - older group.

Aspect	Researchers	Students
perspective	analytical, diagnostic	experiential, participatory
focus	physical infrastructure	emotional safety and comfort
attitude	critical observation	emotional engagement
relation to space	external observer, expert	active participant
output	identification of problems	expressing the need for change, sometimes creative proposals

4.3. Research limitations

Conducting participatory research involves multiple challenges and limitations, many of which overlap with those encountered in conventional research (Korcelli-Olejniczak, 2025). The aim of the research conducted within the DUT project's citizen labs is for stakeholders, children, and young people to collaboratively develop a vision of sustainable, accessible, and equitable urban mobility. Although the role of researchers involves outlining the direction and concepts of the research and activities, without an active attitude on the part of the children, as well as their environment—parents and schools—the implementation of tasks may be limited by the participants' attitudes. In the case of the Photovoice study, the involvement of schools, including principals and teachers of younger groups, was crucial. Their active collaboration with the Photovoice facilitators supported the research at the initial stage - the planning phase when the organizational practicalities were discussed, but also during the walk and workshops. A poor or lacking involvement of the schools would have been a considerable limitation to the study. The civic lab research teams experienced minor organizational challenges related to issues like the reduced number of children during sessions due to seasonal diseases, or rare incidents of unruly behavior that disrupted the session flow.

The main challenges to the walk and workshop phase concerned:

The engagement of the children related to their interest in the topic and the organization of the sessions

A too weak or too strong engagement of the teacher that impacted the selection of objects and places photographed, or the discussion

Lack of a group dynamic or the dominance of selected individuals

Time constraints

With regard to the photographs, there may be issues related to:

Their timely sharing with the Photovoice facilitators

Their diversity (as noted, most pictures were taken autonomously, although a considerable repeatability of objects and places was registered. The latter can either be related to the relevance of the cases, or a limited independence in the problem selection process)

Other organizational challenges related to the data collection phase concern the ways how the information is stored and shared between the civic labs and the method owner who conducts the analysis. The completeness and the coherence of the data is significant for the analysis, in particular the cross-evaluation, although Photovoice allows for a certain flexibility in this respect.

The limitations regarding the analysis relate mainly to the character of data collected. As the researchers' team was present at two out of eleven workshops, the results are based on the interpretation of the photos and the student's narratives, the knowledge of the cities and professional scientific experience. While the methodological limitations of the approach do not allow for an in-depth comparative analysis related to such variables as age or type of neighborhood, the research frame provides ground for a substantial cross-comparison analysis concerning the emotional patterns and the differences in interpretations by the researchers and students.

Summary

This report has presented the results of research conducted across six CONIFER Civic Labs located in Brussels, Budapest, Cologne, Ghent/Kortrijk, Matosinhos, and Toruń. Combining socio-demographic analyses with participatory research methods, the study explored how children and young people perceive accessibility, mobility, neighbourhood quality, and proximity-based living within diverse urban contexts.

The findings demonstrate that perceptions of the 15-Minute City are strongly shaped by local spatial, social, economic, and environmental conditions. While the participating Civic Labs differ considerably in terms of demographic structure, urban form, socio-economic characteristics, and accessibility patterns, several common themes emerged across all study locations.

First, accessibility cannot be understood solely through objective measures of distance or travel time. Children's experiences are strongly influenced by factors such as perceived safety, comfort, attractiveness of public spaces, social interactions, and the overall quality of the urban environment. Second, proximity alone does not automatically translate into accessibility. The availability of services, quality of walking and cycling infrastructure, traffic conditions, and neighbourhood characteristics all play a significant role in shaping everyday mobility choices.

The research also highlights the importance of involving children and young people in urban planning processes. Their perspectives provide valuable insights into barriers and opportunities that may remain invisible in conventional planning approaches based exclusively on technical indicators. Participatory methods proved effective in capturing everyday experiences, emotions, and perceptions that enrich the understanding of proximity-based urban living.

Across the Civic Labs, the results indicate that the principles of the 15-Minute City are closely linked to broader issues of social inclusion, environmental quality, public health, independent mobility, and community well-being. Although the specific challenges and opportunities vary between locations, the findings suggest that creating accessible, safe, and attractive neighbourhoods requires an integrated approach that combines spatial planning, transport policy, environmental improvements, and active community engagement.

Overall, the report contributes to a deeper understanding of how proximity-based urban development is perceived and experienced by younger residents. The findings provide an

important evidence base for the subsequent stages of the CONIFER project and offer practical insights for policymakers, planners, schools, and local stakeholders seeking to promote more inclusive, child-friendly, and sustainable urban environments.

The results presented in this deliverable will directly inform the next phases of the CONIFER project, including the co-creation of future-oriented proximity city visions and policy recommendations for more equitable and accessible urban development.

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Appendix 1

Appendix: Crosstabs for all OBLIGATORY questions asked respondents in all Civic Labs

Children 10-13 years

Crosstab C.1. The structure of responses to the question: 'How did you come to school this morning?' compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	45	17	15	5	0	42	124
	% of the city	**50,6%**	**15,9%**	**11,6%**	**6,6%**	**0,0%**	**36,5%**	**23,2%**
	*	6,7	-2,0	-3,6	-3,7	-2,4	3,8	
2	N	7	8	1	0	11	0	27
	% of the city	**7,9%**	**7,5%**	**,8%**	**0,0%**	**57,9%**	**0,0%**	**5,0%**
	*	1,3	1,3	-2,5	-2,2	10,7	-2,8	
3	N	0	1	0	0	0	0	1
	% of the city	**0,0%**	**,9%**	**0,0%**	**0,0%**	**0,0%**	**0,0%**	**,2%**
	*	-,4	2,0	-,6	-,4	-,2	-,5	
4	N	2	0	2	0	0	0	4
	% of the city	**2,2%**	**0,0%**	**1,6%**	**0,0%**	**0,0%**	**0,0%**	**,7%**
	*	1,8	-1,0	1,2	-,8	-,4	-1,1	
5	N	10	51	56	6	5	57	185
	% of the city	**11,2%**	**47,7%**	**43,4%**	**7,9%**	**26,3%**	**49,6%**	**34,6%**
	*	-5,1	3,2	2,4	-5,3	-,8	3,8	
6	N	23	29	51	63	3	16	185
	% of the city	**25,8%**	**27,1%**	**39,5%**	**82,9%**	**15,8%**	**13,9%**	**34,6%**
	*	-1,9	-1,8	1,4	9,6	-1,8	-5,3	
7	N	0	0	2	0	0	0	2
	% of the city	**0,0%**	**0,0%**	**1,6%**	**0,0%**	**0,0%**	**0,0%**	**,4%**
	*	-,6	-,7	2,5	-,6	-,3	-,7	
8	N	2	1	2	2	0	0	7
	% of the city	**2,2%**	**,9%**	**1,6%**	**2,6%**	**0,0%**	**0,0%**	**1,3%**
	*	,9	-,4	,3	1,1	-,5	-1,4	
Altogether	N	89	107	129	76	19	115	535
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - On foot; 2 - By own bicycle; 3 - By minute-rental bike (city bike); 4 - By a traditional or electric scooter; 5 - By public transport (e.g., bus, tram, subway); 6 - By car, but someone drives me; 7 - By app-based car (e.g., Uber, Bolt, FreeNow) or by taxi; 8 – Other

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	264,667	35	,000

a. 58.3% of cells (28) have an expected count less than 5. The minimum expected count is 0.04.

Crosstab C.2. The structure of responses to the question: ''Why did you travel to school this way?' (multiple choice) compared with a city

Categories		City						Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels			
1	N	18	15	30	0	3	39	105	46,455	,000
	% of the city	**20,2%**	**14,0%**	**23,3%**	**0,0%**	**15,8%**	**31,5%**	**19,3%**		
2	N	10	13	44	36	1	20	124	54,180	,000
	% of the city	**11,2%**	**12,1%**	**34,1%**	**47,4%**	**5,3%**	**16,1%**	**22,8%**		
3	N	9	33	24	3	5	20	94	29,583	,000
	% of the city	**10,1%**	**30,8%**	**18,6%**	**3,9%**	**26,3%**	**16,1%**	**17,3%**		
4	N	1	13	6	2	2	15	39	19,280	,002
	% of the city	**1,1%**	**12,1%**	**4,7%**	**2,6%**	**10,5%**	**12,1%**	**7,2%**		
5	N	35	23	36	12	6	37	149	14,189	,014
	% of the city	**39,3%**	**21,5%**	**27,9%**	**15,8%**	**31,6%**	**29,8%**	**27,4%**		
6	N	9	43	41	5	2	4	104	82,061	,000
	% of the city	**10,1%**	**40,2%**	**31,8%**	**6,6%**	**10,5%**	**3,2%**	**19,1%**		
7	N	9	4	24	5	2	22	66	19,826	,001
	% of the city	**10,1%**	**3,7%**	**18,6%**	**6,6%**	**10,5%**	**17,5%**	**12,1%**		
8	N	7	16	18	2	5	23	71	18,530	,002
	% of the city	**7,9%**	**15,0%**	**14,0%**	**2,6%**	**26,3%**	**18,5%**	**13,1%**		
9	N	20	10	8	2	3	0	43	44,423	,000
	% of the city	**22,5%**	**9,3%**	**6,2%**	**2,6%**	**15,8%**	**0,0%**	**7,9%**		
10	N	19	18	33	29	6	5	110	45,130	,000
	% of the city	**21,3%**	**16,8%**	**25,6%**	**38,2%**	**31,6%**	**4,0%**	**20,2%**		
11	N	13	18	10	26	1	8	76	33,889	,000
	% of the city	**14,6%**	**16,8%**	**7,8%**	**34,2%**	**5,3%**	**6,5%**	**14,0%**		
12	N	38	57	0	0	17	112	38	115,540	,000

	% of the city	**42,7%**	**53,3%**	**0,0%**	**0,0%**	**13,7%**	**27,0%**	**42,7%**		
13	N	7	20	19	4	3	9	62	13,535	,019
	% of the city	**7,9%**	**18,7%**	**14,7%**	**5,3%**	**15,8%**	**7,3%**	**11,4%**		

Explanation: 1 - I don't have to wait for anyone; I am independent; 2 - My parents travel this way; 3 - My friends travel this way; 4 - Everyone travels this way here; 5 - It is close to home; 6 - I have a stop nearby (bus, tram, or subway); 7 - I feel safe on the road; 8 - I don't pollute the air; 9 - For health and to stay in good condition; 10 - I have no other choice; 11 - Because of the weather; 12 - It is the fastest, the most convenient way; 13 – Other

Source: Own elaboration on the basis of the questionnaire survey

Crosstab C.3.1. The structure of responses to the question: 'How do you generally come to school?' On foot compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	40	18	22	1	1	53	135
	% of the city	**44,9%**	**16,8%**	**17,1%**	**1,3%**	**5,3%**	**42,1%**	**24,7%**
	*	4,8	-2,1	-2,3	-5,1	-2,0	5,1	
2	N	21	10	25	3	2	12	73
	% of the city	**23,6%**	**9,3%**	**19,4%**	**3,9%**	**10,5%**	**9,5%**	**13,4%**
	*	3,1	-1,4	2,3	-2,6	-,4	-1,4	
3	N	10	11	14	8	0	21	64
	% of the city	**11,2%**	**10,3%**	**10,9%**	**10,5%**	**0,0%**	**17,5%**	**11,9%**
	*	-,2	-,5	-,4	-,3	-1,6	2,0	
4	N	18	68	68	64	16	39	273
	% of the city	**20,2%**	**63,6%**	**52,7%**	**84,2%**	**84,2%**	**31,0%**	**50,0%**
	*	-6,1	3,1	,7	6,4	3,0	-4,9	
Altogether	N	89	107	129	76	19	126	546
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 – Never
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	147,128	20	,000

a. 30.0% of cells (9) have an expected count less than 5. The minimum expected count is 0.03.

Crosstab C.3.2. The structure of responses to the question: 'How do you generally come to school?' By own bicycle compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	5	7	1	0	9	1	23
	% of the city	**5,6%**	**6,5%**	**,8%**	**0,0%**	**47,4%**	**,8%**	**4,2%**

	*	,7	1,3	-2,2	-2,0	9,5	-2,2	
2	N	13	10	3	1	3	4	34
	% of the city	**14,6%**	**9,3%**	**2,3%**	**1,3%**	**15,8%**	**3,2%**	**6,2%**
	*	3,6	1,5	-2,1	-1,9	1,8	-1,6	
3	N	15	32	14	2	1	13	77
	% of the city	**16,9%**	**29,9%**	**10,9%**	**2,6%**	**5,3%**	**10,3%**	**14,1%**
	*	,8	5,2	-1,2	-3,1	-1,1	-1,4	
4	N	56	58	111	73	6	108	412
	% of the city	**62,9%**	**54,2%**	**86,0%**	**96,1%**	**31,6%**	**85,7%**	**75,5%**
	*	-3,0	-5,7	3,2	4,5	-4,5	3,1	
Altogether	N	89	107	129	76	19	126	546
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 – Never
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	119,388	15	,000

a. 29.2% of cells (7) have an expected count less than 5. The minimum expected count is 0.80.

Crosstab C.3.3. The structure of responses to the question: 'How do you generally come to school?' By city bike (by minute-rental bike) compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	0	2	0	0	0	0	2
	% of the city	**0,0%**	**1,9%**	**0,0%**	**0,0%**	**0,0%**	**0,0%**	**,4%**
	*	-,6	2,9	-,8	-,6	-,3	-,8	
2	N	0	2	0	0	0	2	4
	% of the city	**0,0%**	**1,9%**	**0,0%**	**0,0%**	**0,0%**	**1,6%**	**,7%**
	*	-,9	1,5	-1,1	-,8	-,4	1,3	
3	N	0	0	5	0	1	6	12
	% of the city	**0,0%**	**0,0%**	**3,9%**	**0,0%**	**5,3%**	**4,8%**	**2,2%**
	*	-1,5	-1,7	1,5	-1,4	,9	2,2	
4	N	89	103	124	76	18	118	528
	% of the city	**100,0%**	**96,3%**	**96,1%**	**100,0%**	**94,7%**	**93,7%**	**96,7%**
	*	1,9	-,3	-,4	1,7	-,5	-2,2	
Altogether	N	89	107	129	76	19	126	546
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 – Never
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	30,377	15	,011

a. 75.0% of cells (18) have an expected count less than 5. The minimum expected count is 0.07.

Crosstab C.3.4. The structure of responses to the question: 'How do you generally come to school?' By a traditional or electric scooter compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	3	1	1	0	0	1	6
	% of the city	**3,4%**	**,9%**	**,8%**	**0,0%**	**0,0%**	**,8%**	**1,1%**

	*	2,2	-,2	-,4	-1,0	-,5	-,4	
	N	3	2	6	0	0	2	13
2	% of the city	**3,4%**	**1,9%**	**4,7%**	**0,0%**	**0,0%**	**1,6%**	**2,4%**
	*	,7	-,4	1,9	-1,5	-,7	-,7	
	N	12	3	11	0	0	9	35
3	% of the city	**13,5%**	**2,8%**	**8,5%**	**0,0%**	**0,0%**	**7,1%**	**6,4%**
	*	3,0	-1,7	1,1	-2,5	-1,2	,4	
	N	71	101	111	76	19	114	492
4	% of the city	**79,8%**	**94,4%**	**86,0%**	**100,0%**	**100,0%**	**90,5%**	**90,1%**
	*	-3,6	1,7	-1,8	3,1	1,5	,2	
	N	89	107	129	76	19	126	546
Altogether	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 – Never
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	36,242	15	,002

a. 58.3% of cells (14) have an expected count less than 5. The minimum expected count is 0.21.

Crosstab C.3.5. The structure of responses to the question: 'How do you generally come to school?' By public transport (e.g., bus, tram, subway) compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	11	54	50	5	3	60	183
	% of the city	**12,4%**	**50,5%**	**38,8%**	**6,6%**	**15,8%**	**47,6%**	**33,5%**
	*	-4,6	4,1	1,4	-5,4	-1,7	3,8	
2	N	8	20	33	4	5	10	80
	% of the city	**9,0%**	**18,7%**	**25,6%**	**5,3%**	**26,3%**	**7,9%**	**14,7%**
	*	-1,7	1,3	4,0	-2,5	1,5	-2,4	
3	N	11	7	27	8	4	17	74
	% of the city	**12,4%**	**6,5%**	**20,9%**	**10,5%**	**21,1%**	**13,5%**	**13,6%**
	*	-,4	-2,4	2,8	-,8	1,0	,0	
4	N	59	26	19	59	7	39	209
	% of the city	**66,3%**	**24,3%**	**14,7%**	**77,6%**	**36,8%**	**31,0%**	**38,3%**
	*	5,9	-3,3	-6,3	7,6	-,1	-1,9	
Altogether	N	89	107	129	76	19	126	546
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 – Never
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	164,020	15	,000

a. 8.3% of cells (2) have an expected count less than 5. The minimum expected count is 2.58.

Crosstab C.3.6. The structure of responses to the question: 'How do you generally come to school?' By car, but someone drives me compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	17	18	49	60	1	11	156
	% of the city	**19,1%**	**16,8%**	**38,0%**	**78,9%**	**5,3%**	**8,7%**	**28,6%**

	*	-2,2	-3,0	2,7	10,5	-2,3	-5,6	
	N	22	17	36	9	5	20	109
2	% of the city	**24,7%**	**15,9%**	**27,9%**	**11,8%**	**26,3%**	**15,9%**	**20,0%**
	*	1,2	-1,2	2,6	-1,9	,7	-1,3	
	N	24	40	29	3	3	36	135
3	% of the city	**27,0%**	**37,4%**	**22,5%**	**3,9%**	**15,8%**	**29,4%**	**24,9%**
	*	,5	3,4	-,7	-4,5	-,9	1,1	
	N	26	32	15	4	10	58	145
4	% of the city	**29,2%**	**29,9%**	**11,6%**	**5,3%**	**52,6%**	**46,0%**	**26,6%**
	*	,6	,9	-4,4	-4,5	2,6	5,6	
	N	89	107	129	76	19	126	546
Altogether	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 – Never
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	181,275	20	,000

a. 26.7% of cells (8) have an expected count less than 5. The minimum expected count is 0.03.

Crosstab C.3.7. The structure of responses to the question: 'How do you generally come to school?' By app-based car (e.g., Uber, Bolt, FreeNow) or by taxi compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	0	1	0	0	0	0	1
	% of the city	**0,0%**	**,9%**	**0,0%**	**0,0%**	**0,0%**	**0,0%**	**,2%**
	*	-,4	2,0	-,6	-,4	-,2	-,5	
2	N	0	0	1	0	0	0	1
	% of the city	**0,0%**	**0,0%**	**,8%**	**0,0%**	**0,0%**	**0,0%**	**,2%**
	*	-,4	-,5	1,8	-,4	-,2	-,5	
3	N	7	2	8	1	0	3	21
	% of the city	**7,9%**	**1,9%**	**6,2%**	**1,3%**	**0,0%**	**2,4%**	**3,8%**
	*	2,2	-1,2	1,6	-1,2	-,9	-1,0	
4	N	82	104	120	75	19	123	523
	% of the city	**92,1%**	**97,2%**	**93,0%**	**98,7%**	**100,0%**	**97,6%**	**95,8%**
	*	-1,9	,8	-1,8	1,4	,9	1,2	
Altogether	N	89	107	129	76	19	126	546
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 – Never
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	16,291	15	,363

a. 75.0% of cells (18) have an expected count less than 5. The minimum expected count is 0.03.

Crosstab C.3.8. The structure of responses to the question: 'How do you generally come to school?' Other compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	2	1	3	3	1	0	10
	% of the city	**2,2%**	**,9%**	**2,3%**	**3,9%**	**5,3%**	**0,0%**	**1,8%**

	*	,3	-,8	,5	1,5	1,1	-1,7	
	N	0	2	4	0	0	0	6
2	% of the city	**0,0%**	**1,9%**	**3,1%**	**0,0%**	**0,0%**	**0,0%**	**1,1%**
	*	-1,1	,9	2,5	-1,0	-,5	-1,3	
	N	2	2	4	0	0	1	9
3	% of the city	**2,2%**	**1,9%**	**3,1%**	**0,0%**	**0,0%**	**,8%**	**1,6%**
	*	,5	,2	1,5	-1,2	-,6	-,9	
	N	85	102	118	73	18	125	521
4	% of the city	**95,5%**	**95,3%**	**91,5%**	**96,1%**	**94,7%**	**99,2%**	**95,4%**
	*	,0	-,1	-2,5	,3	-,1	2,3	
	N	89	107	129	76	19	126	546
Altogether	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 – Never
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	23,788	15	,069

a. 75.0% of cells (18) have an expected count less than 5. The minimum expected count is 0.21.

Crosstab C.4. The structure of responses to the question: 'What do you do most often after school?' compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	17	16	12	6	3	17	71
	% of the city	**19,1%**	**15,0%**	**9,3%**	**7,9%**	**15,8%**	**16,8%**	**13,6%**
	*	1,7	,4	-1,7	-1,6	,3	1,0	
2	N	3	2	1	2	0	9	17
	% of the city	**3,4%**	**1,9%**	**,8%**	**2,6%**	**0,0%**	**8,9%**	**3,3%**
	*	,1	-,9	-1,8	-,3	-,8	3,6	
3	N	18	49	61	12	5	36	181
	% of the city	**20,2%**	**45,8%**	**47,3%**	**15,8%**	**26,3%**	**35,6%**	**34,7%**
	*	-3,2	2,7	3,5	-3,8	-,8	,2	
4	N	8	0	9	17	0	4	38
	% of the city	**9,0%**	**0,0%**	**7,0%**	**22,4%**	**0,0%**	**4,0%**	**7,3%**
	*	,7	-3,3	-,2	5,5	-1,2	-1,4	
5	N	30	29	29	21	9	34	152
	% of the city	**33,7%**	**27,1%**	**22,5%**	**27,6%**	**47,4%**	**33,7%**	**29,2%**
	*	1,0	-,5	-1,9	-,3	1,8	1,1	
6	N	13	11	17	18	2	1	62
	% of the city	**14,6%**	**10,3%**	**13,2%**	**23,7%**	**10,5%**	**1,0%**	**11,9%**
	*	,9	-,6	,5	3,4	-,2	-3,8	
Altogether	N	89	107	129	76	19	101	521
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - I visit friends or spend time with them, 2 - I visit relatives/family or spend time with them, 3 - I go to hobbies (such as sports, a library, a cinema), 4 - I participate in extracurricular activities, 5 - I spend time at home, 6 - Other

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.

Likelihood ratio test	110,568	25	,000

a. 25.0% of cells (9) have an expected count less than 5. The minimum expected count is 0.62.

Crosstab C.5. The structure of responses to the question: 'How do you move to the place you visit most often after school?' compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	33	20	28	13	1	44	139
	% of the city	**37,1%**	**18,7%**	**21,7%**	**17,1%**	**5,3%**	**35,8%**	**25,6%**
	*	2,7	-1,8	-1,2	-1,8	-2,1	2,9	
2	N	8	12	4	3	8	6	41
	% of the city	**9,0%**	**11,2%**	**3,1%**	**3,9%**	**42,1%**	**4,9%**	**7,6%**
	*	,6	1,6	-2,2	-1,3	5,8	-1,3	
3	N	0	1	0	0	0	1	2
	% of the city	**0,0%**	**,9%**	**0,0%**	**0,0%**	**0,0%**	**,8%**	**,4%**
	*	-,6	1,1	-,8	-,6	-,3	,9	
4	N	3	2	2	1	0	2	10
	% of the city	**3,4%**	**1,9%**	**1,6%**	**1,3%**	**0,0%**	**1,6%**	**1,8%**
	*	1,2	,0	-,3	-,4	-,6	-,2	
5	N	11	33	66	11	6	49	176
	% of the city	**12,4%**	**30,8%**	**51,2%**	**14,5%**	**31,6%**	**39,8%**	**32,4%**
	*	-4,4	-,4	5,2	-3,6	-,1	2,0	
6	N	24	28	24	43	2	20	141
	% of the city	**27,0%**	**26,2%**	**18,6%**	**56,6%**	**10,5%**	**16,3%**	**26,0%**
	*	,2	,1	-2,2	6,6	-1,6	-2,8	
7	N	1	0	0	1	0	1	3
	% of the city	**1,1%**	**0,0%**	**0,0%**	**1,3%**	**0,0%**	**,8%**	**,6%**
	*	,8	-,9	-1,0	1,0	-,3	,4	
8	N	6	5	0	0	0	0	11
	% of the city	**6,7%**	**4,7%**	**0,0%**	**0,0%**	**0,0%**	**0,0%**	**2,0%**
	*	3,5	2,2	-1,9	-1,4	-,6	-1,8	

	N	3	6	5	4	2	0	20
9	% of the city	**3,4%**	**5,6%**	**3,9%**	**5,3%**	**10,5%**	**0,0%**	**3,7%**
	*	-,2	1,2	,1	,8	1,6	-2,5	
	N	89	107	129	76	19	123	543
Altogether	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - On foot; 2 - By own bicycle; 3 - By minute-rental bike (city bike); 4 - By a traditional or electric scooter; 5 - By public transport (e.g., bus, tram, subway); 6 - By car, but someone drives me; 7 - By app-based car (e.g., Uber, Bolt, FreeNow) or by taxi; 8 - Not applicable, I don't travel; 9 – Other

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	154,843	40	,000

a. 61.1% of cells (33) have an expected count less than 5. The minimum expected count is 0.07.

Crosstab C.6. The structure of responses to the question: 'Why do you travel this way to the place you visit most often after school?' (multiple choice) compared with a city

Categories		City						Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels			
1	N	20	17	36	4	4	31	112	24,223	,000
	% of the city	**22,5%**	**15,9%**	**27,9%**	**5,3%**	**21,1%**	**29,0%**	**21,3%**		
2	N	7	17	13	22	2	19	80	17,457	,004
	% of the city	**7,9%**	**15,9%**	**10,1%**	**28,9%**	**10,5%**	**17,8%**	**15,2%**		
3	N	9	21	17	6	3	11	67	7,211	,205
	% of the city	**10,1%**	**19,6%**	**13,2%**	**7,9%**	**15,8%**	**10,3%**	**12,7%**		
4	N	5	8	4	1	1	7	26	5,928	,313
	% of the city	**5,6%**	**7,5%**	**3,1%**	**1,3%**	**5,3%**	**6,5%**	**4,9%**		
5	N	28	34	23	12	5	30	132	12,502	,029
	% of the city	**31,5%**	**31,8%**	**17,8%**	**15,8%**	**26,3%**	**28,0%**	**25,0%**		
6	N	11	31	41	3	0	30	116	46,582	,000
	% of the city	**12,4%**	**29,0%**	**31,8%**	**3,9%**	**0,0%**	**28,0%**	**22,0%**		
7	N	5	7	14	8	4	9	47	5,577	,350
	% of the city	**5,6%**	**6,5%**	**10,9%**	**10,5%**	**21,1%**	**8,4%**	**8,9%**		
8	N	7	22	16	5	4	4	58	20,298	,001
	% of the city	**7,9%**	**20,6%**	**12,4%**	**6,6%**	**21,1%**	**3,7%**	**11,0%**		
9	N	14	15	10	6	2	7	54	7,295	,200
	% of the city	**15,7%**	**14,0%**	**7,8%**	**7,9%**	**10,5%**	**6,5%**	**10,2%**		
10	N	12	25	46	26	5	21	135	19,417	,002
	% of the city	**13,5%**	**23,4%**	**35,7%**	**34,2%**	**26,3%**	**19,6%**	**25,6%**		
11	N	18	18	5	9	0	3	53	32,415	,000
	% of the city	**20,2%**	**16,8%**	**3,9%**	**11,8%**	**0,0%**	**2,8%**	**10,1%**		
12	N	35	47	0	0	0	0	82	148,690	,000

	% of the city	**39,3%**	**43,9%**	**0,0%**	**0,0%**	**0,0%**	**0,0%**	**19,5%**		
13	N	8	7	1	0	3	7	26	21,660	,001
	% of the city	**9,0%**	**6,5%**	**0,8%**	**0,0%**	**15,8%**	**6,5%**	**4,9%**		
14	N	5	10	12	9	1	4	41	6,062	,300
	% of the city	**5,6%**	**9,3%**	**9,3%**	**11,8%**	**5,3%**	**3,7%**	**7,8%**		

Explanation: 1 - I don't have to wait for anyone; I am independent; 2 - My parents travel this way; 3 - My friends travel this way; 4 - Everyone travels this way here; 5 - It is close to home; 6 - I have a stop nearby (bus, tram, or subway); 7 - I feel safe on the road; 8 - I don't pollute the air; 9 - For health and to stay in good condition; 10 - I have no other choice; 11 - It depends on the weather; 12 - Not applicable, I don’t travel; 13 – Other

Source: Own elaboration on the basis of the questionnaire survey

Crosstab C.7. The structure of responses to the question: 'If you could choose, how you would like to move around the city?' compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
	N	30	19	13	9	2	32	105
1	% of the city	**33,7%**	**17,8%**	**10,1%**	**11,8%**	**10,5%**	**25,6%**	**19,3%**
	*	3,8	-,4	-3,0	-1,8	-1,0	2,0	
	N	33	29	26	16	9	18	131
2	% of the city	**37,1%**	**27,1%**	**20,2%**	**21,1%**	**47,4%**	**14,4%**	**24,0%**
	*	3,1	,8	-1,2	-,7	2,4	-2,9	
	N	0	2	3	1	0	5	11
3	% of the city	**0,0%**	**1,9%**	**2,3%**	**1,3%**	**0,0%**	**4,0%**	**2,0%**
	*	-1,5	-,1	,3	-,5	-,6	1,8	
	N	9	13	12	17	2	19	72
4	% of the city	**10,1%**	**12,1%**	**9,3%**	**22,4%**	**10,5%**	**15,2%**	**13,2%**
	*	-,9	-,4	-1,5	2,5	-,4	,7	
	N	3	14	31	4	5	20	77
5	% of the city	**3,4%**	**13,1%**	**24,0%**	**5,3%**	**26,3%**	**16,0%**	**14,1%**
	*	-3,2	-,3	3,7	-2,4	1,6	,7	
	N	11	20	39	28	1	24	123
6	% of the city	**12,4%**	**18,7%**	**30,2%**	**36,8%**	**5,3%**	**19,2%**	**22,6%**
	*	-2,5	-1,1	2,4	3,2	-1,8	-1,0	
	N	1	0	1	1	0	3	6
7	% of the city	**1,1%**	**0,0%**	**,8%**	**1,3%**	**0,0%**	**2,4%**	**1,1%**
	*	,0	-1,2	-,4	,2	-,5	1,6	
	N	2	10	4	0	0	4	20
8	% of the city	**2,2%**	**9,3%**	**3,1%**	**0,0%**	**0,0%**	**3,2%**	**3,7%**
	*	-,8	3,5	-,4	-1,8	-,9	-,3	
Altogether	N	89	107	129	76	19	125	545

% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - On foot; 2 - By own bicycle; 3 - By minute-rental bike (city bike); 4 - By a traditional or electric scooter; 5 - By public transport (e.g., bus, tram, subway); 6 - By car, but someone drives me; 7 - By app-based car (e.g., Uber, Bolt, FreeNow) or by taxi; 8 – Other

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	112,941	35	,000

a. 47.9% of cells (23) have an expected count less than 5. The minimum expected count is 0.21.

Crosstab C.8.1. The structure of responses to the question: 'With whom do you most like to explore (multiple choice): The neighbourhood of your place of residence' compared with a city

Categories		City						Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels			
1	N	16	32	30	5	2	27	112	21,059	,001
	% of the city	**18,0%**	**29,9%**	**23,3%**	**6,6%**	**10,5%**	**26,7%**	**21,5%**		
2	N	58	73	103	52	13	59	358	13,331	,020
	% of the city	**65,2%**	**68,2%**	**79,8%**	**68,4%**	**68,4%**	**58,4%**	**68,7%**		
3	N	18	44	29	17	6	36	150	17,357	,004
	% of the city	**20,2%**	**41,1%**	**22,5%**	**22,4%**	**31,6%**	**35,6%**	**28,8%**		
4	N	42	44	33	34	2	36	191	21,102	,001
	% of the city	**47,2%**	**41,1%**	**25,6%**	**44,7%**	**10,5%**	**35,6%**	**36,7%**		
5	N	3	3	1	7	4	4	22	17,046	,004
	% of the city	**3,4%**	**2,8%**	**,8%**	**9,2%**	**21,1%**	**4,0%**	**4,2%**		
6	N	3	6	5	1	0	3	18	4,092	,536
	% of the city	**3,4%**	**5,6%**	**3,9%**	**1,3%**	**0,0%**	**3,0%**	**3,5%**		

Explanation: 1 – Alone; 2 - With peers; 3 - With siblings; 4 - With adults (parents, grandparents); 5 - I don't like exploring this neighbourhood; 6 - In another way

Source: Own elaboration on the basis of the questionnaire survey

Crosstab C.8.2. The structure of responses to the question: 'With whom do you most like to explore (multiple choice): The neighbourhood of your school' compared with a city

Categories		City						Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels			
1	N	18	21	24	6	1	34	104	15,615	,008
	% of the city	**20,2%**	**19,6%**	**18,6%**	**7,9%**	**5,3%**	**27,2%**	**19,1%**		
2	N	65	83	105	60	14	84	411	8,011	,156
	% of the city	**73,0%**	**77,6%**	**81,4%**	**78,9%**	**73,7%**	**67,2%**	**75,4%**		
3	N	14	25	18	12	5	32	106	8,549	,128

	% of the city	**15,7%**	**23,4%**	**14,0%**	**15,8%**	**26,3%**	**25,6%**	**19,4%**		
4	N	18	22	12	18	4	25	99	10,477	,063
	% of the city	**20,2%**	**20,6%**	**9,3%**	**23,7%**	**21,1%**	**20,0%**	**18,2%**		
5	N	5	13	7	6	2	10	43	4,388	,495
	% of the city	**5,6%**	**12,1%**	**5,4%**	**7,9%**	**10,5%**	**8,0%**	**7,9%**		
6	N	4	3	5	0	0	1	13	8,867	,115
	% of the city	**4,5%**	**2,8%**	**3,9%**	**0,0%**	**0,0%**	**,8%**	**2,4%**		

Explanation: 1 – Alone; 2 - With peers; 3 - With siblings; 4 - With adults (parents, grandparents); 5 - I don't like exploring this neighbourhood; 6 - In another way

Source: Own elaboration on the basis of the questionnaire survey

Crosstab C.9. The structure of responses to the question: 'How important is it for you that daily needs (school, shops, places to spend free time) are available within walking or cycling distance from your home?' compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	13	9	11	4	2	10	49
	% of the city	**14,6%**	**8,4%**	**8,5%**	**5,3%**	**10,5%**	**8,4%**	**9,1%**
	*	2,0	-,3	-,3	-1,3	,2	-,3	
2	N	45	53	80	17	13	66	274
	% of the city	**50,6%**	**49,5%**	**62,0%**	**22,4%**	**68,4%**	**55,5%**	**50,8%**
	*	-,1	-,3	2,9	-5,4	1,6	1,1	
3	N	31	45	38	55	4	43	216
	% of the city	**34,8%**	**42,1%**	**29,5%**	**72,4%**	**21,1%**	**36,1%**	**40,1%**
	*	-1,1	,5	-2,8	6,2	-1,7	-1,0	
Altogether	N	89	107	129	76	19	119	539
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - Not important at all; 2 - Neither important nor unimportant; 3 - Very important

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	47,273	10	,000

a. 5.6% of cells (1) have an expected count less than 5. The minimum expected count is 1.73.

Crosstab C.10. The structure of responses to the question: 'Why do you travel this way to the place you visit most often after school?' (multiple choice) compared with a city

Categories		City						Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels			
1	N	20	54	51	29	4	50	208	25,152	,000
	% of the city	**22,5%**	**50,5%**	**39,5%**	**38,2%**	**21,1%**	**51,0%**	**40,2%**		
2	N	15	34	32	10	6	39	136	22,750	,000

	% of the city	**16,9%**	**31,8%**	**24,8%**	**13,2%**	**31,6%**	**39,8%**	**26,3%**		
3	N	22	10	18	16	2	22	90	12,764	,026
	% of the city	**24,7%**	**9,3%**	**14,0%**	**21,1%**	**10,5%**	**22,4%**	**17,4%**		
4	N	39	41	40	28	5	24	177	10,036	,074
	% of the city	**43,8%**	**38,3%**	**31,0%**	**36,8%**	**26,3%**	**24,5%**	**34,2%**		
5	N	57	60	81	45	14	36	293	22,299	,000
	% of the city	**64,0%**	**56,1%**	**62,8%**	**59,2%**	**73,7%**	**36,7%**	**56,6%**		
6	N	17	53	21	17	3	33	144	39,990	,000
	% of the city	**19,1%**	**49,5%**	**16,3%**	**22,4%**	**15,8%**	**33,7%**	**27,8%**		

Explanation: 1 - 🚗 Cool Future Cars – Cars run on electricity and might even drive themselves; 2 - 🚌 Fast Bus & Train – Buses and trains come often, are quick, and take you everywhere; 3 - 🤝 Sharing Instead of Owning – Cars, bikes, or scooters are shared with others; 4 - 🚲 Fun on Bikes & Scooters – Lots of people ride bikes, scooters, or skateboards; 5 - 🌳 Everything Close & Lots of Nature – You can walk to most places, with lots of trees and parks around; 6 - 🛸 Flying in the City – Flying taxis and delivery drones move people and stuff quickly through the air

Source: Own elaboration on the basis of the questionnaire survey

Crosstable C.11.1. The structure of responses to the question: 'Do you feel "at home": A. in the 1neighbourhood .1where you live?' compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	9	5	3	4	0	11	32
	% of the city	**10,1%**	**4,7%**	**2,3%**	**5,3%**	**0,0%**	**9,8%**	**6,0%**
	*	1,8	-,7	-2,0	-,3	-1,1	1,9	
2	N	35	20	28	17	4	21	125
	% of the city	**39,3%**	**18,7%**	**21,7%**	**22,4%**	**21,1%**	**18,8%**	**23,5%**
	*	3,9	-1,3	-,6	-,3	-,3	-1,3	
3	N	45	82	98	55	15	80	375
	% of the city	**50,6%**	**76,6%**	**76,0%**	**72,4%**	**78,9%**	**71,4%**	**70,5%**
	*	-4,5	1,6	1,6	,4	,8	,2	
Altogether	N	89	107	129	76	19	112	532
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – Weakly; 2 - Neither weakly nor strongly; 3 – Strongly

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	28,175	10	,002

a. 16.7% of cells (3) have an expected count less than 5. The minimum expected count is 1.14.

Crosstable C.11.2. The structure of responses to the question: 'Do you feel "at home": B. in the neighbourhood of your school?' compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	24	43	22	10	1	27	127
	% of the city	**27,0%**	**40,2%**	**17,1%**	**13,2%**	**5,3%**	**22,7%**	**23,6%**
	*	,8	4,5	-2,0	-2,3	-1,9	-,3	
2	N	30	34	60	32	10	50	216

	% of the city	**33,7%**	**31,8%**	**46,5%**	**42,1%**	**52,6%**	**42,0%**	**40,1%**
	*	-1,3	-2,0	1,7	,4	1,1	,5	
	N	35	30	47	34	8	42	196
3	% of the city	**39,3%**	**28,0%**	**36,4%**	**44,7%**	**42,1%**	**35,3%**	**36,4%**
	*	,6	-2,0	,0	1,6	,5	-,3	
	N	89	107	129	76	19	119	539
Altogether	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – Weakly; 2 - Neither weakly nor strongly; 3 – Strongly

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	30,540	10	,001

a. 5.6% of cells (1) have an expected count less than 5. The minimum expected count is 4.48.

Crosstable C.11.3. The structure of responses to the question: 'Do you feel "at home": C. generally in the entire city, do you feel it is your city?' compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	9	17	18	15	1	11	71
	% of the city	**10,1%**	**15,9%**	**14,0%**	**19,7%**	**5,3%**	**9,2%**	**13,2%**
	*	-,9	,9	,3	1,8	-1,0	-1,4	
2	N	24	45	61	27	6	42	205
	% of the city	**27,0%**	**42,1%**	**47,3%**	**35,5%**	**31,6%**	**35,3%**	**38,0%**
	*	-2,4	1,0	2,5	-,5	-,6	-,7	
3	N	56	45	50	34	12	66	263
	% of the city	**62,9%**	**42,1%**	**38,8%**	**44,7%**	**63,2%**	**55,5%**	**48,8%**
	*	2,9	-1,6	-2,6	-,8	1,3	1,6	
Altogether	N	89	107	129	76	19	119	539
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – Weakly; 2 - Neither weakly nor strongly; 3 – Strongly

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	22,387	10	,013

a. 5.6% of cells (1) have an expected count less than 5. The minimum expected count is 2.50.

Crosstab C.12.1. The structure of responses to the question: 'Do you feel safe: A. in the neighbourhood where you live?' compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	8	3	3	3	1	6	24
	% of the city	**9,0%**	**2,8%**	**2,3%**	**3,9%**	**5,3%**	**5,4%**	**4,5%**
	*	2,2	-1,0	-1,4	-,3	,2	,5	
2	N	23	28	23	12	6	29	121

	% of the city	**25,8%**	**26,2%**	**17,8%**	**15,8%**	**31,6%**	**25,9%**	**22,7%**
	*	,8	,9	-1,5	-1,6	,9	,9	
	N	58	76	103	61	12	77	387
3	% of the city	**65,2%**	**71,0%**	**79,8%**	**80,3%**	**63,2%**	**68,8%**	**72,7%**
	*	-1,8	-,4	2,1	1,6	-1,0	-1,1	
	N	89	107	129	76	19	112	532
Altogether	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – No; 2 - Sometimes yes, sometimes no; 3 – Yes

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	13,708	10	,187

a. 27.8% of cells (5) have an expected count less than 5. The minimum expected count is 0.86.

Crosstab C.12.2. The structure of responses to the question: 'Do you feel safe: B. in the neighbourhood of your school?' compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	16	23	14	8	1	11	73
	% of the city	**18,0%**	**21,5%**	**10,9%**	**10,5%**	**5,3%**	**9,2%**	**13,5%**
	*	1,3	2,7	-1,0	-,8	-1,1	-1,6	
2	N	34	54	54	28	8	48	226
	% of the city	**38,2%**	**50,5%**	**41,9%**	**36,8%**	**42,1%**	**40,8%**	**42,1%**
	*	-,8	2,0	,0	-1,0	,0	-,5	
3	N	39	30	61	40	10	60	240
	% of the city	**43,8%**	**28,0%**	**47,3%**	**52,6%**	**52,6%**	**50,0%**	**44,4%**
	*	-,1	-3,8	,7	1,5	,7	1,4	
Altogether	N	89	107	129	76	19	120	540
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – No; 2 - Sometimes yes, sometimes no; 3 – Yes

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	25,383	15	,045

a. 29.2% of cells (7) have an expected count less than 5. The minimum expected count is 0.04.

Crosstab C.12.3. The structure of responses to the question: 'Do you feel safe: C. generally in your city?' compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	7	17	14	5	2	12	57
	% of the city	**7,9%**	**15,9%**	**10,9%**	**6,6%**	**10,5%**	**10,2%**	**10,6%**
	*	-,9	2,0	,1	-1,2	,0	-,2	
2	N	42	64	75	34	9	52	276

	% of the city	**47,2%**	**59,8%**	**58,1%**	**44,7%**	**47,4%**	**44,1%**	**51,3%**
	*	-,8	2,0	1,8	-1,2	-,3	-1,8	
	N	40	26	40	37	8	54	205
3	% of the city	**44,9%**	**24,3%**	**31,0%**	**48,7%**	**42,1%**	**45,8%**	**38,1%**
	*	1,5	-3,3	-1,9	2,0	,4	1,9	
	N	89	107	129	76	19	118	538
Altogether	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – No; 2 - Sometimes yes, sometimes no; 3 – Yes

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	22,194	10	,014

a. 5.6% of cells (1) have an expected count less than 5. The minimum expected count is 2.0.

Crosstab C.13. The structure of responses to the question: 'How old are you?' compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
9	N	0	0	0	0	0	1	1
	% of the city	**0,0%**	**0,0%**	**0,0%**	**0,0%**	**0,0%**	**,8%**	**,2%**
	*	*-,4*	*-,5*	*-,6*	*-,4*	*-,2*	*1,9*	
10	N	12	20	3	5	0	9	49
	% of the city	**13,8%**	**18,7%**	**2,3%**	**6,6%**	**0,0%**	**7,5%**	**9,1%**
	*	*1,7*	*3,8*	*-3,1*	*-,8*	*-1,4*	*-,7*	
11	N	33	29	14	22	0	30	128
	% of the city	**37,9%**	**27,1%**	**10,9%**	**28,9%**	**0,0%**	**25,0%**	**23,8%**
	*	*3,4*	*,9*	*-4,0*	*1,1*	*-2,5*	*,4*	
12	N	25	15	40	28	9	15	132
	% of the city	**28,7%**	**14,0%**	**31,0%**	**36,8%**	**47,4%**	**12,5%**	**24,5%**
	*	*1,0*	*-2,8*	*2,0*	*2,7*	*2,4*	*-3,5*	
13	N	17	43	72	21	10	65	228
	% of the city	**19,5%**	**40,2%**	**55,8%**	**27,6%**	**52,6%**	**54,2%**	**42,4%**
	*	*-4,7*	*-,5*	*3,5*	*-2,8*	*,9*	*3,0*	
Altogether	N	87	107	129	76	19	120	538
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	105,995	20	,000

a. 20.0% of cells (2) have an expected count less than 5. The minimum expected count is 0.42.

Crosstab C.14. The structure of responses to the question: 'What is your gender?' compared with a city

Categories	City	Total

		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	40	46	61	38	10	50	245
	% of the city	**44,9%**	**43,0%**	**47,3%**	**50,0%**	**52,6%**	**41,0%**	**45,2%**
	*	-,1	-,5	,5	,9	,7	-1,1	
2	N	41	43	60	38	9	71	262
	% of the city	**46,1%**	**40,2%**	**46,5%**	**50,0%**	**47,4%**	**58,2%**	**48,3%**
	*	-,5	-1,9	-,5	,3	-,1	2,5	
3	N	8	18	8	0	0	1	35
	% of the city	**9,0%**	**16,8%**	**6,2%**	**0,0%**	**0,0%**	**,8%**	**6,5%**
	*	1,1	4,9	-,1	-2,5	-1,2	-2,9	
Altogether	N	89	107	129	76	19	122	542
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – Girl; 2 – Boy; 3 - Other / Prefer not to say

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	40,412	10	,000

a. 11.1% of cells (2) have an expected count less than 5. The minimum expected count is 1.23.

Crosstab C.15. The structure of responses to the question: 'Where do you live in the city?' compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	44	24	43	19	6	54	190
	% of the city	**49,4%**	**22,4%**	**33,3%**	**25,0%**	**31,6%**	**44,3%**	**35,1%**
	*	3,1	-3,1	-,5	-2,0	-,3	2,4	
2	N	38	77	60	50	6	59	290
	% of the city	**42,7%**	**72,0%**	**46,5%**	**65,8%**	**31,6%**	**48,4%**	**53,5%**
	*	-2,2	4,3	-1,8	2,3	-2,0	-1,3	
3	N	7	6	26	7	7	9	62
	% of the city	**7,9%**	**5,6%**	**20,2%**	**9,2%**	**36,8%**	**7,4%**	**11,4%**
	*	-1,2	-2,1	3,6	-,7	3,5	-1,6	
Altogether	N	89	107	129	76	19	122	542
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - In the same neighbourhood as the school; 2 - In the different neighbourhood as the school; 3 - Outside the city

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	50,764	10	,000

a. 5.6% of cells (1) have an expected count less than 5. The minimum expected count is 2.17.

Youth 14-18 years

Crosstab Y.1. The structure of responses to the question: 'Do you use public transport (e.g., bus, tram, subway)?' (% of "Yes" responses in the total number of all responses) compared with a city

Categories		City					Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
1	N	150	188	93	56	21	508
	% of the city	**92,6%**	**96,4%**	**100,0%**	**75,7%**	**55,3%**	**90,4%**
	*	*1,1*	*3,5*	*3,4*	*-4,6*	*-7,6*	
2	N	12	7	0	18	17	54
	% of the city	**7,4%**	**3,6%**	**0,0%**	**24,3%**	**44,7%**	**9,6%**
	*	*-1,1*	*-3,5*	*-3,4*	*4,6*	*7,6*	
Altogether	N	162	195	93	74	38	562
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – Yes, 2 – No
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	75,385	4	,000

a. 10.0% of cells (1) have an expected count less than 5. The minimum expected count is 3.65.

Crosstab Y.2. The structure of responses to the question: 'What are the main reasons why you DO NOT use public transport?' (multiple choice, 100% = respondents who do not use the public transport) compared with a city

Categories		City				Total	X^2	*p*
		Toruń	Cologne	Matosinhos	Ghent			
1	N	0	0	7	0	7	17,597	,001
	% of the city	**0,0%**	**0,0%**	**38,9%**	**0,0%**	**13,0%**		
2	N	2	0	3	0	5	6,284	,099
	% of the city	**16,7%**	**0,0%**	**16,7%**	**0,0%**	**9,3%**		
3	N	0	0	0	3	3	7,328	,062
	% of the city	**0,0%**	**0,0%**	**0,0%**	**17,6%**	**5,6%**		

4	N	2	0	5	0	7	9,570	,023
	% of the city	**16,7%**	**0,0%**	**27,8%**	**0,0%**	**13,0%**		
5	N	2	1	4	6	13	1,910	,591
	% of the city	**16,7%**	**14,3%**	**22,2%**	**35,3%**	**24,1%**		
6	N	2	1	4	3	10	,281	,963
	% of the city	**16,7%**	**14,3%**	**22,2%**	**17,6%**	**18,5%**		
7	N	0	0	2	0	2	4,550	,208
	% of the city	**0,0%**	**0,0%**	**11,1%**	**0,0%**	**3,7%**		
8	N	1	0	4	1	6	4,114	,249
	% of the city	**8,3%**	**0,0%**	**22,2%**	**5,9%**	**11,1%**		
9	N	0	0	5	0	5	12,047	,007
	% of the city	**0,0%**	**0,0%**	**27,8%**	**0,0%**	**9,3%**		
10	N	6	4	9	1	20	12,433	,006
	% of the city	**50,0%**	**57,1%**	**50,0%**	**5,9%**	**37,0%**		
11	N	2	0	3	1	6	3,034	,386
	% of the city	**16,7%**	**0,0%**	**16,7%**	**5,9%**	**11,1%**		
12	N	6	2	3	15	26	21,239	,000
	% of the city	**50,0%**	**28,6%**	**16,7%**	**88,2%**	**48,1%**		

Explanation: 1 - Lack of stops or lines nearby; 2 - Too low frequency of services; 3 - It is too expensive; 4 - I do not know how it works; 5 - Long travel time; 6 – Unpunctuality; 7 - Unfavorable weather conditions; 8 - Lack of comfort, crowding; 9 - Lack of feeling safe; 10 - I prefer other, more private and comfortable means of transport; 11 - My parents' recommendation; 12 – Other
Source: Own elaboration on the basis of the questionnaire survey

Crosstab Y.3. The structure of responses to the question: 'Do you travel by bicycle or scooter?' (% of "Yes" responses in the total number of all responses) compared with a city

Categories		City					Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
1	N	101	101	24	20	33	279
	% of the city	**62,3%**	**51,8%**	**25,8%**	**27,0%**	**86,8%**	**49,6%**
	*	3,8	,7	-5,0	-4,2	4,7	
2	N	61	94	69	54	5	283
	% of the city	**37,7%**	**48,2%**	**74,2%**	**73,0%**	**13,2%**	**50,4%**
	*	-3,8	-,7	5,0	4,2	-4,7	
Altogether	N	162	195	93	74	38	562
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – Yes, 2 – No

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	72,228	4	,000

a. 0.0% of cells (0) have an expected count less than 5. The minimum expected count is 18.86.

Crosstab Y.4. The structure of responses to the question: 'What are the main reasons why you DO NOT travel by bicycle or scooter' (multiple choice, 100% = respondents who do not travel by bicycle or scooter) compared with a city

Categories		City					Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos	Ghent			
1	N	3	12	13	10	0	38	8,998	,061
	% of the city	**4,9%**	**12,8%**	**18,8%**	**18,5%**	**0,0%**	**13,4%**		
2	N	15	20	10	20	3	68	11,713	,020
	% of the city	**24,6%**	**21,3%**	**14,5%**	**37,0%**	**60,0%**	**24,0%**		
3	N	4	1	0	4	0	9	10,657	,031
	% of the city	**6,6%**	**1,1%**	**0,0%**	**7,4%**	**0,0%**	**3,2%**		

4	N	18	34	39	20	1	112	12,225	,016
	% of the city	**29,5%**	**36,2%**	**56,5%**	**37,0%**	**20,0%**	**39,6%**		
5	N	15	40	17	15	2	89	8,559	,073
	% of the city	**24,6%**	**42,6%**	**24,6%**	**27,8%**	**40,0%**	**31,4%**		
6	N	1	4	2	3	0	10	1,933	,748
	% of the city	**1,6%**	**4,3%**	**2,9%**	**5,6%**	**0,0%**	**3,5%**		
7	N	5	17	15	11	1	49	5,525	,238
	% of the city	**8,2%**	**18,1%**	**21,7%**	**20,4%**	**20,0%**	**17,3%**		
8	N	39	58	42	34	1	174	3,821	,431
	% of the city	**63,9%**	**61,7%**	**60,9%**	**63,0%**	**20,0%**	**61,5%**		
9	N	2	3	2	9	0	16	12,067	,017
	% of the city	**3,3%**	**3,2%**	**2,9%**	**16,7%**	**0,0%**	**5,7%**		
10	N	11	13	4	3	1	32	7,895	,095
	% of the city	**18,0%**	**13,8%**	**5,8%**	**5,6%**	**20,0%**	**11,3%**		

Explanation: 1 - Lack of bike paths or bike parking; 2 - I do not have a bicycle/a scooter; 3 - I cannot ride a bicycle/a scooter; 4 - Long travel time; 5 - Unfavorable weather conditions; 6 - Health limitations; 7 - Lack of feeling safe; 8 - I prefer other, more comfortable means of transport; 9 - My parents' recommendation; 10 – Other

Source: Own elaboration on the basis of the questionnaire survey

Crosstab Y.5. The structure of responses to the question: 'Do you walk the entire route?' (% of "Yes" responses in the total number of all responses) compared with a city

Categories		City					Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
1	N	100	157	3	35	25	320
	% of the city	**61,7%**	**80,5%**	**3,2%**	**47,3%**	**65,8%**	**56,9%**
	*	1,5	8,2	-11,5	-1,8	1,1	
2	N	62	38	90	39	13	242
	% of the city	**38,3%**	**19,5%**	**96,8%**	**52,7%**	**34,2%**	**43,1%**
	*	-1,5	-8,2	11,5	1,8	-1,1	
Altogether	N	162	195	93	74	38	562
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – Yes, 2 – No

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	182,603	4	,000

a. 0.0% of cells (0) have an expected count less than 5. The minimum expected count is 16.36.

Crosstab Y.6. The structure of responses to the question: 'What are the main reasons why you DO NOT walk the entire route' (multiple choice, 100% = respondents who do not walk the entire route) compared with a city

Categories		City					Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos	Ghent			
1	N	6	2	14	4	0	26	6,416	,170
	% of the city	**9,7%**	**5,3%**	**15,6%**	**10,3%**	**0,0%**	**10,7%**		
2	N	38	32	78	29	10	187	14,365	,006
	% of the city	**61,3%**	**84,2%**	**86,7%**	**74,4%**	**76,9%**	**77,3%**		
3	N	17	7	14	9	0	47	9,183	,057
	% of the city	**27,4%**	**18,4%**	**15,6%**	**23,1%**	**0,0%**	**19,4%**		

4	N	4	2	2	2	0	10	3,015	,555
	% of the city	**6,5%**	**5,3%**	**2,2%**	**5,1%**	**0,0%**	**4,1%**		
5	N	7	3	3	7	0	20	10,308	,036
	% of the city	**11,3%**	**7,9%**	**3,3%**	**17,9%**	**0,0%**	**8,3%**		
6	N	32	18	34	20	0	104	18,857	,001
	% of the city	**51,6%**	**47,4%**	**37,8%**	**51,3%**	**0,0%**	**43,0%**		
7	N	2	1	4	5	0	12	5,974	,201
	% of the city	**3,2%**	**2,6%**	**4,4%**	**12,8%**	**0,0%**	**5,0%**		
8	N	9	3	3	3	3	21	8,930	,063
	% of the city	**14,5%**	**7,9%**	**3,3%**	**7,7%**	**23,1%**	**8,7%**		

Explanation: 1 - Lack of sidewalks; 2 - It is too far to walk; 3 - Unfavorable weather conditions; 4 - Health limitations; 5 - Lack of feeling safe; 6 - I prefer other, more comfortable means of transport; 7 - My parents' recommendation; 8 – Other

Source: Own elaboration on the basis of the questionnaire survey

Crosstab Y.7. The structure of responses to the question: 'How did you come to school this morning?' compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	60	37	5	4	1	29	136
	% of the city	**37,0%**	**19,0%**	**5,4%**	**5,4%**	**2,6%**	**35,8%**	**21,2%**
	*	5,7	-,9	-4,0	-3,5	-2,9	3,5	
2	N	3	11	1	1	24	0	40
	% of the city	**1,9%**	**5,6%**	**1,1%**	**1,4%**	**63,2%**	**0,0%**	**6,2%**
	*	-2,7	-,4	-2,2	-1,8	15,0	-2,5	
3	N	1	8	0	0	0	0	9
	% of the city	**,6%**	**4,1%**	**0,0%**	**0,0%**	**0,0%**	**0,0%**	**1,4%**
	*	-1,0	3,8	-1,2	-1,1	-,8	-1,1	
4	N	51	113	58	7	8	44	281
	% of the city	**31,5%**	**57,9%**	**62,4%**	**9,5%**	**21,1%**	**54,3%**	**43,7%**
	*	-3,6	4,8	3,9	-6,3	-2,9	2,1	
5	N	41	16	25	59	2	8	151
	% of the city	**25,3%**	**8,2%**	**26,9%**	**79,7%**	**5,3%**	**9,9%**	**23,5%**
	*	,6	-6,0	,8	12,1	-2,7	-3,1	
6	N	2	5	3	1	1	0	12
	% of the city	**1,2%**	**2,6%**	**3,2%**	**1,4%**	**2,6%**	**0,0%**	**1,9%**
	*	-,7	,9	1,0	-,3	,4	-1,3	
7	N	1	0	0	0	0	0	1
	% of the city	**,6%**	**0,0%**	**0,0%**	**0,0%**	**0,0%**	**0,0%**	**,2%**
	*	1,7	-,7	-,4	-,4	-,3	-,4	
8	N	3	5	1	2	2	0	13
	% of the city	**1,9%**	**2,6%**	**1,1%**	**2,7%**	**5,3%**	**0,0%**	**2,0%**
	*	-,2	,6	-,7	,4	1,5	-1,4	
Altogether	N	162	195	93	74	38	81	643

% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - On foot; 2 - By own bicycle; 3 - By a traditional or electric scooter; 4 - By public transport (e.g., bus, tram, subway); 5 - By car, but someone drives me; 6 - By car and I drive; 7 - By app-based car (e.g., Uber, Bolt, FreeNow) or by taxi; 8 – Other

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	346,198	35	,000

a. 54.2% of cells (26) have an expected count less than 5. The minimum expected count is 0.06.

Crosstab Y.8. The structure of responses to the question: 'Why did you travel to school this way?' (multiple choice, %) compared with a city

Categories		City					Total	X^2	*p*
		Toruń	Cologne	Matosinhos	Ghent	Brussels			
1	N	21	41	15	6	11	32	33,037	,000
	% of the city	**13,0%**	**21,0%**	**16,1%**	**8,1%**	**28,9%**	**40,0%**		
2	N	30	11	14	31	3	13	50,847	,000
	% of the city	**18,5%**	**5,6%**	**15,1%**	**41,9%**	**7,9%**	**16,3%**		
3	N	9	58	9	6	9	13	48,468	,000
	% of the city	**5,6%**	**29,7%**	**9,7%**	**8,1%**	**23,7%**	**16,3%**		
4	N	4	17	12	6	3	11	14,731	,012
	% of the city	**2,5%**	**8,7%**	**12,9%**	**8,1%**	**7,9%**	**13,8%**		
5	N	56	43	20	21	17	34	20,518	,001
	% of the city	**34,6%**	**22,1%**	**21,5%**	**28,4%**	**44,7%**	**42,5%**		
6	N	33	76	43	5	6	1	96,182	,000
	% of the city	**20,4%**	**39,0%**	**46,2%**	**6,8%**	**15,8%**	**1,3%**		
7	N	8	7	7	7	2	7	5,238	,388
	% of the city	**4,9%**	**3,6%**	**7,5%**	**9,5%**	**5,3%**	**8,5%**		
8	N	5	16	4	4	5	11	12,920	,024
	% of the city	**3,1%**	**8,2%**	**4,3%**	**5,4%**	**13,2%**	**13,8%**		
9	N	12	24	0	3	10	4	34,194	,000
	% of the city	**7,4%**	**12,3%**	**0,0%**	**4,1%**	**26,3%**	**5,0%**		
10	N	40	42	25	11	7	7	13,831	,017
	% of the city	**24,7%**	**21,5%**	**26,9%**	**14,9%**	**18,4%**	**8,8%**		
11	N	18	31	7	24	3	2	35,494	,000
	% of the city	**11,1%**	**15,9%**	**7,5%**	**32,4%**	**7,9%**	**2,5%**		
12	N	83	102	0	10	0	3	214,693	,000

	% of the city	**51,2%**	**52,3%**	**0,0%**	**13,5%**	**0,0%**	**3,8%**		
13	N	8	20	8	7	8	51	7,572	,109
	% of the city	**4,9%**	**10,3%**	**8,6%**	**18,4%**	**10,0%**	**9,0%**		

Explanation: 1 - I don't have to wait for anyone; I am independent; 2 - My parents travel this way; 3 - My friends travel this way; 4 - Everyone travels this way here; 5 - It is close to home; 6 - I have a stop nearby (bus, tram, or subway); 7 - I feel safe on the road; 8 - I don't pollute the air; 9 - For health and to stay in good condition; 10 - I have no other choice; 11 - Because of the weather; 12 - It is the fastest, the most convenient way; 13 – Other

Source: Own elaboration on the basis of the questionnaire survey

Crosstab Y.9.1. The structure of responses to the question: 'How do you generally come to school?' On foot compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	60	44	11	3	3	32	153
	% of the city	**37,0%**	**22,6%**	**11,8%**	**4,1%**	**7,9%**	**39,0%**	**23,8%**
	*	4,6	-,5	-2,9	-4,2	-2,4	3,5	
2	N	13	15	11	6	0	11	56
	% of the city	**8,0%**	**7,7%**	**11,8%**	**8,1%**	**0,0%**	**13,4%**	**8,7%**
	*	-,4	-,6	1,2	-,2	-2,0	1,6	
3	N	17	15	6	5	1	10	54
	% of the city	**10,5%**	**7,7%**	**6,5%**	**6,8%**	**2,6%**	**12,2%**	**8,4%**
	*	1,1	-,4	-,7	-,5	-1,3	1,3	
4	N	72	121	65	60	34	29	381
	% of the city	**44,4%**	**62,1%**	**69,9%**	**81,1%**	**89,5%**	**35,4%**	**59,2%**
	*	-4,4	1,0	2,3	4,1	3,9	-4,7	
Altogether	N	162	195	93	74	38	82	644
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 – Never
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	90,684	15	,000

a. 8.3% of cells (2) have an expected count less than 5. The minimum expected count is 3.19.

Crosstab Y.9.2. The structure of responses to the question: 'How do you generally come to school?' By own bicycle compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	2	9	1	1	26	0	39
	% of the city	**1,2%**	**4,6%**	**1,1%**	**1,4%**	**68,4%**	**0,0%**	**6,1%**

	*	-3,0	-1,0	-2,2	-1,8	16,6	-2,5	
	N	7	17	3	2	3	0	32
2	% of the city	**4,3%**	**8,7%**	**3,2%**	**2,7%**	**7,9%**	**0,0%**	**5,0%**
	*	-,4	2,9	-,8	-1,0	,9	-2,2	
	N	40	45	11	2	2	3	103
3	% of the city	**24,7%**	**23,1%**	**11,8%**	**2,7%**	**5,3%**	**3,7%**	**16,0%**
	*	3,5	3,2	-1,2	-3,3	-1,9	-3,3	
	N	113	124	78	69	7	79	470
4	% of the city	**69,8%**	**63,6%**	**83,9%**	**93,2%**	**18,4%**	**96,3%**	**73,0%**
	*	-1,1	-3,5	2,6	4,2	-7,8	5,1	
	N	162	195	93	74	38	82	644
Altogether	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 – Never
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	199,694	15	,000

a. 29.2% of cells (7) have an expected count less than 5. The minimum expected count is 1.89.

Crosstab Y.9.3. The structure of responses to the question: 'How do you generally come to school?' By city bike (by minute-rental bike) compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	0	1	0	0	0	0	1
	% of the city	**0,0%**	**,5%**	**0,0%**	**0,0%**	**0,0%**	**0,0%**	**,2%**
	*	-,6	1,5	-,4	-,4	-,3	-,4	
2	N	1	3	1	0	0	1	6
	% of the city	**,6%**	**1,5%**	**1,1%**	**0,0%**	**0,0%**	**1,2%**	**,9%**
	*	-,5	1,1	,2	-,9	-,6	,3	
3	N	3	8	2	0	0	5	18
	% of the city	**1,9%**	**4,1%**	**2,2%**	**0,0%**	**0,0%**	**6,1%**	**2,8%**
	*	-,8	1,3	-,4	-1,6	-1,1	1,9	
4	N	158	183	90	74	38	76	619
	% of the city	**97,5%**	**93,8%**	**96,8%**	**100,0%**	**100,0%**	**92,7%**	**96,1%**
	*	1,1	-2,0	,4	1,8	1,3	-1,7	
Altogether	N	162	195	93	74	38	82	644
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 – Never
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	16,241	15	,366

a. 70.8% of cells (17) have an expected count less than 5. The minimum expected count is 0.06.

Crosstab Y.9.4. The structure of responses to the question: 'How do you generally come to school?' By a traditional or electric scooter compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	0	8	2	0	0	0	10
	% of the city	**0,0%**	**4,1%**	**2,2%**	**0,0%**	**0,0%**	**0,0%**	**1,6%**

	*	-1,8	3,4	,5	-1,1	-,8	-1,2	
	N	3	7	1	1	0	2	14
2	% of the city	**1,9%**	**3,6%**	**1,1%**	**1,4%**	**0,0%**	**2,4%**	**2,2%**
	*	-,3	1,6	-,8	-,5	-,9	,2	
	N	11	34	7	1	1	5	59
3	% of the city	**6,8%**	**17,4%**	**7,5%**	**1,4%**	**2,6%**	**6,1%**	**9,2%**
	*	-1,2	4,8	-,6	-2,5	-1,4	-1,0	
	N	148	146	83	72	37	75	561
4	% of the city	**91,4%**	**74,9%**	**89,2%**	**97,3%**	**97,4%**	**91,5%**	**87,1%**
	*	1,9	-6,1	,7	2,8	1,9	1,3	
	N	162	195	93	74	38	82	644
Altogether	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 – Never
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	50,400	15	,000

a. 54.2% of cells (13) have an expected count less than 5. The minimum expected count is 0.59.

Crosstab Y.9.5. The structure of responses to the question: 'How do you generally come to school?' By public transport (e.g., bus, tram, subway) compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	53	109	61	8	11	42	284
	% of the city	**32,7%**	**55,9%**	**65,6%**	**10,8%**	**28,9%**	**51,2%**	**44,1%**
	*	-3,4	4,0	4,5	-6,1	-1,9	1,4	
2	N	24	24	22	9	2	12	93
	% of the city	**14,8%**	**12,3%**	**23,7%**	**12,2%**	**5,3%**	**14,6%**	**14,4%**
	*	,2	-1,0	2,7	-,6	-1,7	,1	
3	N	28	25	6	14	4	3	80
	% of the city	**17,3%**	**12,8%**	**6,5%**	**18,9%**	**10,5%**	**3,7%**	**12,4%**
	*	2,2	,2	-1,9	1,8	-,4	-2,6	
4	N	57	37	4	43	21	25	187
	% of the city	**35,2%**	**19,0%**	**4,3%**	**58,1%**	**55,3%**	**30,5%**	**29,0%**
	*	2,0	-3,7	-5,7	5,9	3,7	,3	
Altogether	N	162	195	93	74	38	82	644
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 – Never
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	137,328	15	,000

a. 4.2% of cells (1) have an expected count less than 5. The minimum expected count is 4.72.

Crosstab Y.9.6. The structure of responses to the question: 'How do you generally come to school?' By car, but someone drives me compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	25	9	18	56	0	5	113
	% of the city	**15,4%**	**4,6%**	**19,4%**	**75,7%**	**0,0%**	**6,1%**	**17,5%**

	*	-,8	-5,7	,5	14,0	-2,9	-2,9	
	N	34	23	21	8	2	13	101
2	% of the city	**21,0%**	**11,8%**	**22,6%**	**10,8%**	**5,3%**	**15,9%**	**15,7%**
	*	2,1	-1,8	2,0	-1,2	-1,8	,0	
	N	39	82	25	4	5	22	177
3	% of the city	**24,1%**	**42,1%**	**26,9%**	**5,4%**	**13,2%**	**26,8%**	**27,5%**
	*	-1,1	5,5	-,1	-4,5	-2,0	-,1	
	N	64	81	29	6	31	42	253
4	% of the city	**39,5%**	**41,5%**	**31,2%**	**8,1%**	**81,6%**	**51,2%**	**39,3%**
	*	,1	,8	-1,7	-5,8	5,5	2,4	
	N	162	195	93	74	38	82	644
Altogether	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 – Never
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	220,041	15	,000

a. 0.0% of cells (0) have an expected count less than 5. The minimum expected count is 5.96.

Crosstab Y.9.7. The structure of responses to the question: 'How do you generally come to school?' By car and I drive compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	3	3	3	1	0	10	3
	% of the city	**1,9%**	**1,5%**	**3,2%**	**1,4%**	**0,0%**	**1,8%**	**1,9%**
	*	,1	-,3	1,2	-,3	-,9		,1
2	N	0	4	1	0	0	5	0
	% of the city	**0,0%**	**2,1%**	**1,1%**	**0,0%**	**0,0%**	**,9%**	**0,0%**
	*	-1,4	2,1	,2	-,9	-,6		-1,4
3	N	1	8	0	0	1	10	1
	% of the city	**,6%**	**4,1%**	**0,0%**	**0,0%**	**2,6%**	**1,8%**	**,6%**
	*	-1,3	3,0	-1,4	-1,2	,4		-1,3
4	N	158	180	89	73	37	537	158
	% of the city	**97,5%**	**92,3%**	**95,7%**	**98,6%**	**97,4%**	**95,6%**	**97,5%**
	*	1,4	-2,7	,1	1,4	,6		1,4
Altogether	N	162	195	93	74	38	562	162
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 – Never
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	21,849	12	,039

a. 75.0% of cells (15) have an expected count less than 5. The minimum expected count is 0.34.

Crosstab Y.9.8. The structure of responses to the question: 'How do you generally come to school?' By app-based car (e.g., Uber, Bolt, FreeNow) or by taxi compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	1	0	0	1	0	0	2
	% of the city	**,6%**	**0,0%**	**0,0%**	**1,4%**	**0,0%**	**0,0%**	**,3%**

	*	,8	-,9	-,6	1,7	-,4	-,5	
	N	1	1	0	0	0	0	2
2	% of the city	**,6%**	**,5%**	**0,0%**	**0,0%**	**0,0%**	**0,0%**	**,3%**
	*	,8	,6	-,6	-,5	-,4	-,5	
	N	18	2	6	2	1	0	29
3	% of the city	**11,1%**	**1,0%**	**6,5%**	**2,7%**	**2,6%**	**0,0%**	**4,5%**
	*	4,7	-2,8	1,0	-,8	-,6	-2,1	
	N	142	192	87	71	37	82	611
4	% of the city	**87,7%**	**98,5%**	**93,5%**	**95,9%**	**97,4%**	**100,0%**	**94,9%**
	*	-4,8	2,7	-,6	,4	,7	2,3	
	N	162	195	93	74	38	82	644
Altogether	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 – Never
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	35,936	15	,002

a. 66.7% of cells (16) have an expected count less than 5. The minimum expected count is 0.12.

Crosstab Y.9.9. The structure of responses to the question: 'How do you generally come to school?' Other compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	3	4	1	2	0	0	10
	% of the city	**1,9%**	**2,1%**	**1,1%**	**2,7%**	**0,0%**	**0,0%**	**1,6%**
	*	,4	,7	-,4	,9	-,8	-1,2	
2	N	1	1	0	1	0	0	3
	% of the city	**,6%**	**,5%**	**0,0%**	**1,4%**	**0,0%**	**0,0%**	**,5%**
	*	,3	,1	-,7	1,2	-,4	-,7	
3	N	3	1	3	0	0	0	7
	% of the city	**1,9%**	**,5%**	**3,2%**	**0,0%**	**0,0%**	**0,0%**	**1,1%**
	*	1,1	-,9	2,2	-1,0	-,7	-1,0	
4	N	155	189	89	71	38	82	624
	% of the city	**95,7%**	**96,9%**	**95,7%**	**95,9%**	**100,0%**	**100,0%**	**96,9%**
	*	-1,0	,0	-,7	-,5	1,1	1,7	
Altogether	N	162	195	93	74	38	82	644
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 – Never
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	16,036	15	,380

a. 75.0% of cells (18) have an expected count less than 5. The minimum expected count is 0.18.

Crosstab Y.10. The structure of responses to the question: 'Why do you get to school every day in the chosen above way?' (multiple choice, %) compared with a city

Categories		City					Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos	Ghent			
1	N	75	89	50	28	22	264	6,217	,184
	% of the city	**46,3%**	**45,6%**	**53,8%**	**37,8%**	**57,9%**	**47,0%**		
2	N	69	94	47	31	14	255	3,630	,458
	% of the city	**42,6%**	**48,2%**	**50,5%**	**41,9%**	**36,8%**	**45,4%**		
3	N	29	33	18	6	15	101	15,780	,003
	% of the city	**17,9%**	**16,9%**	**19,4%**	**8,1%**	**39,5%**	**18,0%**		
4	N	21	41	22	10	13	107	12,421	,014
	% of the city	**13,0%**	**21,0%**	**23,7%**	**13,5%**	**34,2%**	**19,0%**		
5	N	1	5	0	0	4	10	16,150	,003
	% of the city	**,6%**	**2,6%**	**0,0%**	**0,0%**	**10,5%**	**1,8%**		
6	N	29	51	15	9	7	111	8,923	,063
	% of the city	**17,9%**	**26,2%**	**16,1%**	**12,2%**	**18,4%**	**19,8%**		
7	N	24	16	16	32	5	93	41,486	,000
	% of the city	**14,8%**	**8,2%**	**17,2%**	**43,2%**	**13,2%**	**16,5%**		
8	N	12	62	9	8	8	99	44,868	,000
	% of the city	**7,4%**	**31,8%**	**9,7%**	**10,8%**	**21,1%**	**17,6%**		
9	N	7	28	11	4	4	54	13,192	,010
	% of the city	**4,3%**	**14,4%**	**11,8%**	**5,4%**	**10,5%**	**9,6%**		
10	N	56	38	25	23	15	157	13,582	,009
	% of the city	**34,6%**	**19,5%**	**26,9%**	**31,1%**	**39,5%**	**27,9%**		
11	N	43	90	48	10	8	199	47,322	,000
	% of the city	**26,5%**	**46,2%**	**51,6%**	**13,5%**	**21,1%**	**35,4%**		
12	N	13	9	7	13	5	47	11,692	,020

	% of the city	**8,0%**	**4,6%**	**7,5%**	**17,6%**	**13,2%**	**8,4%**		
13	N	12	21	13	5	9	60	9,556	,049
	% of the city	**7,4%**	**10,8%**	**14,0%**	**6,8%**	**23,7%**	**10,7%**		
14	N	24	25	2	4	9	64	21,206	,000
	% of the city	**14,8%**	**12,8%**	**2,2%**	**5,4%**	**23,7%**	**11,4%**		
15	N	49	75	27	14	4	169	19,432	,001
	% of the city	**30,2%**	**38,5%**	**29,0%**	**18,9%**	**10,5%**	**30,1%**		
16	N	55	41	18	15	7	136	11,515	,021
	% of the city	**34,0%**	**21,0%**	**19,4%**	**20,3%**	**18,4%**	**24,2%**		
17	N	24	51	8	14	4	101	17,429	,002
	% of the city	**14,8%**	**26,2%**	**8,6%**	**18,9%**	**10,5%**	**18,0%**		
18	N	4	3	1	1	0	9	2,112	,715
	% of the city	**2,5%**	**1,5%**	**1,1%**	**1,4%**	**0,0%**	**1,6%**		
19	N	3	10	5	3	3	24	4,503	,342
	% of the city	**1,9%**	**5,1%**	**5,4%**	**4,1%**	**7,9%**	**4,3%**		

Explanation: 1 - It is the fastest way; 2 - It is the most comfortable way; 3 - It is the cheapest way; 4 - I travel when I want; 5 - It is trendy; 6 - I don't have to wait for anyone, I am independent; 7 - My parents travel this way; 8 - My friends travel this way; 9 - Everyone travels this way here; 10 - It is close to home; 11 - I have a stop nearby (bus, tram, or subway); 12 - I feel safe on the road; 13 - I don't pollute the air; 14 - For health and to stay in good condition; 15 - I can do smth (e.g., studying, listening to music, talking to others) during the journey; 16 - I have no other choice; 17 - It depends on the weather; 18 - Not applicable, I don't travel; 19 – Other

Source: Own elaboration on the basis of the questionnaire survey

Crosstab Y.11. The structure of responses to the question: 'What do you do most often after school?' compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	24	30	8	4	2	14	82
	% of the city	**14,8%**	**15,4%**	**8,6%**	**5,4%**	**5,3%**	**17,3%**	**12,8%**
	*	,9	1,3	-1,3	-2,0	-1,4	1,3	
2	N	2	7	0	4	0	5	18
	% of the city	**1,2%**	**3,6%**	**0,0%**	**5,4%**	**0,0%**	**6,2%**	**2,8%**
	*	-1,4	,8	-1,8	1,4	-1,1	2,0	
3	N	35	70	43	16	15	20	199
	% of the city	**21,6%**	**35,9%**	**46,2%**	**21,6%**	**39,5%**	**24,7%**	**30,9%**
	*	-3,0	1,8	3,4	-1,8	1,2	-1,3	
4	N	22	1	14	10	2	1	50
	% of the city	**13,6%**	**,5%**	**15,1%**	**13,5%**	**5,3%**	**1,2%**	**7,8%**
	*	3,2	-4,5	2,8	2,0	-,6	-2,4	
5	N	72	73	24	27	18	39	253
	% of the city	**44,4%**	**37,4%**	**25,8%**	**36,5%**	**47,4%**	**48,1%**	**39,3%**
	*	1,5	-,7	-2,9	-,5	1,0	1,7	
6	N	7	14	4	13	1	2	41
	% of the city	**4,3%**	**7,2%**	**4,3%**	**17,6%**	**2,6%**	**2,5%**	**6,4%**
	*	-1,2	,5	-,9	4,2	-1,0	-1,5	
Altogether	N	162	195	93	74	38	81	643
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - I visit friends or spend time with them; 2 - I visit relatives/family or spend time with them; 3 - I go to hobbies (such as sports, a library, a cinema); 4 - I participate in extracurricular activities; 5 - I spend time at home; 6 – Other

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.

Likelihood ratio test	107,846	25	,000

a. 25.0% of cells (9) have an expected count less than 5. The minimum expected count is 1.06.

Crosstab Y.12. The structure of responses to the question: 'How do you move to the place you visit most often after school?' compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
	N	54	38	8	9	1	28	138
1	% of the city	**33,3%**	**19,5%**	**8,6%**	**12,2%**	**2,6%**	**34,6%**	**21,5%**
	*	4,3	-,8	-3,3	-2,1	-2,9	3,1	
	N	4	27	4	3	25	0	63
2	% of the city	**2,5%**	**13,8%**	**4,3%**	**4,1%**	**65,8%**	**0,0%**	**9,8%**
	*	-3,6	2,3	-1,9	-1,8	12,0	-3,2	
	N	0	1	0	0	0	1	2
3	% of the city	**0,0%**	**,5%**	**0,0%**	**0,0%**	**0,0%**	**1,2%**	**,3%**
	*	-,8	,6	-,6	-,5	-,4	1,6	
	N	2	8	3	0	0	1	14
4	% of the city	**1,2%**	**4,1%**	**3,2%**	**0,0%**	**0,0%**	**1,2%**	**2,2%**
	*	-1,0	2,2	,7	-1,4	-,9	-,6	
	N	70	84	62	18	10	43	287
5	% of the city	**43,2%**	**43,1%**	**66,7%**	**24,3%**	**26,3%**	**53,1%**	**44,6%**
	*	-,4	-,5	4,6	-3,7	-2,3	1,6	
	N	24	15	13	39	1	7	99
6	% of the city	**14,8%**	**7,7%**	**14,0%**	**52,7%**	**2,6%**	**8,6%**	**15,4%**
	*	-,2	-3,6	-,4	9,5	-2,2	-1,8	
	N	0	2	1	1	0	0	4
7	% of the city	**0,0%**	**1,0%**	**1,1%**	**1,4%**	**0,0%**	**0,0%**	**,6%**
	*	-1,2	,9	,6	,8	-,5	-,8	
	N	0	1	0	0	0	0	1
8	% of the city	**0,0%**	**,5%**	**0,0%**	**0,0%**	**0,0%**	**0,0%**	**,2%**
	*	-,6	1,5	-,4	-,4	-,3	-,4	
9	N	4	9	1	1	1	1	17

	% of the city	**2,5%**	**4,6%**	**1,1%**	**1,4%**	**2,6%**	**1,2%**	**2,6%**
	*	-,2	2,1	-1,0	-,7	,0	-,8	
Altogether	N	4	10	1	3	0	0	18
	% of the city	**2,5%**	**5,1%**	**1,1%**	**4,1%**	**0,0%**	**0,0%**	**2,8%**

Explanation: 1 - On foot; 2 - By own bicycle; 3 - By minute-rental bike (city bike); 4 - By a traditional or electric scooter; 5 - By public transport (e.g., bus, tram, subway); 6 - By car, but someone drives me; 7 - By app-based car (e.g., Uber, Bolt, FreeNow) or by taxi; 8 - Not applicable, I don't travel; 9 - Other

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	245,858	45	,000

a. 58.3% of cells (35) have an expected count less than 5. The minimum expected count is 0.06.

Crosstab Y.13. The structure of responses to the question: 'Why do you move this way to the place you visit most often after school?' (multiple choice, %) compared with a city

Categories		City						Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels			
1	N	64	94	47	27	20		252	7,033	,134
	% of the city	**39,5%**	**48,2%**	**50,5%**	**36,5%**	**52,6%**		**44,8%**		
2	N	58	71	29	23	7		188	5,834	,212
	% of the city	**35,8%**	**36,4%**	**31,2%**	**31,1%**	**18,4%**		**33,5%**		
3	N	34	22	12	8	9		85	9,828	,043
	% of the city	**21,0%**	**11,3%**	**12,9%**	**10,8%**	**23,7%**		**15,1%**		
4	N	29	46	9	9	10		103	12,363	,015
	% of the city	**17,9%**	**23,6%**	**9,7%**	**12,2%**	**26,3%**		**18,3%**		
5	N	4	5	1	1	3		14	4,380	,357
	% of the city	**2,5%**	**2,6%**	**1,1%**	**1,4%**	**7,9%**		**2,5%**		
6	N	26	41	19	12	3	14	115	5,315	,379
	% of the city	**16,0%**	**21,0%**	**20,4%**	**16,2%**	**7,9%**	**17,5%**	**17,9%**		
7	N	15	5	5	20	7	4	56	40,313	,000
	% of the city	**9,3%**	**2,6%**	**5,4%**	**27,0%**	**18,4%**	**5,0%**	**8,7%**		
8	N	18	35	9	9	6	10	87	5,498	,358
	% of the city	**11,1%**	**17,9%**	**9,7%**	**12,2%**	**15,8%**	**12,5%**	**13,6%**		
9	N	6	15	7	5	2	2	37	5,259	,385
	% of the city	**3,7%**	**7,7%**	**7,5%**	**6,8%**	**5,3%**	**2,5%**	**5,8%**		
10	N	34	47	15	17	11	26	150	7,627	,178
	% of the city	**21,0%**	**24,1%**	**16,1%**	**23,0%**	**28,9%**	**32,5%**	**23,4%**		
11	N	37	63	31	13	6	24	174	12,679	,027
	% of the city	**22,8%**	**32,3%**	**33,3%**	**17,6%**	**15,8%**	**30,0%**	**27,1%**		
12	N	13	13	7	5	5	4	47	2,561	,767

	% of the city	**8,0%**	**6,7%**	**7,5%**	**6,8%**	**13,2%**	**5,0%**	**7,3%**		
13	N	14	20	7	4	4	2	51	6,827	,234
	% of the city	**8,6%**	**10,3%**	**7,5%**	**5,4%**	**10,5%**	**2,5%**	**7,9%**		
14	N	23	20	3	2	3	1	52	23,090	,000
	% of the city	**14,2%**	**10,3%**	**3,2%**	**2,7%**	**7,9%**	**1,3%**	**8,1%**		
15	N	28	38	22	6	3		97	11,115	,025
	% of the city	**17,3%**	**19,5%**	**23,7%**	**8,1%**	**7,9%**		**17,3%**		
16	N	39	36	21	14	7	20	137	2,861	,721
	% of the city	**24,1%**	**18,5%**	**22,6%**	**18,9%**	**18,4%**	**25,0%**	**21,3%**		
17	N	29	30	3	11	2	6	81	19,991	,001
	% of the city	**17,9%**	**15,4%**	**3,2%**	**14,9%**	**5,3%**	**7,5%**	**12,6%**		
18	N	4	12	1	1	2	10	30	17,105	,004
	% of the city	**2,5%**	**6,2%**	**1,1%**	**1,4%**	**5,3%**	**12,5%**	**4,7%**		
19	N	6	5	2	2	2	1	18	2,205	,820
	% of the city	**3,7%**	**2,6%**	**2,2%**	**2,7%**	**5,3%**	**1,3%**	**2,8%**		

Explanation: 1 - It is the fastest way; 2 - It is the most comfortable way; 3 - It is the cheapest way; 4 - I travel when I want; 5 - It is trendy; 6 - I don't have to wait for anyone, I am independent; 7 - My parents travel this way; 8 - My friends travel this way; 9 - Everyone travels this way here; 10 - It is close to home; 11 - I have a stop nearby (bus, tram, or subway); 12 - I feel safe on the road; 13 - I don't pollute the air; 14 - For health and to stay in good condition; 15 - I can do smth (e.g., studying, listening to music, talking to others) during the journey; 16 - I have no other choice; 17 - It depends on the weather; 18 - Not applicable, I don't travel; 19 – Other

Source: Own elaboration on the basis of the questionnaire survey

Crosstab Y.14. The structure of responses to the question: 'If you could choose, how you would like to move around the city?' compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	45	30	4	5	4	17	105
	% of the city	**27,8%**	**15,4%**	**4,3%**	**6,8%**	**10,5%**	**21,3%**	**16,4%**
	*	4,5	-,4	-3,4	-2,4	-1,0	1,3	
2	N	25	23	6	13	26	11	104
	% of the city	**15,4%**	**11,8%**	**6,5%**	**17,6%**	**68,4%**	**13,8%**	**16,2%**
	*	-,3	-2,0	-2,8	,3	9,0	-,6	
3	N	2	4	1	0	0	4	11
	% of the city	**1,2%**	**2,1%**	**1,1%**	**0,0%**	**0,0%**	**5,0%**	**1,7%**
	*	-,5	,4	-,5	-1,2	-,8	2,4	
4	N	9	14	4	6	4	13	50
	% of the city	**5,6%**	**7,2%**	**4,3%**	**8,1%**	**10,5%**	**16,3%**	**7,8%**
	*	-1,2	-,4	-1,4	,1	,6	3,0	
5	N	25	62	33	12	4	13	149
	% of the city	**15,4%**	**31,8%**	**35,5%**	**16,2%**	**10,5%**	**16,3%**	**23,2%**
	*	-2,7	3,4	3,0	-1,5	-1,9	-1,6	
6	N	16	22	15	24	0	18	95
	% of the city	**9,9%**	**11,3%**	**16,1%**	**32,4%**	**0,0%**	**22,5%**	**14,8%**
	*	-2,0	-1,7	,4	4,5	-2,6	2,1	
7	N	29	31	26	13	0	0	99
	% of the city	**17,9%**	**15,9%**	**28,0%**	**17,6%**	**0,0%**	**0,0%**	**15,4%**
	*	1,0	,2	3,6	,5	-2,7	-4,1	
8	N	3	2	3	0	0	3	11
	% of the city	**1,9%**	**1,0%**	**3,2%**	**0,0%**	**0,0%**	**3,8%**	**1,7%**
	*	,2	-,9	1,2	-1,2	-,8	1,5	

	N	8	7	1	1	0	1	18
9	% of the city	**4,9%**	**3,6%**	**1,1%**	**1,4%**	**0,0%**	**1,3%**	**2,8%**
	*	1,9	,8	-1,1	-,8	-1,1	-,9	
	N	162	195	93	74	38	80	642
Altogether	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - On foot; 2 - By own bicycle; 3 - By minute-rental bike (city bike); 4 - By a traditional or electric scooter; 5 - By public transport (e.g., bus, tram, subway); 6 - By car, but someone drives me; 7 - By app-based car (e.g., Uber, Bolt, FreeNow) or by taxi; 8 - Not applicable, I don't travel; 9 – Other

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	204,091	40	,000

a. 33.3% of cells (18) have an expected count less than 5. The minimum expected count is 0.65.

Crosstab Y.15. The structure of responses to the question: 'With whom do you most like to explore (multiple choice): The neighbourhood of your place of residence' compared with a city

Categories		City					Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos	Brussels			
1	N	65	67	26	13	25	196	13,880	,008
	% of the city	**40,1%**	**34,4%**	**28,0%**	**17,6%**	**30,5%**	**32,3%**		
2	N	114	137	65	54	59	429	,304	,990
	% of the city	**70,4%**	**70,3%**	**69,9%**	**73,0%**	**72,0%**	**70,8%**		
3	N	33	56	25	15	25	154	5,634	,228
	% of the city	**20,4%**	**28,7%**	**26,9%**	**20,3%**	**30,5%**	**25,4%**		
4	N	46	46	27	26	19	164	4,515	,341
	% of the city	**28,4%**	**23,6%**	**29,0%**	**35,1%**	**23,2%**	**27,1%**		
5	N	4	8	3	8	8	31	10,799	,029
	% of the city	**2,5%**	**4,1%**	**3,2%**	**10,8%**	**9,8%**	**5,1%**		
6	N	8	6	1	0	4	19	8,634	,071
	% of the city	**4,9%**	**3,1%**	**1,1%**	**0,0%**	**4,9%**	**3,1%**		

Explanation: 1 – Alone; 2 - With peers; 3 - With siblings; 4 - With adults (parents, grandparents); 5 - I don't like exploring this neighbourhood; 6 - In another way
Source: Own elaboration on the basis of the questionnaire survey

Crosstab Y.16. The structure of responses to the question: 'With whom do you most like to explore (multiple choice): The neighbourhood of your school' compared with a city

Categories		City					Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos	Brussels			
1	N	43	26	15	10	10	104	13,287	,010
	% of the city	**26,5%**	**13,3%**	**16,1%**	**13,5%**	**12,3%**	**17,2%**		
2	N	134	161	75	65	69	504	1,969	,741
	% of the city	**82,7%**	**82,6%**	**80,6%**	**87,8%**	**85,2%**	**83,3%**		
3	N	10	12	6	6	14	48	9,403	,052
	% of the city	**6,2%**	**6,2%**	**6,5%**	**8,1%**	**17,3%**	**7,9%**		

4	N	8	6	6	9	8	37	9,653	,047
	% of the city	**4,9%**	**3,1%**	**6,5%**	**12,2%**	**9,9%**	**6,1%**		
5	N	13	20	11	5	7	56	1,848	,764
	% of the city	**8,0%**	**10,3%**	**11,8%**	**6,8%**	**8,6%**	**9,3%**		
6	N	2	3	1	0	0	6	3,695	,449
	% of the city	**1,2%**	**1,5%**	**1,1%**	**0,0%**	**0,0%**	**1,0%**		

Explanation: 1 – Alone; 2 - With peers; 3 - With siblings; 4 - With adults (parents, grandparents); 5 - I don't like exploring this neighbourhood; 6 - In another way
Source: Own elaboration on the basis of the questionnaire survey

Crosstab Y.17. The structure of responses to the question: 'With whom do you most like to explore (multiple choice): The entire city' compared with a city

Categories		City				Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos			
1	N	45	42	19	7	113	11,242	,010
	% of the city	**27,8%**	**21,5%**	**20,4%**	**9,5%**	**21,6%**		
2	N	126	165	80	50	421	11,828	,008
	% of the city	**77,8%**	**84,6%**	**86,0%**	**67,6%**	**80,3%**		
3	N	34	68	19	19	140	11,148	,011
	% of the city	**21,0%**	**34,9%**	**20,4%**	**25,7%**	**26,7%**		
4	N	57	83	29	37	206	8,144	,043
	% of the city	**35,2%**	**42,6%**	**31,2%**	**50,0%**	**39,3%**		
5	N	2	4	2	3	11	1,779	,620
	% of the city	**1,2%**	**2,1%**	**2,2%**	**4,1%**	**2,1%**		
6	N	6	4	2	0	12	4,711	,194
	% of the city	**3,7%**	**2,1%**	**2,2%**	**0,0%**	**2,3%**		

Explanation: 1 – Alone; 2 - With peers; 3 - With siblings; 4 - With adults (parents, grandparents); 5 - I don't like exploring this neighbourhood; 6 - In another way

Source: Own elaboration on the basis of the questionnaire survey

Crosstab Y.18. The structure of responses to the question: 'How important is it for you that daily needs (school, shops, places to spend free time) are available within walking or cycling distance from your home?' compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	16	10	5	1	0	3	35
	% of the city	**9,9%**	**5,1%**	**5,4%**	**1,4%**	**0,0%**	**3,7%**	**5,4%**
	*	2,9	-,2	,0	-1,6	-1,5	-,8	
2	N	20	19	19	8	0	42	108
	% of the city	**12,3%**	**9,7%**	**20,4%**	**10,8%**	**0,0%**	**51,2%**	**16,8%**
	*	-1,7	-3,1	1,0	-1,5	-2,9	8,9	
3	N	32	55	18	17	10	37	169
	% of the city	**19,8%**	**28,2%**	**19,4%**	**23,0%**	**26,3%**	**45,1%**	**26,2%**
	*	-2,2	,7	-1,6	-,7	,0	4,2	
4	N	61	70	35	28	22	0	216
	% of the city	**37,7%**	**35,9%**	**37,6%**	**37,8%**	**57,9%**	**0,0%**	**33,5%**
	*	1,3	,8	,9	,8	3,3	-6,9	
5	N	33	41	16	20	6	0	116
	% of the city	**20,4%**	**21,0%**	**17,2%**	**27,0%**	**15,8%**	**0,0%**	**18,0%**
	*	,9	1,3	-,2	2,1	-,4	-4,5	
Altogether	N	162	195	93	74	38	82	644
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - Not important at all; 2 - Rather unimportant; 3 - Neither important nor unimportant; 4 - Rather important; 5 - Very important

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	184,941	20	,000

a. 10.0% of cells (3) have an expected count less than 5. The minimum expected count is 2.07.

Crosstab Y.19. The structure of responses to the question: 'What version of the city would you like to live in when you are a grown up? (choose up to 3 options)' compared with a city

Categories		City						Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels			
1	N	45	101	37	41	8	40	272	37,017	,000
	% of the city	**27,8%**	**51,8%**	**39,8%**	**55,4%**	**21,1%**	**50,6%**	**42,4%**		
2	N	86	84	50	24	14	23	281	21,347	,001
	% of the city	**53,1%**	**43,1%**	**53,8%**	**32,4%**	**36,8%**	**29,1%**	**43,8%**		
3	N	12	17	9	5	4	13	60	5,503	,358
	% of the city	**7,4%**	**8,7%**	**9,7%**	**6,8%**	**10,5%**	**16,5%**	**9,4%**		
4	N	66	51	24	24	22	20	207	22,761	,000
	% of the city	**40,7%**	**26,2%**	**25,8%**	**32,4%**	**57,9%**	**25,3%**	**32,3%**		
5	N	118	103	60	39	22	40	382	21,093	,001
	% of the city	**72,8%**	**52,8%**	**64,5%**	**52,7%**	**57,9%**	**50,6%**	**59,6%**		
6	N	39	75	16	15	10	29	184	22,198	,000
	% of the city	**24,1%**	**38,5%**	**17,2%**	**20,3%**	**26,3%**	**36,7%**	**28,7%**		

Explanation: 1 - Cool Future Cars – Cars run on electricity and might even drive themselves; 2 - Fast Bus & Train – Buses and trains come often, are quick, and take you everywhere; 3 - Sharing Instead of Owning – Cars, bikes, or scooters are shared with others; 4 - Fun on Bikes & Scooters – Lots of people ride bikes, scooters, or skateboards; 5 - Everything Close & Lots of Nature – You can walk to most places, with lots of trees and parks around; 6 - Flying in the City – Flying taxis and delivery drones move people and stuff quickly through the air

Source: Own elaboration on the basis of the questionnaire survey

Crosstab Y.20.1. The structure of responses to the question: 'Do you feel "at home": A. in the neighbourhood where you live?' compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	14	8	5	2	2	4	35
	% of the city	**8,6%**	**4,1%**	**5,4%**	**2,7%**	**5,3%**	**5,0%**	**5,5%**
	*	2,1	-1,0	,0	-1,1	-,1	-,2	
2	N	56	32	12	8	8	18	134
	% of the city	**34,6%**	**16,4%**	**12,9%**	**10,8%**	**21,1%**	**22,5%**	**20,9%**
	*	5,0	-1,8	-2,0	-2,3	,0	,4	
3	N	92	155	76	64	28	58	473
	% of the city	**56,8%**	**79,5%**	**81,7%**	**86,5%**	**73,7%**	**72,5%**	**73,7%**
	*	-5,6	2,2	1,9	2,7	,0	-,3	
Altogether	N	162	195	93	74	38	80	642
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – Weakly; 2 - Neither weakly nor strongly; 3 – Strongly

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	36,503	10	,000

a. 16.7% of cells (3) have an expected count less than 5. The minimum expected count is 2.07.

Crosstab Y.20.2. The structure of responses to the question: 'Do you feel "at home": B. in the neighbourhood of your school?' compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	74	92	18	12	5	13	214
	% of the city	**45,7%**	**47,2%**	**19,4%**	**16,2%**	**13,2%**	**16,3%**	**33,3%**
	*	3,9	4,9	-3,1	-3,3	-2,7	-3,5	
2	N	60	68	42	23	22	32	247

	% of the city	**37,0%**	**34,9%**	**45,2%**	**31,1%**	**57,9%**	**40,0%**	**38,5%**
	*	-,4	-1,2	1,4	-1,4	2,5	,3	
	N	28	35	33	39	11	35	180
3	% of the city	**17,3%**	**17,9%**	**35,5%**	**52,7%**	**28,9%**	**43,8%**	**28,0%**
	*	-3,5	-3,8	1,7	5,0	,1	3,1	
	N	162	195	93	74	38	80	642
Altogether	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – Weakly; 2 - Neither weakly nor strongly; 3 – Strongly

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	91,515	15	,000

a. 25.0% of cells (6) have an expected count less than 5. The minimum expected count is 0.06.

Crosstab Y.20.3. The structure of responses to the question: 'Do you feel "at home": C. generally in the entire city, do you feel it is your city?' compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	20	21	16	4	2	11	74
	% of the city	**12,3%**	**10,8%**	**17,2%**	**5,4%**	**5,3%**	**13,6%**	**11,5%**
	*	,4	-,4	1,9	-1,7	-1,2	,6	
2	N	52	70	36	29	7	20	213
	% of the city	**32,1%**	**35,9%**	**38,7%**	**39,2%**	**18,4%**	**24,7%**	**33,1%**
	*	-,3	1,0	1,2	1,2	-2,0	-2,0	
3	N	90	104	41	41	29	50	355
	% of the city	**55,6%**	**53,3%**	**44,1%**	**55,4%**	**76,3%**	**61,7%**	**55,2%**
	*	,1	-,6	-2,3	,0	2,7	1,3	
Altogether	N	162	195	93	74	38	81	643
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – Weakly; 2 - Neither weakly nor strongly; 3 – Strongly

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	24,809	15	,053

a. 29.2% of cells (7) have an expected count less than 5. The minimum expected count is 0.06.

Crosstab Y.21.1. The structure of responses to the question: 'Do you feel safe: A. in the neighbourhood where you live?' compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	10	9	1	1	3	3	27
	% of the city	**6,2%**	**4,6%**	**1,1%**	**1,4%**	**7,9%**	**3,7%**	**4,2%**
	*	1,5	,4	-1,6	-1,3	1,2	-,3	
2	N	51	56	15	14	10	25	171

	% of the city	**31,5%**	**28,7%**	**16,1%**	**18,9%**	**26,3%**	**30,5%**	**26,6%**
	*	1,6	,8	-2,5	-1,6	,0	,9	
	N	101	130	77	59	25	54	446
3	% of the city	**62,3%**	**66,7%**	**82,8%**	**79,7%**	**65,8%**	**65,9%**	**69,3%**
	*	-2,2	-,9	3,1	2,1	-,5	-,7	
	N	162	195	93	74	38	82	644
Altogether	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – No; 2 - Sometimes yes, sometimes no; 3 - Yes

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	20,877	10	,022

a. 22.2% of cells (4) have an expected count less than 5. The minimum expected count is 1.59.

Crosstab Y.21.2. The structure of responses to the question: 'Do you feel safe: B. in the neighbourhood of your school?' compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	31	30	4	6	3	6	80
	% of the city	**19,1%**	**15,4%**	**4,3%**	**8,1%**	**7,9%**	**7,3%**	**12,4%**
	*	3,0	1,5	-2,6	-1,2	-,9	-1,5	
2	N	72	78	24	23	16	33	246
	% of the city	**44,4%**	**40,0%**	**25,8%**	**31,1%**	**42,1%**	**40,2%**	**38,2%**
	*	1,9	,6	-2,7	-1,3	,5	,4	
3	N	59	87	65	45	19	43	318
	% of the city	**36,4%**	**44,6%**	**69,9%**	**60,8%**	**50,0%**	**52,4%**	**49,4%**
	*	-3,8	-1,6	4,3	2,1	,1	,6	
Altogether	N	162	195	93	74	38	82	644
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – No; 2 - Sometimes yes, sometimes no; 3 - Yes

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	40,170	10	,000

a. 5.6% of cells (1) have an expected count less than 5. The minimum expected count is 4.72.

Crosstab Y.21.3. The structure of responses to the question: 'Do you feel safe: C. generally in your city?' compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	10	24	13	4	1	11	63
	% of the city	**6,2%**	**12,3%**	**14,0%**	**5,4%**	**2,6%**	**13,8%**	**9,8%**
	*	-1,8	1,4	1,5	-1,4	-1,5	1,3	
2	N	78	121	55	31	15	39	339

	% of the city	**48,1%**	**62,1%**	**59,1%**	**41,9%**	**39,5%**	**48,8%**	**52,8%**
	*	-1,4	3,1	1,3	-2,0	-1,7	-,8	
	N	74	50	25	39	22	30	240
3	% of the city	**45,7%**	**25,6%**	**26,9%**	**52,7%**	**57,9%**	**37,5%**	**37,4%**
	*	2,5	-4,1	-2,3	2,9	2,7	,0	
	N	162	195	93	74	38	80	642
Altogether	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – No; 2 - Sometimes yes, sometimes no; 3 - Yes

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	40,320	10	,000

a. 5.6% of cells (1) have an expected count less than 5. The minimum expected count is 3.73.

Crosstab Y.22. Age compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
13	N	19	0	0	0	0	0	19
	% of the city	**12,4%**	**0,0%**	**0,0%**	**0,0%**	**0,0%**	**0,0%**	**3,0%**
	*	7,9	-2,9	-1,8	-1,6	-1,1	-1,7	
14	N	52	79	28	48	9	49	265
	% of the city	**34,0%**	**40,5%**	**30,1%**	**64,9%**	**23,7%**	**59,8%**	**41,7%**
	*	-2,2	-,4	-2,5	4,3	-2,3	3,5	
15	N	44	39	31	19	11	26	170
	% of the city	**28,8%**	**20,0%**	**33,3%**	**25,7%**	**28,9%**	**31,7%**	**26,8%**
	*	,6	-2,6	1,5	-,2	,3	1,1	
16	N	24	26	7	3	8	7	75
	% of the city	**15,7%**	**13,3%**	**7,5%**	**4,1%**	**21,1%**	**8,5%**	**11,8%**
	*	1,7	,8	-1,4	-2,2	1,8	-1,0	
17	N	12	31	16	2	7	0	68
	% of the city	**7,8%**	**15,9%**	**17,2%**	**2,7%**	**18,4%**	**0,0%**	**10,7%**
	*	-1,3	2,8	2,2	-2,4	1,6	-3,4	
18	N	2	20	11	2	3	0	38
	% of the city	**1,3%**	**10,3%**	**11,8%**	**2,7%**	**7,9%**	**0,0%**	**6,0%**
	*	-2,8	3,0	2,6	-1,3	,5	-2,4	
Altogether	N	153	195	93	74	38	82	635
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	158,280	25	,000

a. 27.8% of cells (10) have an expected count less than 5. The minimum expected count is 1.14.

Crosstab Y.23. The structure of responses to the question: 'What is your gender?' compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	87	101	40	39	19	46	332
	% of the city	**53,7%**	**51,8%**	**43,0%**	**52,7%**	**50,0%**	**56,1%**	**51,6%**
	*	,6	,1	-1,8	,2	-,2	,9	
2	N	61	78	46	35	19	35	274
	% of the city	**37,7%**	**40,0%**	**49,5%**	**47,3%**	**50,0%**	**42,7%**	**42,5%**
	*	-1,5	-,9	1,5	,9	1,0	,0	
3	N	14	16	7	0	0	1	38
	% of the city	**8,6%**	**8,2%**	**7,5%**	**0,0%**	**0,0%**	**1,2%**	**5,9%**
	*	1,7	1,6	,7	-2,3	-1,6	-1,9	
Altogether	N	162	195	93	74	38	82	644
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – Girl; 2 – Boy; 3 - Other / Prefer not to say

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	26,480	10	,003

a. 16.7% of cells (3) have an expected count less than 5. The minimum expected count is 2.24.

Crosstab Y.24. Place of residence compared with a city

Categories		City						Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	Brussels	
1	N	58	29	35	23	10	30	185
	% of the city	**35,8%**	**14,9%**	**37,6%**	**31,1%**	**26,3%**	**37,5%**	**28,8%**
	*	2,3	-5,2	2,0	,5	-,4	1,8	
2	N	71	156	27	43	19	42	358
	% of the city	**43,8%**	**80,0%**	**29,0%**	**58,1%**	**50,0%**	**52,5%**	**55,8%**
	*	-3,5	8,2	-5,6	,4	-,7	-,6	
3	N	33	10	31	8	9	8	99
	% of the city	**20,4%**	**5,1%**	**33,3%**	**10,8%**	**23,7%**	**10,0%**	**15,4%**
	*	2,0	-4,8	5,2	-1,2	1,5	-1,4	
Altogether	N	162	195	93	74	38	80	642
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - In the same neighbourhood as the school; 2 - In the different neighbourhood as the school; 3 - Outside the city

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	99,720	10	,000

a. 0.0% of cells (0) have an expected count less than 5. The minimum expected count is 5.86.

Parents and carers

Crosstab P.1. The structure of responses to the question: 'Do you use public transport (e.g., bus, tram, subway)?' (% of "Yes" responses in the total number of all responses) compared with a city

Categories		City					Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
1	N	74	37	46	17	4	178
	% of the city	**73,3%**	**82,2%**	**82,1%**	**21,8%**	**50,0%**	**61,8%**
	*	2,9	3,1	3,5	-8,5	-,7	
2	N	27	8	10	61	4	110
	% of the city	**26,7%**	**17,8%**	**17,9%**	**78,2%**	**50,0%**	**38,2%**
	*	-2,9	-3,1	-3,5	8,5	,7	
Altogether	N	101	45	56	78	8	288
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – Yes, 2 – No
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	78,213	4	,000

a. 20.0% of cells (2) have an expected count less than 5. The minimum expected count is 3.06.

Crosstab P.2. The structure of responses to the question: 'What are the main reasons why you DO NOT use public transport?' (multiple choice, 100% = respondents who do not use the public transport) compared with a city

Categories		City					Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos	Ghent			
1	N	2	0	1	17	0	20	11,362	,023
	% of the city	**7,4%**	**0,0%**	**10,0%**	**27,9%**	**0,0%**	**18,2%**		
2	N	8	1	0	18	1	28	7,448	,114
	% of the city	**29,6%**	**12,5%**	**0,0%**	**29,5%**	**25,0%**	**25,5%**		
3	N	3	4	0	3	0	10	13,169	,010
	% of the city	**11,1%**	**50,0%**	**0,0%**	**4,9%**	**0,0%**	**9,1%**		

4	N	0	1	0	2	0	3	3,896	,420
	% of the city	**0,0%**	**12,5%**	**0,0%**	**3,3%**	**0,0%**	**2,7%**		
5	N	6	1	6	25	2	40	7,999	,092
	% of the city	**22,2%**	**12,5%**	**60,0%**	**41,0%**	**50,0%**	**36,4%**		
6	N	3	4	1	12	0	20	7,391	,117
	% of the city	**11,1%**	**50,0%**	**10,0%**	**19,7%**	**0,0%**	**18,2%**		
7	N	1	1	1	7	0	10	2,462	,651
	% of the city	**3,7%**	**12,5%**	**10,0%**	**11,5%**	**0,0%**	**9,1%**		
8	N	3	4	6	9	1	23	13,872	,008
	% of the city	**11,1%**	**50,0%**	**60,0%**	**14,8%**	**25,0%**	**20,9%**		
9	N	3	4	0	3	0	10	13,169	,010
	% of the city	**11,1%**	**50,0%**	**0,0%**	**4,9%**	**0,0%**	**9,1%**		
10	N	14	4	4	22	1	45	2,631	,621
	% of the city	**51,9%**	**50,0%**	**40,0%**	**36,1%**	**25,0%**	**40,9%**		
11	N	11	1	3	15	1	31	3,533	,473
	% of the city	**40,7%**	**12,5%**	**30,0%**	**24,6%**	**25,0%**	**28,2%**		

Explanation: 1 - Lack of stops or lines nearby; 2 - Too low frequency of services; 3 - It is too expensive; 4 - I do not know how it works; 5 - Long travel time; 6 – Unpunctuality; 7 - Unfavorable weather conditions; 8 - Lack of comfort, crowding; 9 - Lack of feeling safe; 10 - I prefer other, more private and comfortable means of transport; 11 – Other

Source: Own elaboration on the basis of the questionnaire survey

Crosstab P.3. The structure of responses to the question: 'Do you travel by bicycle or scooter?' (% of "Yes" responses in the total number of all responses) compared with a city

Categories		City					Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
1	N	58	29	24	8	7	126
	% of the city	**57,4%**	**64,4%**	**42,9%**	**10,3%**	**87,5%**	**43,8%**
	*	3,4	3,0	-,2	-7,0	2,5	
2	N	43	16	32	70	1	162
	% of the city	**42,6%**	**35,6%**	**57,1%**	**89,7%**	**12,5%**	**56,3%**
	*	-3,4	-3,0	,2	7,0	-2,5	
Altogether	N	101	45	56	78	8	288
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – Yes, 2 – No
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	64,287	4	,000

a. 20.0% of cells (2) have an expected count less than 5. The minimum expected count is 3.50.

Crosstab P.4. The structure of responses to the question: 'What are the main reasons why you DO NOT travel by bicycle or scooter' (multiple choice, 100% = respondents who do not travel by bicycle or scooter) compared with a city

Categories		City					Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos	Ghent			
1	N	3	3	8	19	0	33	8,733	,068
	% of the city	**7,0%**	**18,8%**	**25,0%**	**27,1%**	**0,0%**	**20,4%**		
2	N	14	5	6	20	0	45	2,649	,618
	% of the city	**32,6%**	**31,3%**	**18,8%**	**28,6%**	**0,0%**	**27,8%**		
3	N	0	2	2	5	0	9	6,473	,166
	% of the city	**0,0%**	**12,5%**	**6,3%**	**7,1%**	**0,0%**	**5,6%**		
4	N	7	7	11	23	1	49	8,630	,071

	% of the city	**16,3%**	**43,8%**	**34,4%**	**32,9%**	**100,0 %**	**30,2%**		
5	N	8	4	5	16	0	33	1,474	,831
	% of the city	**18,6%**	**25,0%**	**15,6%**	**22,9%**	**0,0%**	**20,4%**		
6	N	3	3	1	1	0	8	7,143	,129
	% of the city	**7,0%**	**18,8%**	**3,1%**	**1,4%**	**0,0%**	**4,9%**		
7	N	6	3	20	23	0	52	22,167	,000
	% of the city	**14,0%**	**18,8%**	**62,5%**	**32,9%**	**0,0%**	**32,1%**		
8	N	24	7	10	25	0	66	7,038	,134
	% of the city	**55,8%**	**43,8%**	**31,3%**	**35,7%**	**0,0%**	**40,7%**		
9	N	1	0	4	11	0	16	9,947	,041
	% of the city	**2,3%**	**0,0%**	**12,5%**	**15,7%**	**0,0%**	**9,9%**		

Explanation: 1 - Lack of bike paths or bike parking; 2 - I do not have a bicycle/a scooter; 3 - I cannot ride a bicycle/a scooter; 4 - Long travel time; 5 - Unfavorable weather conditions; 6 - Health limitations; 7 - Lack of feeling safe; 8 - I prefer other, more comfortable means of transport; 9 - Other
Source: Own elaboration on the basis of the questionnaire survey

Crosstab P.5. The structure of responses to the question: '3. Do you walk the entire route?' (% of "Yes" responses in the total number of all responses) compared with a city

Categories		City					Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
1	N	49	33	7	18	2	109
	% of the city	**48,5%**	**73,3%**	**12,5%**	**23,1%**	**25,0%**	**37,8%**
	*	2,7	5,3	-4,4	-3,1	-,8	
2	N	52	12	49	60	6	179
	% of the city	**51,5%**	**26,7%**	**87,5%**	**76,9%**	**75,0%**	**62,2%**
	*	-2,7	-5,3	4,4	3,1	,8	
Altogether	N	101	45	56	78	8	288
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – Yes, 2 – No
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	54,481	4	,000

a. 20.0% of cells (2) have an expected count less than 5. The minimum expected count is 3.02.

Crosstab P.6. The structure of responses to the question: 'What are the main reasons why you DO NOT walk the entire route' (multiple choice, 100% = respondents who do not walk the entire route) compared with a city

Categories		City					Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos	Ghent			
1	N	1	0	6	9	0	16	10,756	,029
	% of the city	**1,9%**	**0,0%**	**12,2%**	**15,0%**	**0,0%**	**8,9%**		
2	N	32	11	40	45	3	131	9,434	,051
	% of the city	**61,5%**	**91,7%**	**81,6%**	**75,0%**	**50,0%**	**73,2%**		
3	N	14	3	4	9	0	30	9,328	,053
	% of the city	**26,9%**	**25,0%**	**8,2%**	**15,0%**	**0,0%**	**16,8%**		
4	N	1	2	1	0	0	4	7,859	,097

	% of the city	**1,9%**	**16,7%**	**2,0%**	**0,0%**	**0,0%**	**2,2%**		
5	N	2	1	0	8	0	11	11,719	,020
	% of the city	**3,8%**	**8,3%**	**0,0%**	**13,3%**	**0,0%**	**6,1%**		
6	N	21	5	14	20	1	61	2,804	,591
	% of the city	**40,4%**	**41,7%**	**28,6%**	**33,3%**	**16,7%**	**34,1%**		
7	N	5	0	4	2	2	13	7,410	,116
	% of the city	**9,6%**	**0,0%**	**8,2%**	**3,3%**	**33,3%**	**7,3%**		

Explanation: 1 - Lack of sidewalks; 2 - It is too far to walk; 3 - Unfavorable weather conditions; 4 - Health limitations; 5 - Lack of feeling safe; 6 - I prefer other, more comfortable means of transport; 7 – Other
Source: Own elaboration on the basis of the questionnaire survey

Crosstab P.7.1. The structure of responses to the question: 'How do you generally get to work or to meet basic needs: On foot' compared with a city

Categories		City					Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
1	N	23	9	4	9	1	46
	% of the city	**22,8%**	**20,0%**	**7,1%**	**11,5%**	**12,5%**	**16,0%**
	*	2,3	,8	-2,0	-1,3	-,3	
2	N	20	14	14	17	1	66
	% of the city	**19,8%**	**31,1%**	**25,0%**	**21,8%**	**12,5%**	**22,9%**
	*	-,9	1,4	,4	-,3	-,7	
3	N	38	9	18	17	2	84
	% of the city	**37,6%**	**20,0%**	**32,1%**	**21,8%**	**25,0%**	**29,2%**
	*	2,3	-1,5	,5	-1,7	-,3	
4	N	20	13	20	35	4	92
	% of the city	**19,8%**	**28,9%**	**35,7%**	**44,9%**	**50,0%**	**31,9%**
	*	-3,2	-,5	,7	2,9	1,1	
Altogether	N	101	45	56	78	8	288
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	25,441	12	,013

a. 20.0% of cells (4) have an expected count less than 5. The minimum expected count is 1.28.

Crosstab P.7.2. The structure of responses to the question: 'How do you generally get to work or to meet basic needs: By own bicycle' compared with a city

Categories		City					Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
1	N	8	7	4	1	3	23
	% of the city	**7,9%**	**15,6%**	**7,1%**	**1,3%**	**37,5%**	**8,0%**

	*	,0	2,0	-,3	-2,6	3,1	
	N	13	12	6	2	2	35
2	% of the city	**12,9%**	**26,7%**	**10,7%**	**2,6%**	**25,0%**	**12,2%**
	*	,3	3,2	-,4	-3,0	1,1	
	N	33	8	14	9	2	66
3	% of the city	**32,7%**	**17,8%**	**25,0%**	**11,5%**	**25,0%**	**22,9%**
	*	2,9	-,9	,4	-2,8	,1	
	N	47	18	32	66	1	164
4	% of the city	**46,5%**	**40,0%**	**57,1%**	**84,6%**	**12,5%**	**56,9%**
	*	-2,6	-2,5	,0	5,8	-2,6	
	N	101	45	56	78	8	288
Altogether	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	56,991	12	,000

a. 30.0% of cells (6) have an expected count less than 5. The minimum expected count is 0.64.

Crosstab P.7.3. The structure of responses to the question: 'How do you generally get to work or to meet basic needs: By city bike (by minute-rental bike)' compared with a city

Categories		City					Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
2	N	0	0	1	0	0	1
	% of the city	**0,0%**	**0,0%**	**1,8%**	**0,0%**	**0,0%**	**,3%**
	*	-,7	-,4	2,0	-,6	-,2	
3	N	10	2	0	0	0	12
	% of the city	**9,9%**	**4,4%**	**0,0%**	**0,0%**	**0,0%**	**4,2%**
	*	3,6	,1	-1,7	-2,2	-,6	
4	N	91	43	55	78	8	275
	% of the city	**90,1%**	**95,6%**	**98,2%**	**100,0%**	**100,0%**	**95,5%**
	*	-3,2	,0	1,1	2,2	,6	
Altogether	N	101	45	56	78	8	288
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	21,381	8	,006

a. 66.7% of cells (10) have an expected count less than 5. The minimum expected count is 0.03.

Crosstab P.7.4. The structure of responses to the question: 'How do you generally get to work or to meet basic needs: By a traditional or electric scooter' compared with a city

Categories		City					Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
2	N	1	0	2	0	0	3
	% of the city	**1,0%**	**0,0%**	**3,6%**	**0,0%**	**0,0%**	**1,0%**
	*	-,1	-,7	2,1	-1,1	-,3	
3	N	10	1	4	2	0	17
	% of the city	**9,9%**	**2,2%**	**7,1%**	**2,6%**	**0,0%**	**5,9%**

	*	2,1	-1,1	,4	-1,5	-,7	
	N	90	44	50	76	8	268
4	% of the city	**89,1%**	**97,8%**	**89,3%**	**97,4%**	**100,0%**	**93,1%**
	*	-1,9	1,4	-1,2	1,8	,8	
	N	101	45	56	78	8	288
Altogether	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	11,971	8	,153

a. 60.0% of cells (9) have an expected count less than 5. The minimum expected count is 0.08.

Crosstab P.7.5. The structure of responses to the question: 'How do you generally get to work or to meet basic needs: By public transport (e.g., bus, tram, subway)' compared with a city

Categories		City					Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
1	N	11	5	23	6	0	45
	% of the city	**10,9%**	**11,1%**	**41,1%**	**7,7%**	**0,0%**	**15,6%**
	*	-1,6	-,9	5,8	-2,3	-1,2	
2	N	14	10	11	2	3	40
	% of the city	**13,9%**	**22,2%**	**19,6%**	**2,6%**	**37,5%**	**13,9%**
	*	,0	1,8	1,4	-3,4	2,0	
3	N	45	16	15	15	1	92
	% of the city	**44,6%**	**35,6%**	**26,8%**	**19,2%**	**12,5%**	**31,9%**
	*	3,4	,6	-,9	-2,8	-1,2	
4	N	31	14	7	55	4	111
	% of the city	**30,7%**	**31,1%**	**12,5%**	**70,5%**	**50,0%**	**38,5%**
	*	-2,0	-1,1	-4,5	6,8	,7	
Altogether	N	101	45	56	78	8	288
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	84,411	12	,000

a. 20.0% of cells (4) have an expected count less than 5. The minimum expected count is 1.11.

Crosstab P.7.6. The structure of responses to the question: 'How do you generally get to work or to meet basic needs: By car, but someone drives me' compared with a city

Categories		City					Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
1	N	6	1	2	2	1	12
	% of the city	**5,9%**	**2,2%**	**3,6%**	**2,6%**	**12,5%**	**4,2%**

	*	1,1	-,7	-,2	-,8	1,2	
	N	17	5	3	3	0	28
2	% of the city	**16,8%**	**11,1%**	**5,4%**	**3,8%**	**0,0%**	**9,7%**
	*	3,0	,3	-1,2	-2,1	-,9	
	N	43	14	19	12	0	88
3	% of the city	**42,6%**	**31,1%**	**33,9%**	**15,4%**	**0,0%**	**30,6%**
	*	3,3	,1	,6	-3,4	-1,9	
	N	35	25	32	61	7	160
4	% of the city	**34,7%**	**55,6%**	**57,1%**	**78,2%**	**87,5%**	**55,6%**
	*	-5,2	0,0	,3	4,7	1,8	
	N	101	45	56	78	8	288
Altogether	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	46,877	12	,000

a. 45.0% of cells (9) have an expected count less than 5. The minimum expected count is 0.33.

Crosstab P.7.7. The structure of responses to the question: 'How do you generally get to work or to meet basic needs: By car and I drive' compared with a city

Categories		City					Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
1	N	45	11	17	64	2	139
	% of the city	**44,6%**	**24,4%**	**30,4%**	**82,1%**	**25,0%**	**48,3%**
	*	-,9	-3,5	-3,0	7,0	-1,3	
2	N	16	12	9	8	0	45
	% of the city	**15,8%**	**26,7%**	**16,1%**	**10,3%**	**0,0%**	**15,6%**
	*	,1	2,2	,1	-1,5	-1,2	
3	N	14	11	14	1	0	40
	% of the city	**13,9%**	**24,4%**	**25,0%**	**1,3%**	**0,0%**	**13,9%**
	*	,0	2,2	2,7	-3,8	-1,2	
4	N	26	11	16	5	6	64
	% of the city	**25,7%**	**24,4%**	**28,6%**	**6,4%**	**75,0%**	**22,2%**
	*	1,1	,4	1,3	-3,9	3,6	
Altogether	N	101	45	56	78	8	288
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	78,431	12	,000

a. 20.0% of cells (4) have an expected count less than 5. The minimum expected count is 1.11.

Crosstab P.7.8. The structure of responses to the question: 'How do you generally get to work or to meet basic needs: By app-based car (e.g., Uber, Bolt, FreeNow) or by taxi' compared with a city

Categories		City					Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
1	N	0	0	1	1	0	2
	% of the city	**0,0%**	**0,0%**	**1,8%**	**1,3%**	**0,0%**	**,7%**

	*	-1,0	-,6	1,1	,7	-,2	
	N	1	1	1	0	0	3
2	% of the city	**1,0%**	**2,2%**	**1,8%**	**0,0%**	**0,0%**	**1,0%**
	*	-,1	,8	,6	-1,1	-,3	
	N	30	4	6	14	0	54
3	% of the city	**29,7%**	**8,9%**	**10,7%**	**17,9%**	**0,0%**	**18,8%**
	*	3,5	-1,8	-1,7	-,2	-1,4	
	N	70	40	48	63	8	229
4	% of the city	**69,3%**	**88,9%**	**85,7%**	**80,8%**	**100,0%**	**79,5%**
	*	-3,2	1,7	1,3	,3	1,5	
	N	101	45	56	78	8	288
Altogether	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	21,833	12	,039

a. 55.0% of cells (11) have an expected count less than 5. The minimum expected count is 0.06.

Crosstab P.7.9. The structure of responses to the question: 'How do you generally get to work or to meet basic needs: Other' compared with a city

Categories		City					Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
1	N	0	0	2	1	0	3
	% of the city	**0,0%**	**0,0%**	**3,6%**	**1,3%**	**0,0%**	**1,0%**
	*	-1,3	-,7	2,1	,2	-,3	
2	N	0	0	0	1	0	1
	% of the city	**0,0%**	**0,0%**	**0,0%**	**1,3%**	**0,0%**	**,3%**
	*	-,7	-,4	-,5	1,6	-,2	
3	N	2	2	0	0	0	4
	% of the city	**2,0%**	**4,4%**	**0,0%**	**0,0%**	**0,0%**	**1,4%**
	*	,6	1,9	-1,0	-1,2	-,3	
4	N	99	43	54	76	8	280
	% of the city	**98,0%**	**95,6%**	**96,4%**	**97,4%**	**100,0%**	**97,2%**
	*	,6	-,7	-,4	,1	,5	
Altogether	N	101	45	56	78	8	288
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - Every day; 2 - A few days a week; 3 - A few days a month; 4 - Never
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	14,058	12	,297

a. 75.0% of cells (15) have an expected count less than 5. The minimum expected count is 0.03.

Crosstab P.8. The structure of responses to the question: 'Why do get to work or to meet basic needs every day in the chosen above way' compared with a city

Categories		City					Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos	Ghent			
1	N	53	27	31	22	2	135	19,001	,001
	% of the city	**52,5%**	**60,0%**	**55,4%**	**28,2%**	**25,0%**	**46,9%**		
2	N	43	18	27	26	5	119	4,735	,316
	% of the city	**42,6%**	**40,0%**	**48,2%**	**33,3%**	**62,5%**	**41,3%**		
3	N	16	8	14	6	2	46	8,299	,081
	% of the city	**15,8%**	**17,8%**	**25,0%**	**7,7%**	**25,0%**	**16,0%**		
4	N	39	23	24	30	3	119	2,425	,658
	% of the city	**38,6%**	**51,1%**	**42,9%**	**38,5%**	**37,5%**	**41,3%**		
5	N	1	0	1	0	1	3	6,073	,194
	% of the city	**1,0%**	**0,0%**	**1,8%**	**0,0%**	**12,5%**	**1,0%**		
6	N	46	24	21	36	4	131	2,652	,618
	% of the city	**45,5%**	**53,3%**	**37,5%**	**46,2%**	**50,0%**	**45,5%**		
7	N	1	1	1	0	0	3	2,511	,643
	% of the city	**1,0%**	**2,2%**	**1,8%**	**0,0%**	**0,0%**	**1,0%**		
8	N	15	12	9	11	2	49	3,823	,431
	% of the city	**14,9%**	**26,7%**	**16,1%**	**14,1%**	**25,0%**	**17,0%**		
9	N	24	17	19	6	0	66	25,565	,000
	% of the city	**23,8%**	**37,8%**	**33,9%**	**7,7%**	**0,0%**	**22,9%**		
10	N	11	5	11	5	2	34	6,549	,162
	% of the city	**10,9%**	**11,1%**	**19,6%**	**6,4%**	**25,0%**	**11,8%**		
11	N	19	17	20	2	3	61	37,896	,000
	% of the city	**18,8%**	**37,8%**	**35,7%**	**2,6%**	**37,5%**	**21,2%**		
12	N	36	19	19	5	4	83	33,065	,000

	% of the city	**35,6%**	**42,2%**	**33,9%**	**6,4%**	**50,0%**	**28,8%**		
13	N	18	11	29	7	0	65	38,205	,000
	% of the city	**17,8%**	**24,4%**	**51,8%**	**9,0%**	**0,0%**	**22,6%**		
14	N	18	11	8	30	0	67	17,849	,001
	% of the city	**17,8%**	**24,4%**	**14,3%**	**38,5%**	**0,0%**	**23,3%**		
15	N	32	14	11	12	0	69	12,745	,013
	% of the city	**31,7%**	**31,1%**	**19,6%**	**15,4%**	**0,0%**	**24,0%**		
16	N	0	3	0	0	0	3	11,311	,023
	% of the city	**0,0%**	**6,7%**	**0,0%**	**0,0%**	**0,0%**	**1,0%**		
17	N	8	1	1	9	0	19	8,689	,069
	% of the city	**7,9%**	**2,2%**	**1,8%**	**11,5%**	**0,0%**	**6,6%**		

Explanation: 1 - It is the fastest way; 2 - It is the most comfortable way; 3 - It is the cheapest way; 4 - I travel when I want; 5 - It is trendy; 6 - I don't have to wait for anyone, I am independent; 7 - Everyone travels this way here; 8 - It is close to home; 9 - I have a stop nearby (bus, tram, or subway); 10 - I feel safe on the road; 11 - I don't pollute the air; 12 - For health and to stay in good condition; 13 - I can do smth (e.g., studying, listening to music, talking to others) during the journey; 14 - I have no other choice; 15 - It depends on the weather; 16 - Not applicable, I don't travel; 17 - Other

Source: Own elaboration on the basis of the questionnaire survey

Crosstab P.9. The structure of responses to the question: 'How do you generally move in your free time (e.g., for meetings with friends, family)' compared with a city

Categories		City					Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
1	N	22	12	4	12	1	51
	% of the city	**21,8%**	**26,7%**	**7,1%**	**15,4%**	**12,5%**	**17,7%**
	*	1,3	1,7	-2,3	-,6	-,4	
2	N	10	11	6	2	4	33
	% of the city	**9,9%**	**24,4%**	**10,7%**	**2,6%**	**50,0%**	**11,5%**
	*	-,6	3,0	-,2	-2,9	3,5	
3	N	19	5	14	1	0	39
	% of the city	**18,8%**	**11,1%**	**25,0%**	**1,3%**	**0,0%**	**13,5%**
	*	1,9	-,5	2,8	-3,7	-1,1	
4	N	12	1	12	6	0	31
	% of the city	**11,9%**	**2,2%**	**21,4%**	**7,7%**	**0,0%**	**10,8%**
	*	,4	-2,0	2,9	-1,0	-1,0	
5	N	32	14	19	56	2	123
	% of the city	**31,7%**	**31,1%**	**33,9%**	**71,8%**	**25,0%**	**42,7%**
	*	-2,8	-1,7	-1,5	6,1	-1,0	
6	N	5	0	0	0	0	5
	% of the city	**5,0%**	**0,0%**	**0,0%**	**0,0%**	**0,0%**	**1,7%**
	*	3,1	-1,0	-1,1	-1,4	-,4	
7	N	1	2	1	1	1	6
	% of the city	**1,0%**	**4,4%**	**1,8%**	**1,3%**	**12,5%**	**2,1%**
	*	-1,0	1,2	-,2	-,6	2,1	
Altogether	N	101	45	56	78	8	288
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - On foot; 2 - By own bicycle; 3 - By public transport (e.g., bus, tram, subway); 4 - By car, but someone drives me; 5 - By car and I drive; 6 - By app-based car (e.g., Uber, Bolt, FreeNow) or by taxi; 7 – Other

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	94,643	24	,000

a. 45.7% of cells (16) have an expected count less than 5. The minimum expected count is 0.14.

Crosstab P.10. The structure of responses to the question: 'Why do move in your free time in the chosen above way?' compared with a city

Categories		City					Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos	Ghent			
1	N	33	17	30	19	3	102	12,554	,014
	% of the city	**32,7%**	**37,8%**	**53,6%**	**24,4%**	**37,5%**	**35,4%**		
2	N	38	18	22	26	3	107	,768	,943
	% of the city	**37,6%**	**40,0%**	**39,3%**	**33,3%**	**37,5%**	**37,2%**		
3	N	14	8	8	4	3	37	9,394	,052
	% of the city	**13,9%**	**17,8%**	**14,3%**	**5,1%**	**37,5%**	**12,8%**		
4	N	28	17	19	22	5	91	5,267	,261
	% of the city	**27,7%**	**37,8%**	**33,9%**	**28,2%**	**62,5%**	**31,6%**		
5	N	0	2	0	0	1	3	10,963	,027
	% of the city	**0,0%**	**4,4%**	**0,0%**	**0,0%**	**12,5%**	**1,0%**		
6	N	35	15	21	28	4	103	,921	,921
	% of the city	**34,7%**	**33,3%**	**37,5%**	**35,9%**	**50,0%**	**35,8%**		
7	N	2	0	0	1	0	3	3,006	,557
	% of the city	**2,0%**	**0,0%**	**0,0%**	**1,3%**	**0,0%**	**1,0%**		
8	N	9	10	6	10	3	38	7,847	,097
	% of the city	**8,9%**	**22,2%**	**10,7%**	**12,8%**	**37,5%**	**13,2%**		
9	N	13	10	8	1	1	33	17,161	,002
	% of the city	**12,9%**	**22,2%**	**14,3%**	**1,3%**	**12,5%**	**11,5%**		
10	N	5	3	7	7	1	23	3,197	,525
	% of the city	**5,0%**	**6,7%**	**12,5%**	**9,0%**	**12,5%**	**8,0%**		
11	N	8	13	10	2	4	37	28,611	,000
	% of the city	**7,9%**	**28,9%**	**17,9%**	**2,6%**	**50,0%**	**12,8%**		
12	N	29	19	7	9	3	67	21,474	,000

	% of the city	**28,7%**	**42,2%**	**12,5%**	**11,5%**	**37,5%**	**23,3%**		
13	N	9	5	11	8	1	34	3,916	,417
	% of the city	**8,9%**	**11,1%**	**19,6%**	**10,3%**	**12,5%**	**11,8%**		
14	N	10	2	5	24	1	42	21,671	,000
	% of the city	**9,9%**	**4,4%**	**8,9%**	**30,8%**	**12,5%**	**14,6%**		
15	N	22	16	4	12	1	55	14,603	,006
	% of the city	**21,8%**	**35,6%**	**7,1%**	**15,4%**	**12,5%**	**19,1%**		
17	N	7	1	3	2	1	14	3,487	,480
	% of the city	**6,9%**	**2,2%**	**5,4%**	**2,6%**	**12,5%**	**4,9%**		

Explanation: 1 - It is the fastest way; 2 - It is the most comfortable way; 3 - It is the cheapest way; 4 - I travel when I want; 5 - It is trendy; 6 - I don't have to wait for anyone, I am independent; 7 - Everyone travels this way here; 8 - It is close to home; 9 - I have a stop nearby (bus, tram, or subway); 10 - I feel safe on the road; 11 - I don't pollute the air; 12 - For health and to stay in good condition; 13 - I can do smth (e.g., studying, listening to music, talking to others) during the journey; 14 - I have no other choice; 15 - It depends on the weather; 16 - Other

Source: Own elaboration on the basis of the questionnaire survey

Crosstab P.11.1. The structure of responses to the question: 'Are your children (under 7 years) driven by car' compared with a city

Categories		City				Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos			
1	N	10	4	5	14	33	3,614	,306
	% of the city	**47,6%**	**57,1%**	**45,5%**	**73,7%**	**56,9%**		
2	N	5	2	3	12	22	7,665	,053
	% of the city	**23,8%**	**28,6%**	**27,3%**	**63,2%**	**37,9%**		
3	N	8	3	3	10	24	2,023	,568
	% of the city	**38,1%**	**42,9%**	**27,3%**	**52,6%**	**41,4%**		
4	N	6	2	5	4	17	1,951	,583
	% of the city	**28,6%**	**28,6%**	**45,5%**	**21,1%**	**29,3%**		

Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

Crosstab P.11.2. The structure of responses to the question: 'Are your children (7-9 years) driven by car' compared with a city

Categories		City					Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos	Ghent			
1	N	7	3	14	8	1	33	2,162	,706
	% of the city	**41,2%**	**60,0%**	**58,3%**	**66,7%**	**50,0%**	**55,0%**		
2	N	6	0	10	8	0	24	10,809	,029
	% of the city	**35,3%**	**0,0%**	**41,7%**	**66,7%**	**0,0%**	**40,0%**		
3	N	6	2	8	6	1	23	1,115	,892
	% of the city	**35,3%**	**40,0%**	**33,3%**	**50,0%**	**50,0%**	**38,3%**		
4	N	6	1	5	2	0	14	2,737	,603
	% of the city	**35,3%**	**20,0%**	**20,8%**	**16,7%**	**0,0%**	**23,3%**		

Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

Crosstab P.11.3. The structure of responses to the question: 'Are your children (10-13 years) driven by car' compared with a city

Categories		City					Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos	Ghent			
1	N	20	7	16	43	1	87	65,562	,000
	% of the city	**26,0%**	**26,9%**	**47,1%**	**93,5%**	**33,3%**	**46,8%**		
2	N	44	2	11	33	1	91	37,093	,000
	% of the city	**57,1%**	**7,7%**	**32,4%**	**71,7%**	**33,3%**	**48,9%**		
3	N	30	14	10	30	1	85	13,169	,010
	% of the city	**39,0%**	**53,8%**	**29,4%**	**65,2%**	**33,3%**	**45,7%**		
4	N	17	9	10	0	1	37	25,743	,000
	% of the city	**22,1%**	**34,6%**	**29,4%**	**0,0%**	**33,3%**	**19,9%**		

Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

Crosstab P.11.4. The structure of responses to the question: 'Are your children (14-18 years) driven by car' compared with a city

Categories		City					Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos	Ghent			
1	N	13	1	6	36	1	57	63,108	,000
	% of the city	**21,0%**	**3,8%**	**26,1%**	**81,8%**	**20,0%**	**35,6%**		
2	N	28	1	5	29	2	65	35,024	,000
	% of the city	**45,2%**	**3,8%**	**21,7%**	**65,9%**	**40,0%**	**40,6%**		
3	N	18	11	5	23	1	58	9,426	,051
	% of the city	**29,0%**	**42,3%**	**21,7%**	**52,3%**	**20,0%**	**36,3%**		
4	N	22	14	11	5	3	55	19,651	,001
	% of the city	**35,5%**	**53,8%**	**47,8%**	**11,4%**	**60,0%**	**34,4%**		

Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

Crosstab P.12.1. The structure of responses to the question: 'Are your children (under 7 years) driven by public transport accompanied by adults or older children' compared with a city

Categories		City				Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos			
1	N	5	1	3	1	10	3,804	,283
	% of the city	**23,8%**	**14,3%**	**27,3%**	**5,3%**	**17,2%**		
2	N	4	1	3	0	8	7,455	,059
	% of the city	**19,0%**	**14,3%**	**27,3%**	**0,0%**	**13,8%**		
3	N	7	2	5	1	15	8,204	,042
	% of the city	**33,3%**	**28,6%**	**45,5%**	**5,3%**	**25,9%**		
4	N	8	5	4	17	34	15,179	,002
	% of the city	**38,1%**	**71,4%**	**36,4%**	**89,5%**	**58,6%**		

Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

Crosstab P.12.2. The structure of responses to the question: 'Are your children (7-9 years) driven by public transport accompanied by adults or older children' compared with a city

Categories		City					Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos	Ghent			
1	N	5	1	12	2	0	20	6,696	,153
	% of the city	**29,4%**	**20,0%**	**50,0%**	**16,7%**	**0,0%**	**33,3%**		
2	N	2	0	14	0	1	17	23,840	,000
	% of the city	**11,8%**	**0,0%**	**58,3%**	**0,0%**	**50,0%**	**28,3%**		
3	N	4	1	12	0	1	18	13,706	,008
	% of the city	**23,5%**	**20,0%**	**50,0%**	**0,0%**	**50,0%**	**30,0%**		
4	N	9	3	6	10	1	29	12,295	,015
	% of the city	**52,9%**	**60,0%**	**25,0%**	**83,3%**	**50,0%**	**48,3%**		

Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

Crosstab P.12.3. The structure of responses to the question: 'Are your children (10-13 years) driven by public transport accompanied by adults or older children' compared with a city

Categories		City					Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos	Ghent			
1	N	14	12	14	12	1	53	10,693	,030
	% of the city	**18,2%**	**46,2%**	**41,2%**	**26,1%**	**33,3%**	**28,5%**		
2	N	18	2	17	7	1	45	17,795	,001
	% of the city	**23,4%**	**7,7%**	**50,0%**	**15,2%**	**33,3%**	**24,2%**		
3	N	12	10	12	11	1	46	8,224	,084
	% of the city	**15,6%**	**38,5%**	**35,3%**	**23,9%**	**33,3%**	**24,7%**		
4	N	42	7	9	23	1	82	11,958	,018
	% of the city	**54,5%**	**26,9%**	**26,5%**	**50,0%**	**33,3%**	**44,1%**		

Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

Crosstab P.12.4. The structure of responses to the question: 'Are your children (14-18 years) driven by public transport accompanied by adults or older children' compared with a city

Categories		City					Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos	Ghent			
1	N	15	10	15	22	2	64	14,661	,005
	% of the city	**24,2%**	**38,5%**	**65,2%**	**50,0%**	**40,0%**	**40,0%**		
2	N	16	3	11	13	0	43	11,586	,021
	% of the city	**25,8%**	**11,5%**	**47,8%**	**29,5%**	**0,0%**	**26,9%**		
3	N	21	9	12	16	2	60	2,523	,641
	% of the city	**33,9%**	**34,6%**	**52,2%**	**36,4%**	**40,0%**	**37,5%**		
4	N	30	12	6	15	2	65	4,777	,311
	% of the city	**48,4%**	**46,2%**	**26,1%**	**34,1%**	**40,0%**	**40,6%**		

Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

Crosstab P.13.1. The structure of responses to the question: 'Are your children (under 7 years) walked away on foot, accompanied by adults or older children' compared with a city

Categories		City				Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos			
1	N	12	1	2	0	15	21,452	,000
	% of the city	**57,1%**	**14,3%**	**18,2%**	**0,0%**	**25,9%**		
2	N	1	1	0	0	2	3,617	,306
	% of the city	**4,8%**	**14,3%**	**0,0%**	**0,0%**	**3,4%**		
3	N	7	4	3	6	20	1,841	,606
	% of the city	**33,3%**	**57,1%**	**27,3%**	**31,6%**	**34,5%**		
4	N	6	3	6	13	28	6,791	,079
	% of the city	**28,6%**	**42,9%**	**54,5%**	**68,4%**	**48,3%**		

Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

Crosstab P.13.2. The structure of responses to the question: 'Are your children (7-9 years) walked away on foot, accompanied by adults or older children' compared with a city

Categories		City					Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos	Ghent			
1	N	11	2	7	2	0	22	10,266	,036
	% of the city	**64,7%**	**40,0%**	**29,2%**	**16,7%**	**0,0%**	**36,7%**		
2	N	5	2	3	0	1	11	8,984	,061
	% of the city	**29,4%**	**40,0%**	**12,5%**	**0,0%**	**50,0%**	**18,3%**		
3	N	7	5	11	2	1	26	12,383	,015
	% of the city	**41,2%**	**100,0%**	**45,8%**	**16,7%**	**50,0%**	**43,3%**		
4	N	5	0	10	9	1	25	12,036	,017
	% of the city	**29,4%**	**0,0%**	**41,7%**	**75,0%**	**50,0%**	**41,7%**		

Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

Crosstab P.13.3. The structure of responses to the question: 'Are your children (10-13 years) walked away on foot, accompanied by adults or older children' compared with a city

Categories		City					Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos	Ghent			
1	N	25	3	8	4	0	40	13,704	,008
	% of the city	**32,5%**	**11,5%**	**23,5%**	**8,7%**	**0,0%**	**21,5 %**		
2	N	13	2	6	10	1	32	3,090	,543
	% of the city	**16,9%**	**7,7%**	**17,6%**	**21,7%**	**33,3%**	**17,2 %**		
3	N	23	18	13	20	1	75	12,802	,012
	% of the city	**29,9%**	**69,2%**	**38,2%**	**43,5%**	**33,3%**	**40,3 %**		
4	N	35	8	15	21	2	81	2,639	,620
	% of the city	**45,5%**	**30,8%**	**44,1%**	**45,7%**	**66,7%**	**43,5 %**		

Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

Crosstab P.13.4. The structure of responses to the question: 'Are your children (14-18 years) walked away on foot, accompanied by adults or older children' compared with a city

Categories		City					Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos	Ghent			
1	N	10	5	4	11	0	30	3,445	,486
	% of the city	**16,1%**	**19,2%**	**17,4%**	**25,0%**	**0,0%**	**18,8 %**		
2	N	7	3	5	10	0	25	5,126	,275
	% of the city	**11,3%**	**11,5%**	**21,7%**	**22,7%**	**0,0%**	**15,6 %**		
3	N	10	11	12	20	0	53	20,536	,000
	% of the city	**16,1%**	**42,3%**	**52,2%**	**45,5%**	**0,0%**	**33,1 %**		
4	N	46	15	9	15	5	90	25,815	,000
	% of the city	**74,2%**	**57,7%**	**39,1%**	**34,1%**	**100,0%**	**56,3 %**		

Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

Crosstab P.14.1. The structure of responses to the question: 'Are your children (under 7 years) moving alone' compared with a city

Categories		City				Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos			
3	N	0	2	0	0	2	9,024	,029
	% of the city	**0,0%**	**28,6%**	**0,0%**	**0,0%**	**3,4%**		
4	N	21	5	11	19	56	9,024	,029
	% of the city	**100,0%**	**71,4%**	**100,0%**	**100,0%**	**96,6%**		

Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

Crosstab P.14.2. The structure of responses to the question: Are your children (7-9 years) moving alone compared with a city

Categories		City					Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos	Ghent			
1	N	7	2	3	0	0	12	12,198	,016
	% of the city	**41,2%**	**40,0%**	**12,5%**	**0,0%**	**0,0%**	**20,0%**		
2	N	0	1	1	0	0	2	4,219	,377
	% of the city	**0,0%**	**20,0%**	**4,2%**	**0,0%**	**0,0%**	**3,3%**		
3	N	3	2	1	0	0	6	8,122	,087
	% of the city	**17,6%**	**40,0%**	**4,2%**	**0,0%**	**0,0%**	**10,0%**		
4	N	10	1	20	12	2	45	17,814	,001
	% of the city	**58,8%**	**20,0%**	**83,3%**	**100,0%**	**100,0%**	**75,0%**		

Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

Crosstab P.14.3. The structure of responses to the question: 'Are your children (10-13 years) moving alone' compared with a city

Categories	City	Total	X^2	*p*

		Toruń	Cologne	Budapest	Matosinhos	Ghent			
1	N	69	20	15	12	2	118	61,498	,000
	% of the city	**89,6%**	**76,9%**	**44,1%**	**26,1%**	**66,7%**	**63,4%**		
2	N	24	5	13	10	0	52	6,018	,198
	% of the city	**31,2%**	**19,2%**	**38,2%**	**21,7%**	**0,0%**	**28,0%**		
3	N	39	16	8	13	1	77	15,243	,004
	% of the city	**50,6%**	**61,5%**	**23,5%**	**28,3%**	**33,3%**	**41,4%**		
4	N	6	4	12	23	1	46	31,876	,000
	% of the city	**7,8%**	**15,4%**	**35,3%**	**50,0%**	**33,3%**	**24,7%**		

Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

Crosstab P.14.4. The structure of responses to the question: 'Are your children (14-18 years) moving alone' compared with a city

Categories		City					Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos	Ghent			
1	N	60	26	20	25	5	136	39,608	,000
	% of the city	**96,8%**	**100,0%**	**87,0%**	**56,8%**	**100,0%**	**85,0%**		
2	N	41	11	15	20	4	91	8,608	,072
	% of the city	**66,1%**	**42,3%**	**65,2%**	**45,5%**	**80,0%**	**56,9%**		
3	N	52	22	15	28	4	121	8,202	,084
	% of the city	**83,9%**	**84,6%**	**65,2%**	**63,6%**	**80,0%**	**75,6%**		
4	N	1	0	3	6	0	10	11,712	,020
	% of the city	**1,6%**	**0,0%**	**13,0%**	**13,6%**	**0,0%**	**6,3%**		

Explanation: 1 - To school; 2 - To extracurricular activities; 3 - In free time, for meetings with friends; 4 - In none of these situations

Source: Own elaboration on the basis of the questionnaire survey

Crosstab P.15. The structure of responses to the question: 'If you could choose, how you would like to move around the city?' compared with a city

Categories		City					Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
1	N	14	6	7	18	1	46
	% of the city	**13,9%**	**13,3%**	**12,5%**	**23,1%**	**12,5%**	**16,0%**
	*	-,7	-,5	-,8	2,0	-,3	
2	N	24	19	15	14	5	77
	% of the city	**23,8%**	**42,2%**	**26,8%**	**17,9%**	**62,5%**	**26,7%**
	*	-,8	2,6	,0	-2,1	2,3	
3	N	0	0	3	0	0	3
	% of the city	**0,0%**	**0,0%**	**5,4%**	**0,0%**	**0,0%**	**1,0%**
	*	-1,3	-,7	3,5	-1,1	-,3	
4	N	2	0	1	1	0	4
	% of the city	**2,0%**	**0,0%**	**1,8%**	**1,3%**	**0,0%**	**1,4%**
	*	,6	-,9	,3	-,1	-,3	
5	N	18	15	19	20	1	73
	% of the city	**17,8%**	**33,3%**	**33,9%**	**25,6%**	**12,5%**	**25,3%**
	*	-2,2	1,3	1,6	,1	-,8	
6	N	7	0	1	1	0	9
	% of the city	**6,9%**	**0,0%**	**1,8%**	**1,3%**	**0,0%**	**3,1%**
	*	2,7	-1,3	-,6	-1,1	-,5	
7	N	32	5	7	23	0	67
	% of the city	**31,7%**	**11,1%**	**12,5%**	**29,5%**	**0,0%**	**23,3%**
	*	2,5	-2,1	-2,1	1,5	-1,6	
8	N	1	0	1	0	0	2
	% of the city	**1,0%**	**0,0%**	**1,8%**	**0,0%**	**0,0%**	**,7%**
	*	,4	-,6	1,1	-,9	-,2	

	N	3	0	2	1	1	7
9	% of the city	**3,0%**	**0,0%**	**3,6%**	**1,3%**	**12,5%**	**2,4%**
	*	,4	-1,2	,6	-,8	1,9	
	N	101	45	56	78	8	288
Altogether	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - On foot; 2 - By own bicycle; 3 - By minute-rental bike (city bike); 4 - By a traditional or electric scooter; 5 - By public transport (e.g., bus, tram, subway); 6 - By car, but someone drives me; 7 - By app-based car (e.g., Uber, Bolt, FreeNow) or by taxi; 8 - Not applicable, I don't travel; 9 – Other

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	59,707	32	,002

a. 64.4% of cells (29) have an expected count less than 5. The minimum expected count is 0.06.

Crosstab P.16. The structure of responses to the question: 'How important is it for you that daily needs (work, school, shops, places to spend free time) are available within walking, cycling, or scootering distance from your home?' compared with a city

Categories		City					Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
1	N	3	5	2	3	0	13
	% of the city	**3,0%**	**11,1%**	**3,6%**	**3,8%**	**0,0%**	**4,5%**
	*	-,9	2,3	-,4	-,3	-,6	
2	N	14	2	8	1	0	25
	% of the city	**13,9%**	**4,4%**	**14,3%**	**1,3%**	**0,0%**	**8,7%**
	*	2,3	-1,1	1,7	-2,7	-,9	
3	N	11	3	5	14	0	33
	% of the city	**10,9%**	**6,7%**	**8,9%**	**17,9%**	**0,0%**	**11,5%**
	*	-,2	-1,1	-,7	2,1	-1,0	
4	N	46	14	17	31	1	109
	% of the city	**45,5%**	**31,1%**	**30,4%**	**39,7%**	**12,5%**	**37,8%**
	*	2,0	-1,0	-1,3	,4	-1,5	
5	N	27	21	24	29	7	108
	% of the city	**26,7%**	**46,7%**	**42,9%**	**37,2%**	**87,5%**	**37,5%**
	*	-2,8	1,4	,9	-,1	3,0	
Altogether	N	101	45	56	78	8	288
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - Not important at all; 2 - Rather unimportant; 3 - Neither important nor unimportant; 4 - Rather important; 5 - Very important
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	38,422	16	,001

a. 44.0% of cells (11) have an expected count less than 5. The minimum expected count is 0.36.

Crosstab P.17. The structure of responses to the question: 'What version of the city would you like to live in the future? (choose up to 3 options)' compared with a city

Categories		City					Total	X^2	*p*
		Toruń	Cologne	Budapest	Matosinhos	Ghent			
1	N	10	10	8	11	1	40	3,769	,438
	% of the city	**9,9%**	**22,2%**	**14,3%**	**14,1%**	**12,5%**	**13,9%**		
2	N	41	30	35	35	5	146	13,502	,009
	% of the city	**40,6%**	**66,7%**	**62,5%**	**44,9%**	**62,5%**	**50,7%**		
3	N	10	6	14	5	4	39	16,632	,002
	% of the city	**9,9%**	**13,3%**	**25,0%**	**6,4%**	**50,0%**	**13,5%**		
4	N	45	21	28	18	5	117	15,580	,004
	% of the city	**44,6%**	**46,7%**	**50,0%**	**23,1%**	**62,5%**	**40,6%**		
5	N	86	34	50	69	8	247	6,870	,143
	% of the city	**85,1%**	**75,6%**	**89,3%**	**88,5%**	**100,0%**	**85,8%**		
6	N	10	6	2	2	0	20	8,841	,065
	% of the city	**9,9%**	**13,3%**	**3,6%**	**2,6%**	**0,0%**	**6,9%**		

Explanation: 1 - Cool Future Cars – Cars run on electricity and might even drive themselves; 2 - Fast Bus & Train – Buses and trains come often, are quick, and take you everywhere; 3 - Sharing Instead of Owning – Cars, bikes, or scooters are shared with others; 4 - Fun on Bikes & Scooters – Lots of people ride bikes, scooters, or skateboards; 5 -Everything Close & Lots of Nature – You can walk to most places, with lots of trees and parks around; 6 - Flying in the City – Flying taxis and delivery drones move people and stuff quickly through the air

Source: Own elaboration on the basis of the questionnaire survey

Crosstab P.18.1. The structure of responses to the question: 'Do you feel "at home": in the neighbourhood where you live?' compared with a city

Categories		City					Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
1	N	6	2	1	2	0	11
	% of the city	**5,9%**	**4,4%**	**1,8%**	**2,6%**	**0,0%**	**3,8%**
	*	1,4	,2	-,9	-,7	-,6	
2	N	34	9	15	14	1	73
	% of the city	**33,7%**	**20,0%**	**26,8%**	**17,9%**	**12,5%**	**25,3%**
	*	2,4	-,9	,3	-1,8	-,8	

	N	61	34	40	62	7	204
3	% of the city	**60,4%**	**75,6%**	**71,4%**	**79,5%**	**87,5%**	**70,8%**
	*	-2,9	,8	,1	2,0	1,1	
	N	101	45	56	78	8	288
Altogether	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – Weakly; 2 - Neither weakly nor strongly; 3 – Strongly
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	11,261	8	,187

a. 40.0% of cells (6) have an expected count less than 5. The minimum expected count is 0.31.

Crosstab P.18.2. The structure of responses to the question: Do you feel 'at home generally in the entire city, do you feel it is your city?' compared with a city

Categories		**City**					**Total**
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
	N	4	9	4	3	0	20
1	% of the city	**4,0%**	**20,0%**	**7,1%**	**3,8%**	**0,0%**	**6,9%**
	*	-1,5	3,8	,1	-1,3	-,8	
	N	41	18	22	36	1	118
2	% of the city	**40,6%**	**40,0%**	**39,3%**	**46,2%**	**12,5%**	**41,0%**
	*	-,1	-,1	-,3	1,1	-1,7	
	N	56	18	30	39	7	150
3	% of the city	**55,4%**	**40,0%**	**53,6%**	**50,0%**	**87,5%**	**52,1%**
	*	,8	-1,8	,2	-,4	2,0	
	N	101	45	56	78	8	288
Altogether	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – Weakly; 2 - Neither weakly nor strongly; 3 – Strongly
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.

Likelihood ratio test	17,226	8	,028

a. 33.3% of cells (5) have an expected count less than 5. The minimum expected count is 0.56.

Crosstab P.19.1. The structure of responses to the question: 'Do you feel safe in the neighbourhood where you live?' compared with a city

Categories		City					Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
1	N	5	2	1	2	0	10
	% of the city	**5,0%**	**4,4%**	**1,8%**	**2,6%**	**0,0%**	**3,5%**
	*	1,0	,4	-,8	-,5	-,5	
2	N	32	11	9	18	2	72
	% of the city	**31,7%**	**24,4%**	**16,1%**	**23,1%**	**25,0%**	**25,0%**
	*	1,9	-,1	-1,7	-,5	0,0	
3	N	64	32	46	58	6	206
	% of the city	**63,4%**	**71,1%**	**82,1%**	**74,4%**	**75,0%**	**71,5%**
	*	-2,3	-,1	2,0	,6	,2	
Altogether	N	101	45	56	78	8	288
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – Weakly; 2 - Neither weakly nor strongly; 3 – Strongly
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	7,746	8	,459

a. 40.0% of cells (6) have an expected count less than 5. The minimum expected count is 0.28.

Crosstab P.19.2. The structure of responses to the question: 'Do you feel safe generally in the entire city?' compared with a city

Categories		City					Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
1	N	4	17	0	6	0	27
	% of the city	**4,0%**	**37,8%**	**0,0%**	**7,7%**	**0,0%**	**9,4%**
	*	-2,3	7,1	-2,7	-,6	-,9	
2	N	40	18	29	30	4	121
	% of the city	**39,6%**	**40,0%**	**51,8%**	**38,5%**	**50,0%**	**42,0%**

	*	-,6	-,3	1,7	-,7	,5	
	N	57	10	27	42	4	140
3	% of the city	**56,4%**	**22,2%**	**48,2%**	**53,8%**	**50,0%**	**48,6%**
	*	2,0	-3,9	-,1	1,1	,1	
	N	101	45	56	78	8	288
Altogether	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – Weakly; 2 - Neither weakly nor strongly; 3 – Strongly
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	49,577	8	,000

a. 26.7% of cells (4) have an expected count less than 5. The minimum expected count is 0.75.

Crosstab P.20. The structure of responses to the question: 'Age' compared with a city

Categories		City					Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
1	N	0	0	2	0	0	2
	% of the city	**0,0%**	**0,0%**	**3,6%**	**0,0%**	**0,0%**	**,7%**
	*	-1,0	-,6	2,9	-,9	-,2	
2	N	0	0	1	0	0	1
	% of the city	**0,0%**	**0,0%**	**1,8%**	**0,0%**	**0,0%**	**,3%**
	*	-,7	-,4	2,0	-,6	-,2	
3	N	2	0	0	2	0	4
	% of the city	**2,0%**	**0,0%**	**0,0%**	**2,6%**	**0,0%**	**1,4%**
	*	,6	-,9	-1,0	1,0	-,3	
4	N	21	3	7	6	0	37
	% of the city	**20,8%**	**6,7%**	**12,5%**	**7,7%**	**0,0%**	**12,8%**
	*	3,0	-1,3	-,1	-1,6	-1,1	
5	N	36	8	13	18	4	79
	% of the city	**35,6%**	**17,8%**	**23,2%**	**23,1%**	**50,0%**	**27,4%**
	*	2,3	-1,6	-,8	-1,0	1,5	
6	N	27	17	19	28	2	93
	% of the city	**26,7%**	**37,8%**	**33,9%**	**35,9%**	**25,0%**	**32,3%**
	*	-1,5	,9	,3	,8	-,4	
7	N	12	11	11	20	0	54
	% of the city	**11,9%**	**24,4%**	**19,6%**	**25,6%**	**0,0%**	**18,8%**
	*	-2,2	1,1	,2	1,8	-1,4	
8	N	3	4	2	4	2	15
	% of the city	**3,0%**	**8,9%**	**3,6%**	**5,1%**	**25,0%**	**5,2%**
	*	-1,3	1,2	-,6	,0	2,6	
9	N	0	2	1	0	0	3
	% of the city	**0,0%**	**4,4%**	**1,8%**	**0,0%**	**0,0%**	**1,0%**

	*	-1,3	2,4	,6	-1,1	-,3	
Altogether	N	101	45	56	78	8	288
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – less than 25, 2 – 25-29, 3 – 30-34, 4 – 35-39, 5 – 40-44, 6 – 45-49, 7 – 50-54, 8 – 55-59, 9 – 60-64

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	52,377	32	,013

a. 62.2% of cells (28) have an expected count less than 5. The minimum expected count is 0.03.

Crosstab P.21. The structure of responses to the question: 'What is your gender?' compared with a city

Categories		**City**					**Total**
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
1	N	81	31	45	54	5	216
	% of the city	**80,2%**	**68,9%**	**80,4%**	**69,2%**	**62,5%**	**75,0%**
	*	1,5	-1,0	1,0	-1,4	-,8	
2	N	19	13	11	24	3	70
	% of the city	**18,8%**	**28,9%**	**19,6%**	**30,8%**	**37,5%**	**24,3%**
	*	-1,6	,8	-,9	1,6	,9	
3	N	1	1	0	0	0	2
	% of the city	**1,0%**	**2,2%**	**0,0%**	**0,0%**	**0,0%**	**,7%**
	*	,4	1,3	-,7	-,9	-,2	
Altogether	N	101	45	56	78	8	288
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – Woman; 2 – Man; 3 - Other / Prefer not to say

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	8,354	8	,400

a. 40.0% of cells (6) have an expected count less than 5. The minimum expected count is 0.06.

Crosstab P.22. The structure of responses to the question: 'Where do you live in the city?' compared with a city

Categories		City					Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
1	N	67	6	26	31	0	130
	% of the city	**66,3%**	**13,3%**	**46,4%**	**39,7%**	**0,0%**	**45,1%**
	*	5,3	-4,7	,2	-1,1	-2,6	
2	N	24	37	24	33	5	123
	% of the city	**23,8%**	**82,2%**	**42,9%**	**42,3%**	**62,5%**	**42,7%**
	*	-4,8	5,8	,0	-,1	1,1	
3	N	10	2	6	14	3	35
	% of the city	**9,9%**	**4,4%**	**10,7%**	**17,9%**	**37,5%**	**12,2%**
	*	-,9	-1,7	-,4	1,8	2,2	
Altogether	N	101	45	56	78	8	288
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - In the same neighbourhood as the school; 2 - In the different neighbourhood as the school; 3 - Outside the city

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	62,257	8	,000

a. 20.0% of cells (3) have an expected count less than 5. The minimum expected count is 0.97.

Crosstab P.23. The structure of responses to the question: 'Financial situation in your household' compared with a city

Categories		City					Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
1	N	2	0	0	0	0	2
	% of the city	**2,0%**	**0,0%**	**0,0%**	**0,0%**	**0,0%**	**,7%**
	*	1,9	-,6	-,7	-,9	-,2	
2	N	8	1	1	3	1	14

	% of the city	**7,9%**	**2,2%**	**1,8%**	**3,8%**	**12,5%**	**4,9%**
	*	1,8	-,9	-1,2	-,5	1,0	
	N	33	13	16	30	0	92
3	% of the city	**32,7%**	**28,9%**	**28,6%**	**38,5%**	**0,0%**	**31,9%**
	*	,2	-,5	-,6	1,4	-2,0	
	N	39	18	24	28	5	114
4	% of the city	**38,6%**	**40,0%**	**42,9%**	**35,9%**	**62,5%**	**39,6%**
	*	-,2	,1	,6	-,8	1,3	
	N	5	10	8	12	2	37
5	% of the city	**5,0%**	**22,2%**	**14,3%**	**15,4%**	**25,0%**	**12,8%**
	*	-2,9	2,0	,4	,8	1,0	
	N	14	3	7	5	0	29
6	% of the city	**13,9%**	**6,7%**	**12,5%**	**6,4%**	**0,0%**	**10,1%**
	*	1,6	-,8	,7	-1,3	-1,0	
	N	101	45	56	78	8	288
Altogether	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 - We don't have enough money even for basic needs; 2 - o We only have money for basic needs; 3 - We have to watch our spending, but we manage day-to-day; 4 - We don't have to limit daily expenses and can meet most needs; 5 - We don't have to limit our spending on all needs; 6 - I prefer not to answer

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	31,808	20	,045

a. 50.0% of cells (15) have an expected count less than 5. The minimum expected count is 0.06.

Crosstab P.24. The structure of responses to the question: 'What is your highest level of education?' compared with a city

Categories		City					Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
1	N	1	0	0	1	0	2
	% of the city	**1,0%**	**0,0%**	**0,0%**	**1,3%**	**0,0%**	**,7%**
	*	,4	-,6	-,7	,7	-,2	
2	N	3	2	0	9	0	14
	% of the city	**3,0%**	**4,4%**	**0,0%**	**11,5%**	**0,0%**	**4,9%**
	*	-1,1	-,1	-1,9	3,2	-,6	
3	N	25	13	3	19	2	62
	% of the city	**24,8%**	**28,9%**	**5,4%**	**24,4%**	**25,0%**	**21,5%**
	*	1,0	1,3	-3,3	,7	,2	
4	N	62	28	47	45	5	187
	% of the city	**61,4%**	**62,2%**	**83,9%**	**57,7%**	**62,5%**	**64,9%**
	*	-,9	-,4	3,3	-1,6	-,1	
5	N	10	2	6	4	1	23
	% of the city	**9,9%**	**4,4%**	**10,7%**	**5,1%**	**12,5%**	**8,0%**
	*	,9	-1,0	,8	-1,1	,5	
Altogether	N	101	45	56	78	8	288
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – Primary school, 2 – Vocational school (professional), 3 – Secondary school, 4 – Higher education / University, 5 – Doctoral degree

Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	32,347	16	,009

a. 56.0% of cells (14) have an expected count less than 5. The minimum expected count is 0.06.

Crosstab P.25. The structure of responses to the question: 'What does your household look like?' compared with a city

Categories		City					Total
		Toruń	Cologne	Budapest	Matosinhos	Ghent	
1	N	75	35	53	6	169	75
	% of the city	**74,3%**	**77,8%**	**67,9%**	**75,0%**	**72,8%**	**74,3%**
	*	,4	,8	-1,2	,1		,4
2	N	6	2	8	0	16	6
	% of the city	**5,9%**	**4,4%**	**10,3%**	**0,0%**	**6,9%**	**5,9%**
	*	-,5	-,7	1,4	-,8		-,5
3	N	13	5	10	2	30	13
	% of the city	**12,9%**	**11,1%**	**12,8%**	**25,0%**	**12,9%**	**12,9%**
	*	,0	-,4	,0	1,0		,0
4	N	6	3	6	0	15	6
	% of the city	**5,9%**	**6,7%**	**7,7%**	**0,0%**	**6,5%**	**5,9%**
	*	-,3	,1	,5	-,8		-,3
5	N	1	0	1	0	2	1
	% of the city	**1,0%**	**0,0%**	**1,3%**	**0,0%**	**,9%**	**1,0%**
	*	,2	-,7	,5	-,3		,2
Altogether	N	101	45	78	8	232	101
	% of the city	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Explanation: 1 – Two-generation family (parents and children), 2 – Multi-generation family (grandparents, parents, children), 3 – Single-parent family (one parent raises the child), 4 – Blended family (partners are in new relationships but have children from previous relationships), 5 – Other
Source: Own elaboration on the basis of the questionnaire survey

Chi-square tests

	Value	df	sig.
Likelihood ratio test	6,396	12	,895

a. 56.0% of cells (14) have an expected count less than 5. The minimum expected count is 0.06.

Appendix 2

AppendixChapter 1.4. Data Sources and References – Ghent/Kortrijk (Belgium)

The following sources were consulted during the preparation of this factsheet. Inline citation numbers throughout the document refer to the entries below.

Note on data availability: The smallest geographic unit with publicly available statistical data for the Dampoort area is the STATBEL 'buurt' (statistical sector). More granular street-level data is not publicly available for Belgian municipalities. Buurtmonitor dashboards are client-rendered and provide live, regularly updated data.

[1] AlleCijfers.be — Gemeente Gent statistics (STATBEL-based, updated Jan 2026) — https://allecijfers.be/gemeente/gent/

[2] AlleCijfers.be — Buurt Dampoort statistics (STATBEL-based, updated Jan 2026) — https://allecijfers.be/buurt/dampoort-gent/

[3] Wikipedia — Ghent — https://en.wikipedia.org/wiki/Ghent

[4] Visit Gent — Ghent over the centuries — https://visit.gent.be/en/good-know/practical-information/why-ghent/ghent-over-centuries

[5] Britannica — Ghent — https://www.britannica.com/place/Ghent

[6] Wikipedia — Ghent University — https://en.wikipedia.org/wiki/Ghent_University

[7] Stad Gent — The Circulation Plan — https://stad.gent/en/mobility-ghent/circulation-plan

[8] EU Urban Mobility Observatory — Ghent Traffic Circulation Plan case study — https://urban-mobility-observatory.transport.ec.europa.eu/resources/case-studies/gents-traffic-circulation-plan-belgium_en

[9] Stad Gent — Cycling Policy — https://stad.gent/en/mobility-ghent/cycling-policy

[10] The Informed Urbanist — How Ghent's bold decision-making changed the way the city commutes — https://www.theinformedurbanist.com/post/how-ghent-s-bold-decision-making-changed-the-way-the-city-commutes

[11] Stad Gent — Low-Emission Zone — https://stad.gent/en/mobility-ghent/low-emission-zone-ghent

[12] Wikipedia — Dampoort, Ghent — https://en.wikipedia.org/wiki/Dampoort,_Ghent

[13] Stad Gent — Met hoeveel in: Dampoort neighbourhood profile — https://hoeveelin.stad.gent/wijken/dampoort/

[14] Gent Buurtmonitor — Demografie Dampoort dashboard — https://gent.buurtmonitor.be/Dashboard/dashboard/demografie---wijk?regionlevel=ggw7&regioncode=4402113

[15] Gent Buurtmonitor — Sociaal-economische data Dampoort — https://gent.buurtmonitor.be/dashboard/dashboard/demografische-en-socio-economie?regionlevel=ggw7&regioncode=4402113

[16] Gent Buurtmonitor — Arbeidsmarkt dashboard — https://gent.buurtmonitor.be/mosaic/dashboard/arbeidsmarkt

[17] Stad Gent — Dampoort neighbourhood page — https://stad.gent/nl/dampoort

[18] Europawse — Call for Interest: Lokale noden Stad Gent (PDF) — https://www.europawse.be/sites/default/files/2023-04/Lokale%20noden_Stad%20Gent.pdf

[19] Keerpuntscholen — Gent campus overview — https://keerpuntscholen.be/gent/

[20] Stad Gent — Freinetschool Keerpunt campus Spitaalpoortstraat 50 — https://stad.gent/en/opening-hours-addresses/freinetschool-keerpunt-campus-spitaalpoortstraat-50

[21] Stad Gent — Bevolkingscijfers Gent — https://stad.gent/nl/over-gent-stadsbestuur/over-gent/kaarten-cijfers-en-data/onderzoeks-en-cijferrapporten/demografie/bevolkingscijfers-over-gent

[22] Stad Gent — Mobility Policy: Focus Bicycle (PDF, 2023) — https://stad.gent/sites/default/files/media/documents/20230905_PR_Mobility%20policy%20Ghent_Focus%20Bicycle_EN_260825.pdf

[23] Grokipedia — Dampoort, Ghent (history and morphology) — https://grokipedia.com/page/dampoort_ghent

[24] Stad Gent — Clean Mobility / Climate actions — https://stad.gent/en/city-governance-organisation/city-policy/ghents-climate-actions/clean-mobility

[25] Vrij CLB Koepel — Buurtschool Oase50 — https://www.vrijclb.be/buurtschool-oase50

[26] MacroTrends — Gent metro area population (1950–2026) — https://www.macrotrends.net/global-metrics/cities/20146/gent/population

Appendix 3

Supplementary Methodological Note: Photovoice Sessions in the Matosinhos Civic Lab

Conceptual framework: photovoice in the context of proximity cities

Photovoice is a participatory action research method that uses photography as a tool for participants to document, reflect upon, and communicate their lived experiences within a given social and spatial context (Wang & Burris, 1997). Within urban studies and mobility research, Photovoice has been increasingly adopted to surface experiential knowledge that is often overlooked by conventional, expert-driven planning instruments, particularly in relation to everyday mobility, safety, accessibility, and the quality of public space.

In the context of the CONIFER project, Photovoice is framed as a situated diagnostic tool that supports the understanding of the city of proximity from the perspective of children and young people. Rather than treating proximity as a purely spatial or infrastructural concept, this approach foregrounds proximity as a lived condition, shaped by perceptions of safety, comfort, legibility, autonomy, and social interaction. This framing is consistent with recent critiques of the "15-minute city" model, which highlight the need to complement accessibility metrics with qualitative, experience-based insights (Moreno et al., 2021; Pozoukidou & Chatziyiannaki, 2021).

By enabling students to visually capture and narrate their everyday encounters with the urban environment surrounding their schools, Photovoice functions as both a research method and a pedagogical device. It contributes to the construction of a shared understanding of place, while simultaneously reinforcing the legitimacy of young people as knowledge producers and political subjects in debates on urban futures (Percy-Smith & Thomas, 2010).

Objectives of the photovoice sessions

Within the Matosinhos Civic Lab, the Photovoice sessions were designed with four interrelated objectives.

First, they aimed to identify strengths, weaknesses, and critical issues in the public space and mobility infrastructures surrounding each school, focusing on walking, cycling, public transport access, and modal conflicts.

Second, the sessions sought to promote a critical reading of the territory, grounded in students' everyday experiences and routines, allowing latent issues such as perceived insecurity, informal barriers, or spatial discontinuities to emerge.

Third, Photovoice contributed to the co-construction of a "story of place", linking past urban transformations with present conditions and future expectations, thereby supporting the foresight-oriented logic of the CONIFER methodology.

Finally, the sessions aimed to generate qualitative evidence capable of informing subsequent phases of the project, namely scenario building and policy recommendation, ensuring that these phases remained anchored in lived realities rather than abstract assumptions.

Methodological approach

Design and implementation

The Photovoice sessions were implemented as part of the Collaborative Diagnostic phase and took place in three public schools in Matosinhos, selected to represent contrasting territorial contexts: a peripheral coastal-rural area (Lavra), a dense urban-suburban area (São Mamede de Infesta), and the municipal urban centre (Matosinhos Centre). This diversity allowed the methodology to capture differentiated experiences of proximity and accessibility across the centre–periphery spectrum.

Students were organised into small groups and invited to undertake short exploratory walks in the immediate surroundings of their schools, accompanied by facilitators. Using their own mobile phones, participants photographed elements they perceived as positive, problematic, or improvable in relation to everyday mobility and public space. This choice recognised students' existing digital and visual literacies and lowered technical barriers to participation (Livingstone & Sefton-Green, 2016).

Collective Reflection and Interpretation

The photographic outputs were subsequently used as prompts for facilitated group discussions. Participants were encouraged to explain why they selected specific images, what experiences they represented, and how these related to their daily movements and sense of autonomy. Through this collective reflection, recurrent themes, shared concerns, and contrasting perceptions were identified.

This dialogical process is central to Photovoice, as it transforms individual visual records into collectively negotiated meanings, enabling the emergence of situated knowledge about the territory (Wang & Burris, 1997). In the CONIFER context, this step also supported

the development of transversal skills, including critical thinking, argumentation, and active listening, reinforcing the educational dimension of the methodology.

Critical reflection on results: insights from the three school contexts

The Photovoice sessions conducted across the three schools revealed that experiences of proximity, mobility, and public space are highly context-dependent and strongly shaped by territorial structure, infrastructure provision, and socio-economic conditions. While common themes emerged across all schools, such as concerns with safety, sidewalk quality, and the dominance of cars, the meaning and intensity of these issues varied significantly between central, suburban, and peripheral contexts. This variation provides critical insights into both the potential and the limits of proximity-based urban models.

Gonçalves Zarco School (Matosinhos Centre)

In the case of Gonçalves Zarco School, located in the urban core of Matosinhos, proximity was largely perceived as an existing but imperfect condition. Students highlighted the availability of essential services, shops, and amenities within walking distance, which contributed positively to feelings of autonomy and independence. This confirms that functional proximity, in terms of spatial access to services, is largely present in central areas.

However, the results also reveal a tension between accessibility and quality. Despite short distances, students identified significant barriers related to sidewalk continuity, pavement maintenance, and exposure to traffic. Poor surface conditions, uneven pavements, and conflicts with cars undermined the perceived safety and comfort of walking, particularly for younger or more vulnerable users. This suggests that proximity alone does not guarantee usability, and that micro-scale design and maintenance play a decisive role in shaping everyday experiences.

Public transport, while present and theoretically accessible, was perceived as unreliable and uncomfortable, especially due to long waiting times and inadequate shelter at stops. Weather exposure emerged as a critical factor, illustrating how climate conditions interact with infrastructure design to influence mobility choices. In this sense, the central context illustrates a paradox of proximity: services may be nearby, yet everyday mobility remains constrained by qualitative deficits in public space and transport infrastructure.

Abel Salazar School (São Mamede de Infesta)

At Abel Salazar School, located in a dense urban-suburban area, the Photovoice results highlighted a strong awareness of spatial injustice and modal hierarchy. Students repeatedly pointed to the occupation of sidewalks by parked cars, narrow or obstructed

pedestrian paths, and poor maintenance as structural problems that force pedestrians into unsafe situations. These issues were framed not as isolated inconveniences but as evidence of a city that prioritizes cars over people.

Unlike the central context, proximity here was perceived as potential rather than reality. While distances between destinations were not excessive, the quality of the public realm limited the effective use of walking and cycling. Emotional responses such as anger, frustration, and insecurity were frequently associated with neglected or car-dominated spaces, whereas well-maintained, greener, and calmer areas generated feelings of comfort and well-being. This strong emotional articulation underscores the affective dimension of proximity and its relevance for children's everyday urban experience.

Importantly, this session revealed a high level of normative awareness and political reasoning. When invited to imagine themselves as decision-makers, students proposed concrete regulatory and infrastructural measures, including stricter enforcement of parking rules, improved lighting, and reallocation of space to pedestrians and cyclists. This indicates that, in consolidated urban-suburban areas, children not only identify problems but are capable of articulating systemic solutions, challenging the assumption that young people's contributions are merely anecdotal.

José Domingues dos Santos School (Lavra)

The most structurally constrained experiences of proximity emerged in the peripheral context of Lavra. Here, students described proximity primarily through its absence. Long distances between residential areas, schools, services, and transport hubs, combined with infrequent and poorly connected public transport, resulted in a strong dependence on the private car

In this context, walking and active mobility were perceived as unsafe and impractical. Narrow sidewalks, discontinuities, and exposure to fast-moving traffic limited students' autonomy and reinforced a sense of vulnerability. Unlike the more central schools, where students debated trade-offs between modes, Lavra students described a lack of real choice, with the car emerging as an almost obligatory solution rather than a preference.

This finding is particularly relevant for proximity-based urban models, as it exposes their territorial limits. In low-density, dispersed, and socio-economically less affluent areas, proximity cannot be achieved solely through micro-interventions or behavioural change. Instead, it requires structural investment in public transport, reconfiguration of land-use patterns, and long-term territorial planning. The Lavra case thus challenges simplified or universal applications of the "15-minute city" concept and highlights the risk of reproducing spatial inequalities if peripheral contexts are not explicitly addressed.

Cross-cutting insights and methodological implications

Across all three schools, the Photovoice methodology proved effective in revealing experiential dimensions of mobility and proximity that are often invisible in quantitative assessments. Children consistently linked spatial conditions to emotions, autonomy, and well-being, reinforcing the idea that proximity is not only about distance but also about feeling safe, welcome, and confident in public space.

At the same time, the results underscore the importance of interpreting Photovoice outputs within their territorial and socio-economic contexts. While central and suburban students engaged in debates about improving existing conditions, peripheral students highlighted more fundamental structural constraints. This differentiation confirms the value of a comparative, place-based approach and cautions against treating youth perspectives as homogeneous.

From a methodological perspective, the findings also reinforce the need to integrate Photovoice with complementary tools. While Photovoice excels at capturing perceptions, narratives, and affective responses, it does not by itself quantify infrastructural deficits or model system-level impacts. Its strength lies in grounding subsequent phases of scenario-building and policy design in lived experience, ensuring that abstract futures and recommendations remain anchored in everyday realities.

Overall, the critical reflection across the three school contexts demonstrates that Photovoice is not merely a diagnostic technique but a political and epistemic intervention. It repositions children as legitimate interpreters of urban space and exposes how proximity is unevenly produced, experienced, and constrained across the urban fabric. These insights provide a robust foundation for the next phases of the CONIFER project, particularly in translating youth-generated knowledge into differentiated, context-sensitive policy pathways.