

BEHAVIOR OF STUDENT USERS OF PUBLIC AND SHARED TRANSPORT IN GDAŃSK: A CASE STUDY

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Reviewed positively: 12.01.2026

Information about quoting an article:

Antczak-Jarzabska R., Okraszewska R. (2026). Behavior of student users of public and shared transport in Gdańsk: a case study. *Journal of civil engineering and transport*. 8(2), 91-101, ISSN 2658-1698, e-ISSN 2658-2120, DOI: [10.24136/tren.2026.006](https://doi.org/10.24136/tren.2026.006)

Abstract – Urban transport systems are a fundamental component of sustainable city development. Implementing advanced mobility solutions contributes to energy efficiency, time savings, and improved quality of life while supporting the creation of integrated and environmentally responsible transport networks. This study presents a case analysis of smart urban mobility in Gdańsk, focusing on the behavior and preferences of student users of public and shared transport. The research objective was to identify key factors influencing students' mobility choices and evaluate their openness to technology-assisted transport solutions. The study was based on an online survey conducted among 111 students, collecting data on travel frequency, transport modes, and satisfaction levels. Results indicate that most students, primarily under 24 years old, use public transport mainly for educational purposes. Respondents showed high awareness of sustainable mobility and positive attitudes toward mobile applications and shared transport systems, though cost and service availability remain decisive factors. The findings highlight the importance of accessibility, frequency, and comfort in shaping travel choices. In conclusion, the study demonstrates that developing smart and sustainable mobility in Gdańsk requires an integrated socio-technical approach that aligns technological innovation with user needs and environmental responsibility.

Key words – Case study, Shared transport, Student behavior, Urban transport systems

JEL Classification – R41, R42, O18, Q01, Q55

INTRODUCTION

Gdańsk, as one of Poland's major academic and economic centers, hosts a large and diverse student population across multiple higher education institutions. Students commuting both within the Tri-City area and from other regions of Poland form a significant component of daily urban mobility. Their travel patterns, preferences, and expectations regarding public and shared transport services provide valuable insights into the functioning of the city's transport system. Conducting a survey among students enables a focused analysis of these patterns, highlighting challenges and opportunities for improving accessibility, efficiency, and sustainability of transport services. Understanding student behavior is particularly important for urban planners, as it informs the design of policies and infrastructure that support smart, inclusive, and environmentally responsible mobility solutions.

In recent years, technological progress associated with the Fourth Industrial Revolution (Industry 4.0) has transformed production, logistics, and mobility systems. Industry 4.0 emphasizes the integration of the physical, digital, and biological domains through advanced artificial intelligence and automation tools [1]. Smart factories and automated supply chains enable process optimization and the implementation of

innovative work methods, particularly in the transport and logistics sectors. Beyond industrial applications, digitalization increasingly influences daily life, including urban mobility and transport management.

The development of Industry 5.0 further expands these transformations, emphasizing human-machine collaboration, production personalization, and sustainability [2]. Unlike Industry 4.0, which focuses primarily on automation, Industry 5.0 integrates social responsibility and environmental awareness into technological solutions, including sustainable urban mobility strategies. Harnessing the potential of both revolutions allows cities to optimize production, logistics, and urban environments, creating smart systems that address modern societal needs.

Smart mobility has emerged as a core component of sustainable urban development, combining public transport, micromobility solutions, and digital management systems to reduce congestion and emissions [3]. Innovative urban concepts, such as the “15-minute city,” promote accessibility and environmental sustainability by ensuring that essential services are available within short walking distances [4].

In this context, students represent a particularly relevant research group for analyzing urban transport behavior. Their commuting patterns, use of public and shared transport, and openness to technology-based mobility solutions provide valuable data for developing evidence-based, user-centered transport policies. This study aims to examine the behavior of student users of public and shared transport in Gdańsk and to identify how technological innovation, urban planning, and user expectations can be integrated to promote smart and sustainable mobility.

Previous studies confirm that students are often selected as a relevant research group due to their frequent use of urban infrastructure and responsiveness to new mobility technologies [5]. Analyzing their travel behavior helps identify factors affecting transport choices, such as service frequency, comfort, and cost. Insights from this research can support the creation of inclusive, technology-driven, and environmentally sustainable transport policies aligned with the goals of smart cities.

In light of the above, this article presents the results of a survey conducted among students in Gdańsk. The primary objective was to assess their transportation preferences and behaviors and to gain a deeper understanding of the functioning of urban mobility systems from the perspective of young users.

1. ACADEMIC ENVIRONMENT IN GDAŃSK

In 2024, the city of Gdańsk conducted a survey among all higher education institutions operating within the city to collect data on the number of students, doctoral candidates, and study programs. The aim of the survey was to provide a comprehensive and up-to-date overview of Gdańsk’s academic environment, which plays a crucial role in urban mobility, socio-economic development, and the planning of sustainable transport infrastructure [6].

Gdańsk is one of Poland’s major academic centres, hosting a total of 12 higher education institutions, evenly divided between public and private entities. The combined number of students and doctoral candidates exceeds 67,000 [6]. The student population is diverse, commuting both within the Tri-City area and from other regions of Poland, which significantly affects public transport usage and overall urban mobility [4].

The academic landscape of Gdańsk encompasses major public universities, technical and medical universities, and specialized art and music academies, alongside private institutions offering a broad range of programs. Table 1 presents a summary of the number of students, doctoral candidates, and study programs at each institution [6].

The data indicate that Gdańsk hosts a highly diverse and sizable student population, including both public and private university students. The diversity of programs and fields of study, ranging from technical and medical studies to arts and social sciences, reflects the city’s role as a key academic hub in Northern Poland. The presence of students commuting from other cities underscores the importance of efficient and sustainable urban transport planning to support both academic and city-wide mobility.

Earlier research [7] confirmed that the mobility patterns of academic communities are perceptible at the scale of entire cities. Since universities generate a significant share of daily trips—representing between 9% and 22% of the total urban population—their collective transport choices directly influence congestion levels and modal split structures. Understanding these behaviors is therefore crucial for developing effective mobility management strategies and promoting sustainable urban transport systems.

Table 1. Number of students, doctoral candidates, and study programs at higher education institutions in Gdańsk (2024)

No.	Institution	Type	Students	Doctoral Candidates	Study Programs
1	University of Gdańsk (UG)	Public	23,000	–	96
2	Gdańsk University of Technology (PG)	Public	14,000	100	42
3	Medical University of Gdańsk (GUMed)	Public	6,500	169	19
4	Academy of Physical Education and Sport (AWFiS)	Public	2,850	23	12
5	Academy of Fine Arts (ASP)	Public	1,000	–	8
6	Stanisław Moniuszko Academy of Music (AMuz)	Public	628	–	8
7	University WSB Merito	Private	16,000	–	–
8	Polish-Japanese Academy of Information Technology (PIATK)	Private	1,000	1	2
9	Powiślańska Higher School (PSW)	Private	1,000	–	–
10	Gdańsk Higher School (GSW)	Private	600	–	5
11	Higher School of Social and Economic Sciences (WSSE)	Private	850	–	3
12	Higher School of Health (WSZ)	Private	–	–	6

2. MATERIAL AND RESEARCH METHODOLOGY

As part of the conducted research, the diagnostic survey method was applied, which is one of the most commonly used approaches to identify and analyse the characteristics, opinions, and behaviours of a selected group of respondents [8]. Within this methodological framework, the technique used was an online questionnaire, allowing for the efficient collection of structured data. The use of the questionnaire as a research tool is particularly appropriate when studying large social groups and when aiming to quantify respondents' views and attitudes [9]. The survey was addressed to a specific social group—students, who constituted the research sample.

The selection of this group was not random and was based on several important considerations. Firstly, students are a population characterized by high activity and mobility, frequently using public transport, especially in large cities. Secondly, due to their familiarity with digital technologies, students represent a reliable source of data in online research. Thirdly, as regular users of urban services and infrastructure, including public transportation, they can provide particularly valuable insights into the functioning and accessibility of urban transport systems.

The research tool was a structured online survey created using the Google Forms platform, which—as noted by Sills and Song—provides a practical and user-friendly solution for conducting social research [10]. Wright further emphasises that digital tools such as Google Forms enhance data-collection efficiency and broaden the researcher's reach [11]. The final version of the questionnaire consisted of 20 closed-ended, single-choice questions designed to obtain quantifiable and comparable responses.

The survey was conducted last year on a sample of 111 individuals, all of whom were students, selected intentionally to form a purposeful sample representing a specific social group. The decision to focus exclusively on students was deliberate, as this group constitutes a socially mobile, digitally literate population that actively uses urban transport systems, particularly in a city like Gdańsk. By targeting students—who frequently rely on public transportation and are engaged in daily commuting patterns—the study aimed to gather insights from a population segment highly relevant to assessing the efficiency and accessibility of urban mobility solutions. Although the total student population in Gdańsk exceeds 67,000 individuals, the study was not designed to achieve statistical representativeness of this population. The sample size of 111 respondents was considered sufficient for the exploratory and illustrative purpose of the research, aimed at identifying selected patterns, tendencies, and user perceptions within a specific social group.

The absence of a formal selection key and the intentional focus on a specific social group mean that the findings should be interpreted as illustrative and exploratory. The value of the study lies in providing selected, demonstrative insights into students' perceptions of urban mobility, supported by quantitative data. Participation in the survey was voluntary and anonymous.

3. RESULTS

In this study, data was collected exclusively from a group of students regarding their most common ways of getting around the city, their destinations and directions of travel, as well as their use of applications that assist them in these activities. The selection of students as the study sample was deliberate and well-justified for several reasons. Students represent an active and mobile segment of society, often relying on public transport in city environments. In addition, their generally high level of digital literacy contributes to obtaining trustworthy and precise responses when conducting research through online instruments such as surveys.

By focusing on this specific group, the research aimed to gather insights that, while not intended to be representative of the entire urban population, are sufficient for a preliminary verification of key trends and patterns in transportation behavior. Therefore, the selection of students for this study is consistent with approaches used in previous transportation research, where student groups have been considered appropriate for initial analyses and exploratory studies, offering reliable and contextually relevant data for understanding urban mobility in its early research stages.

3.1. TRANSPORTATION PREFERENCES OF RESPONDENTS

In the study, the vast majority of respondents are below the age of 24, making up as much as 98% of all participants. This distribution suggests that people in this age range are more inclined to participate in this type of survey. According to research conducted by Lumsden et al. [12], individuals within this demographic are more willing to participate in online surveys, which may result from their higher technological proficiency and more frequent internet use in everyday life. Additionally, this age group tends to use public transportation, city bikes, and mobile applications more frequently, which is typical for individuals who are at the beginning of their educational or professional pathways. As Gössling and Cohen note [13], younger generations are also more open to alternative modes of transportation, such as city bikes, as well as modern mobility-supporting applications.

In the analysis of the reasons for using public transport in Gdańsk, the vast majority of respondents indicated school or university as their main travel purpose-63 people, accounting for over 60% of those who use public transport. Other reasons included leisure and social activities (29 people), commuting to work (11 people), and shopping (6 people).

Considering that the research sample consisted exclusively of students-mostly under 24 years of age-the high percentage of people indicating school or university as the main reason for using public transport emphasizes the key role of urban transport systems in meeting the daily mobility needs of young adults attending higher education institutions. This finding is consistent with previous studies, which have identified students as an important group of public transport users due to their limited access to private vehicles and a high demand for travel related to academic obligations [14-15]. Conversely, purposes such as leisure or shopping-less regular and more lifestyle-dependent-are associated with more occasional use of public transport.

Regarding the frequency of use among students, 16.2% reported utilizing public transport on a daily basis, 24.3% several times per week, 39.6% indicated rare use, while 19.8% stated that they never use it. This distribution may partially reflect recent changes in academic scheduling. Full-time students typically attend in-person classes only three days per week, reducing the need for daily commuting. Part-time students predominantly attend classes on weekends, with some coursework delivered fully online. Therefore, the reduced frequency of public transport use observed in the sample may indicate a broader transformation in teaching modalities rather than a reduced reliance on urban mobility systems. These findings also suggest that public transport in Gdańsk is used by students primarily for educational commuting, with relatively limited use for work-related or leisure travel. Consequently, there remains untapped potential to increase the attractiveness and functionality of public transport-both among students and within other demographic groups-by adjusting services to shifting mobility patterns and contemporary lifestyle needs Figure 1.

Among the respondents, the most frequently chosen means of public transportation in Gdańsk is the bus, indicated by 57 individuals. The next most common choices were the tram (31 people) and SKM – the Fast Urban Railway (20 people). According to a report by the Central Statistical Office of Poland, the bus remains the dominant form of urban transport in most Polish metropolitan areas, which confirms local observations [16].

In the next section of the survey, participants were prompted to grade the functioning of public transportation in Gdańsk Figure 2. The analysis of survey results concerning the assessment of travel comfort in public transport in Gdańsk indicates that the largest group of respondents (n=50) rated the comfort as good. An

average level of comfort was reported by 31 people, while 19 participants gave a very good rating. A negative assessment of comfort (“poor”) was expressed by only 7 respondents. These results are consistent with the report of the Municipal Transport Authority in Gdańsk, which indicates that over 70% of public transport users evaluate the quality of services positively [17].

Despite the overall satisfaction with the level of comfort, a total of 91 respondents identified specific areas requiring improvement. The most frequently mentioned issue was the punctuality of services, suggesting that passenger expectations regarding timeliness are not fully met. Additionally, issues such as vehicle cleanliness and the accessibility of transport infrastructure were highlighted as significant factors affecting the perception of comfort—especially among those who rated it as average. This indicates that even users who assessed comfort positively still notice shortcomings and opportunities to improve the quality of public transport services. These observations are supported by the Sustainable Urban Mobility Plan 2030 for the Gdańsk-Gdynia-Sopot Metropolitan Area [18], which emphasizes the need for continued efforts to enhance standards in punctuality, cleanliness, and accessibility of public transportation. The findings of this study complement existing knowledge on the behaviors and expectations of public transport users in Gdańsk, which may contribute to more effective urban mobility planning. The analysis of factors influencing residents’ decisions to use public transport in Gdańsk reveals diverse user priorities. The most important factor was the availability of transport modes, indicated by 35 respondents. Travel comfort and ticket price were almost equally significant, with 26 and 25 mentions respectively. Travel time, although relevant, ranked lower in the hierarchy of factors influencing public transport choice, as noted by 21 participants.

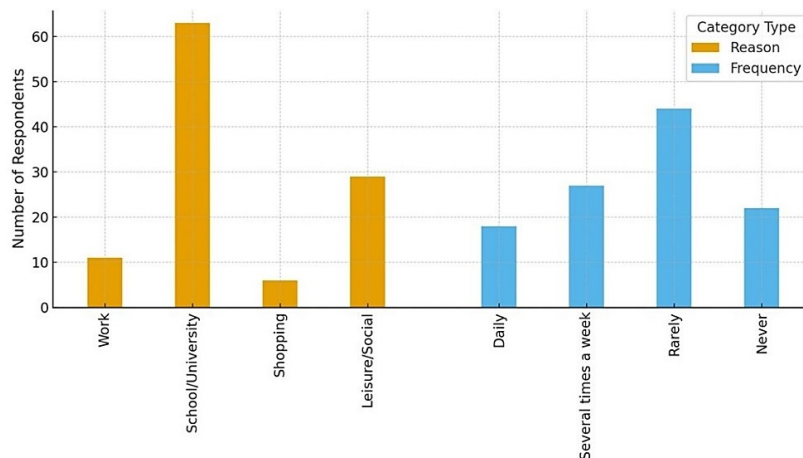


Fig. 1. The main reasons and frequency for using public transport in Gdańsk

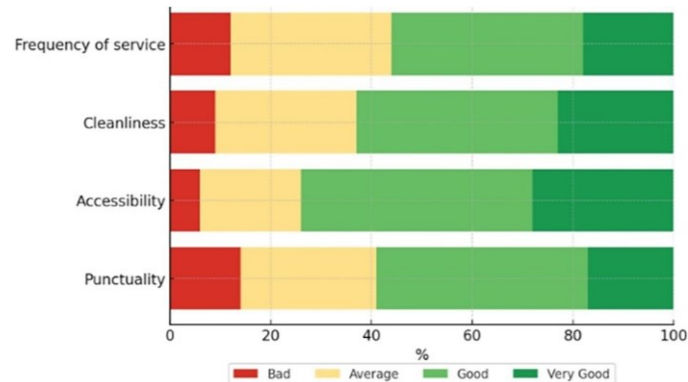


Fig. 2. Opinions about the functioning of public transport in Gdańsk

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Regarding measures to improve the quality of public transport, respondents primarily emphasized the need for increased service frequency (43 mentions), highlighting the critical role of accessibility and regularity of connections for user satisfaction. The second most important suggestion was expanding the number of connections within the city (33 mentions), underscoring expectations for better network coverage. Improvement of the vehicle fleet quality, mentioned by 20 respondents, reflects growing awareness and demand for comfort and modernity. A small group (9 respondents) proposed other measures, possibly indicating individual needs or specific local issues.

3.2. GDAŃSK'S PUBLIC AND SHARED MOBILITY SYSTEM

In the Table 2 presents examples of applications supporting the Gdańsk transportation system and divides them into groups [19-20].

Table 2. Examples of applications supporting the Gdańsk transportation system divided into groups

International Applications	Nationwide Applications	Local Applications
Google Maps	Jakdojade	ZTM Gdańsk
Apple Maps	SkyCash	SKM Trójmiasto
Uber	KOLEO	Morabus (Gdańsk area)
Bolt	Yanosik.pl	

Applications have been divided into three subgroups: international, nationwide, and local Table 2. The survey responses collected in Gdańsk indicate a strong preference for international applications. Among them, Google Maps was identified by 43 out of 72 respondents who use mobile apps for travel planning, making it one of the most popular choices. Although the Jakdojade app remains a widely used nationwide tool (chosen by 46 respondents), local applications such as ZTM Gdańsk, SKM, or Morabus are used far less frequently. This likely results from their more limited functionality or lower recognition among users.

Respondents most frequently indicated the Jakdojade app (45.1%) and Google Maps (42.2%), confirming the strong position of these tools among students as primary sources of information on timetables and travel planning. Both applications feature a clear interface, real-time map availability, and integration with urban transport systems, making them particularly useful for people commuting from various parts of the city or region. Applications such as SkyCash (4.9%), which mainly focuses on ticket purchases, and other less popular solutions (7.8%), often with limited functionality or a local reach, were of less interest.

As part of the conducted survey, students of Gdańsk were asked whether they perceive public transport as sufficiently accessible across different parts of the city. Among the respondents, 62% considered public transport to be adequately accessible, while 38% expressed the opposite opinion. This division suggests that, despite a generally positive evaluation, a considerable share of students experience limitations in transport connectivity.

It is important to note that students represent a heterogeneous group, often commuting not only from various districts within Gdańsk but also from other parts of the voivodeship or even different regions of the country. Given this diversity, negative assessments of accessibility may reflect factors such as the desire to leave private vehicles on the outskirts of the city and rely on urban public transport for inner-city mobility. This phenomenon may explain some of the concerns related to service frequency, directness of routes, or integration between transport modes (trams, buses, suburban rail) [21-22].

These insights underscore the need for further spatial analysis focused on the transport needs of commuting students and suggest that urban transport integration strategies should be reassessed to better accommodate this specific user group.

One of the key determinants of perceived accessibility in urban public transport systems is the clarity, integration, and flexibility of the ticketing structure. Survey participants consistently highlighted the importance of a unified fare system encompassing multiple modes of transport-such as buses, trams, and suburban rail-as a means to facilitate intermodal transfers and minimize travel time.

In the context of Gdańsk, residents in possession of the Gdańsk Resident Card are eligible for a personalised integrated season ticket, which grants access not only to ZTM-operated services but also to selected SKM and POLREGIO trains within the city limits [25-26]. This integrated solution is well-suited for individuals residing permanently in Gdańsk, particularly those engaged in regular commuting. However, this benefit remains largely

inaccessible to non-residents, including a significant portion of the student population, who often commute from peripheral municipalities or other regions of Poland. The lack of eligibility for the Resident Card among these students may explain the observed dissatisfaction with fare system coherence and perceived economic barriers associated with regular travel.

Survey results further reveal that ticket prices are a contested issue among students. While 54 respondents evaluated prices as adequate, a substantial group-48 individuals-perceived them as excessive, reflecting concerns about the financial strain of sustained use of public transport. Only a marginal share of participants ($n = 5$) deemed fares too low, indicating limited demand for further reductions.

In terms of ticket preferences, single-ride tickets emerged as the dominant choice, indicated by 63 respondents. This pattern likely reflects the prevalence of occasional users among students, whose travel routines are shaped by irregular academic schedules or part-time attendance. Monthly season tickets were selected by 31 individuals, suggesting a segment of regular users, possibly including daily commuters. Time-based ($n = 9$) and paper-based ($n = 5$) tickets were notably less popular, which may be attributed to the digital transformation of ticketing systems and a growing preference for mobile applications and flexible fare options.

These findings point to a need for further optimization of fare policy, particularly with respect to inclusivity and integration. The limited uptake of long-term or integrated ticketing options among students underscores potential barriers-both institutional (eligibility criteria) and economic (cost-effectiveness)-that may hinder broader adoption. Moreover, the high share of single-ride ticket users signals an opportunity for developing targeted incentives aimed at promoting the use of season or multimodal tickets, thereby enhancing user retention and contributing to a more sustainable and efficient public transport system.

3.3. CARSHARING SYSTEM

The results of the survey conducted on carsharing in Gdańsk indicate a moderate interest in this mobility model, which is gaining popularity in many cities around the world [23-24]. The analysis of the frequency of using carsharing services among the surveyed population indicates a predominance of occasional use of this form of mobility. Most respondents stated that they never use carsharing, while a significant proportion indicated occasional use. Meanwhile, a small group of respondents use carsharing regularly, both daily and several times a month. In terms of opinions about carsharing, neutral attitudes prevail, which may suggest a lack of a clearly established position regarding this service among respondents. Positive opinions constitute a minority, and the share of negative assessments is relatively small but significant. Such a distribution of responses indicates the potential for carsharing development, but at the same time emphasizes the need to increase awareness and social acceptance of this mobility model. Detailed data on the frequency of use and respondents' opinions are presented in Figure 3.

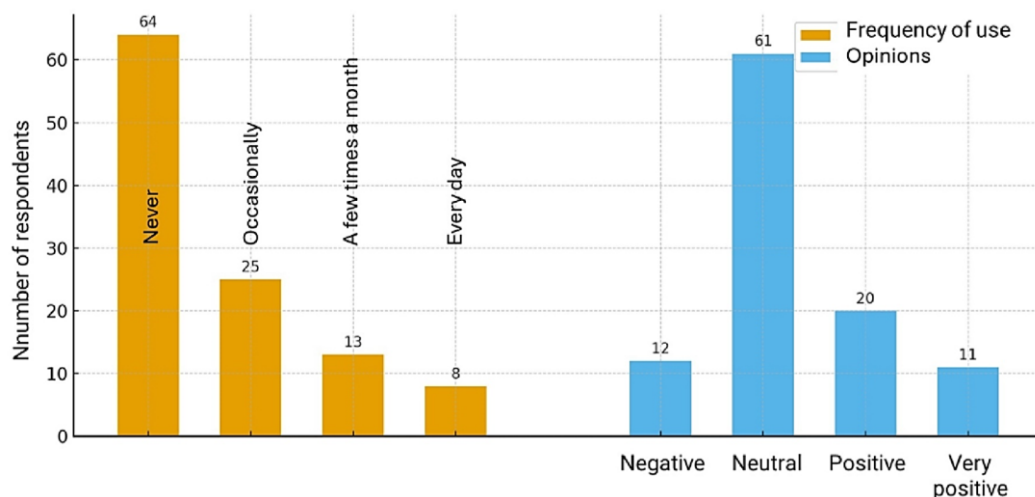


Fig. 3. Carsharing usage frequency and student opinions in Gdańsk

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These results are consistent with research on the development of carsharing in cities, where the frequency of using this transportation model depends on many factors, such as vehicle availability, cost, supporting infrastructure, and social awareness [25-26]. According to studies on carsharing in European cities, including Poland, the growth in popularity of this service is mainly observed in larger cities, but it still remains a marginal option compared to private car ownership or using public transport [27-28]. In Gdańsk, as in other cities, key factors limiting wider adoption of carsharing may include a low level of integration of this service with other forms of transport, the lack of appropriate infrastructure (e.g., charging stations for electric vehicles within carsharing), as well as incomplete social awareness regarding the benefits of using this form of mobility. Additionally, the results suggest that despite the growing interest in flexible transportation solutions, carsharing is still perceived as a supplementary option rather than a primary means of transportation.

3.4. FACTORS AFFECTING THE USE OF PUBLIC TRANSPORT AND PREFERRED INNOVATIONS IN GDAŃSK

The results of a survey on public transportation usage in Gdańsk conducted among students indicate the key factors that have the greatest impact on their decisions. The most important of these are the availability of transportation options (35 responses, 33%), travel comfort (26 responses, 25%), and cost (25 responses, 23%). Travel time, although significant, was indicated by 21 respondents (19%), suggesting that while speed matters, other factors such as availability and comfort are equally important for students when choosing a means of transport. These results confirm that students in Gdańsk primarily expect convenience and flexibility in using public transportation, while also taking cost aspects into account.

In response to the question about preferred technological innovations that could improve urban mobility in Gdańsk, respondents identified several key solutions. The greatest interest was shown in the development of transport booking applications, indicated by 37 people (35%), suggesting a growing need to integrate various forms of transport into one easy-to-use platform. Another important solution, which received 35 votes (33%), was the introduction of electric means of transport, reflecting environmental awareness and a desire to shift to more sustainable forms of mobility. Additionally, 16 people (15%) pointed to the need for developing electric vehicle charging infrastructure, emphasizing the importance of creating suitable conditions for using eco-friendly transport options in the city Figure 4.

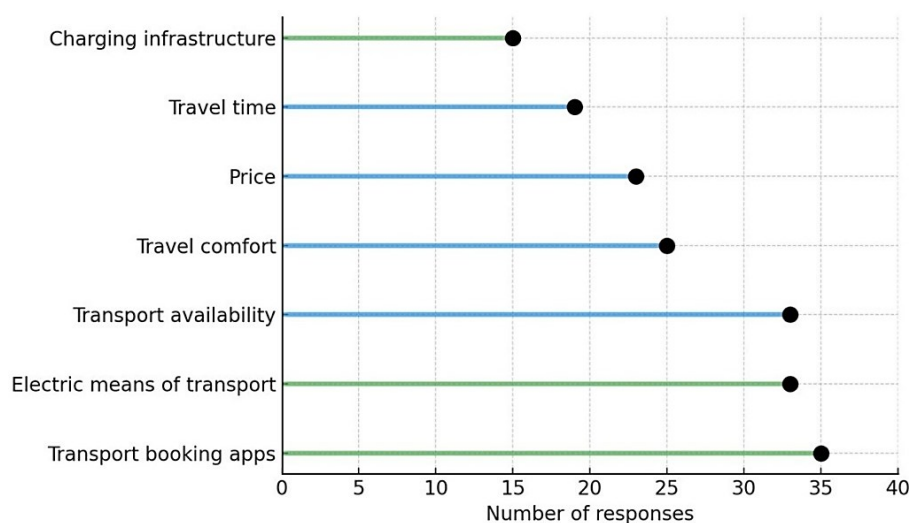


Fig. 4. Factors and preferred innovations in public transport in Gdańsk

The analysis of the results confirms that students in Gdańsk perceive the quality of public transport primarily through the lens of availability and frequency of services, and then - comfort and modernity of the infrastructure. Therefore, the city's strategic actions should focus on increasing the number and frequency of connections, while simultaneously modernizing the fleet and improving the integration of the transport network Figure 5.

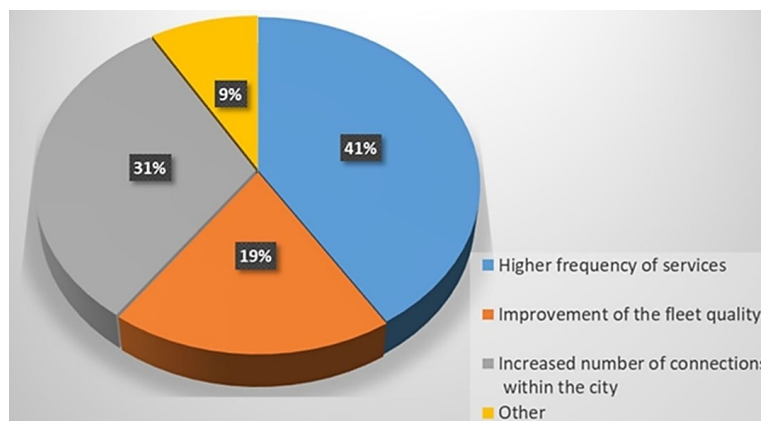


Fig. 5. Actions that could improve the quality of public transport in Gdańsk

CONCLUSIONS

The results of this study indicate that, from the perspective of the surveyed student group, the development of smart and sustainable urban mobility in Gdańsk requires an approach that combines technological innovation with consideration of user needs. The survey showed that students commute to the city from various towns and districts, which affects their expectations regarding public transport and transport infrastructure.

The study confirmed that students are highly open to technology-based transport solutions, such as carsharing or mobile booking applications, while also paying attention to the costs of using transport. Flexible pricing and loyalty programs could increase their long-term engagement with public transport.

Among students, the key factors influencing satisfaction with public transport are the availability of connections and the frequency of services, even outweighing travel time. Therefore, a strategic priority for the city should be to increase the density and regularity of connections, particularly from peripheral areas from which students commute.

Additionally, due to the high number of commuters from outside the city center, it is recommended to expand parking infrastructure for private cars on the city outskirts, combined with strengthening public transport from these areas. Such a solution could significantly improve the commuting experience for students while also reducing traffic congestion in central Gdańsk during the academic period.

The relatively low popularity of carsharing services among students points to infrastructural and awareness-related barriers. Their attractiveness could be increased through better integration with public transport and the development of dedicated parking or charging zones for electric vehicles. Introducing electric and hybrid vehicles within shared fleets would further support the city's sustainability goals.

In conclusion, the development of smart urban mobility in Gdańsk for students should be seen not only as the introduction of modern technologies but as a socio-technical transformation that combines efficiency, convenience, accessibility, and environmental responsibility, while taking into account the specific needs of those commuting from outside the city center

ZACHOWANIA STUDENTÓW KORZYSTAJĄCYCH Z TRANSPORTU PUBLICZNEGO I WSPÓŁDZIELONEGO W GDAŃSKU: STUDIUM PRZYPADKU

Systemy transportu miejskiego jest istotnym elementem zrównoważonego rozwoju miast. Wdrażanie zaawansowanych rozwiązań mobilności sprzyja efektywności energetycznej, oszczędności czasu oraz poprawie jakości życia, wspierając tworzenie zintegrowanych i ekologicznie odpowiedzialnych sieci transportowych. W niniejszym artykule przedstawiono analizę przypadku mobilności miejskiej w Gdańsku, koncentrując się na zachowaniach i preferencjach studentów korzystających z transportu publicznego i współdzielonego. Celem badania było zidentyfikowanie kluczowych czynników wpływających na wybory transportowe studentów oraz ocena ich otwartości na technologicznie wspomagane rozwiązania transportowe. Badanie oparto na ankiecie przeprowadzonej wśród 111 studentów, zbierającej dane dotyczące częstotliwości podróży, wykorzystywanych środków transportu i poziomu satysfakcji. Wyniki wskazują, że większość studentów, głównie poniżej 24. roku życia, korzysta z transportu publicznego głównie w celach edukacyjnych. Respondenci wykazali wysoką świadomość

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zrównoważonej mobilności oraz pozytywne nastawienie do aplikacji mobilnych i systemów transportu współdzielonego, choć koszty i dostępność usług pozostają czynnikami decydującymi. Badanie podkreśla znaczenie dostępności, częstotliwości i komfortu w kształtowaniu wyborów transportowych. Wnioski wskazują, że rozwój inteligentnej i zrównoważonej mobilności w Gdańsku wymaga zintegrowanego podejścia społeczno-technicznego, łączącego innowacje technologiczne z potrzebami użytkowników i odpowiedzialnością środowiskową.

Słowa kluczowe: Analiza przypadku, Systemy transportu miejskiego, Transport współdzielony, Zachowania studentów.

AUTHOR CONTRIBUTIONS

- conceptualization, R.A.J. (Romana Antczak-Jarząbska), R.O. (Romanika Okraszewska);
- methodology, R.A.J.;
- software, R.A.J.;
- validation, R.A.J.;
- formal analysis, R.A.J. and R.O.;
- investigation, R.A.J. and R.O.;
- writing - original draft preparation, R.A.J. and R.O.;
- writing - review and editing, R.O.;
- visualization, R.A.J.;
- supervision, R.O.;
- project administration, R.A.J. and R.O.

All authors have read and agreed to the published version of the manuscript.

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