



PRISMA CENTRE FOR DEVELOPMENT STUDIES

EXECUTIVE SUMMARY - Synthesis Report of the Urban Open Space Users' Surveys in Darmstadt, Athens, Győr & Eindhoven



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Executive Summary of Synthesis Report of the Urban Open Space Users' Surveys in Darmstadt, Athens, Gyor and Eindhoven, (IO02) submitted in fulfilment of the requirements for the Erasmus+ Project Promoting education and jobs to enhance the use of urban blue and green infrastructure for health and fitness (PREHealth).

Project partners

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1. Introduction

The field survey of open space users was conducted in the framework of the PreHealth project in the 4 cities participating in the project, namely Athens, Darmstadt, Gyor and Eindhoven. The survey included two parts: a face-to-face survey and an online survey of users of urban open spaces.

The objectives of the survey are:

- to gather empirical data from the four cities, focusing on a number of open spaces selected in cooperation with the City Councils for the face-to-face survey; while inviting all open space users to take part in the online survey;
- to enable the project team to construct a detailed picture of behaviour patterns in the use of open spaces by city dwellers;
- to identify the improvements these users consider necessary to allow more thorough and active use of such spaces.

The face-to-face surveys were conducted in the four cities during the summer and early autumn of 2017, from June to September. The online surveys were launched in the four cities either in parallel or after the face-to-face surveys and were promoted by the partner organisations and the cooperating local authorities.

Both surveys used a specially designed questionnaire, translated in the four different national languages of the participating countries (GR, DE, HU, NL). The face-to-face and online questionnaires were almost identical, adjusted only in a few points as was deemed necessary. The questionnaire in the face-to-face survey took about 10 mins to complete, and was administered by volunteers and project partners' staff in the open spaces selected in each city, inviting a random sample of open space visitors to cooperate in the survey.

2. The location of the field surveys

The face-to-face field surveys were conducted in the following open spaces:

In **Athens**, the survey was conducted in three parks:

- Pangrati Alsos, a 5 Ha park, is located in a central middle-income residential area of Athens. It is one of the oldest green spaces of Athens with dense, natural vegetation which is beneficial for the microclimate of the area. It includes limited sports facilities and a playground, attracting locals and especially families with children, older people and dog-walkers.
- The National Gardens, a 15,5 Ha park, is a designated national monument, dating from year 1836, located at the centre of the city of Athens, next to the Parliament. It includes a variety of vegetation, ponds, playgrounds and well-formed footpaths and attracts Athenians as well as tourists of all ages for relaxed recreation, nature observation, walking and jogging, as well as limited cycling.
- Goudi Park and sports complex covers 8,5 Ha, located at the periphery of Athens municipality. It includes a pine forest and a sports complex that features open-air and indoors swimming pools and basketball courts, an outdoors tennis court, a mini-football

court and an open air gym. The park attracts a variety of visitors from adjacent municipalities and from the wider Athens conurbation who use the sports facilities or walk and jog in the forest area.

In **Darmstadt**, the survey took place in four public open spaces:

- Kapellplatz and Skate park: Kapellplatz, formerly a cemetery, is a public, small park with scattered gravestones, serving the local neighborhood. It contains the ruins of the former city chapel (destroyed in WWII), trees and mosaic pavement paths, has the advantage of a nearby located skate park which attracts users across the city as well people from the region, especially the young.
- Rudolph-Müller-Anlage: its area comprises wide lawn areas, playgrounds, leisure paths and benches; it is a local/neighborhood open space and is located right next to the "Großer Woog".
- Der Großer Woog: its area comprising a large lake, used for recreation and environmental purposes, playground areas, leisure paths, green lawn areas and a small restaurant. The complex is located at the heart of the city of Darmstadt and attracts local and regional visitors.
- Ostbahnhof und Am Judenteich: The train station Darmstadt East is a transit station of the "Odenwald" train.

In **Eindhoven**, the field survey took place in two open public spaces:

- The Achtse Barrier Park was constructed in the 1980s. It is located 3 km from the city centre of Eindhoven in the middle of a middle and lower middle class suburban neighbourhood with detached single-family homes. It is an elongated park along a ditch. The park includes large grassy fields, and a playground for kids.
- The Stadswandelpark, constructed in the 1930s and located about 1 km south of city centre is surrounded by Elscent, a high-income neighbourhood with villas, and Oud, a very diverse neighbourhood with single family terrace houses and apartment buildings, offices and shops along the main roads. The park includes a lake, many small patches of plants and flowers and small paved roads.

In **Gyor**, the field survey took place in four open public spaces:

- Batthyány square is an inner city park renewed in 2014 with a territory of 2 Ha, surrounded by a medium-rise residential area. The square, adorned with flowers, ornamental shrub and assorted trees, is mostly used by the neighbouring residents for resting, dog-walking or using the playground and sports field.
- The artificial Lakes of Adyváros were created in the 1960s-1970s, following gravel extraction for the construction of high rise blocks nearby. Now located in a district with a very high population density, the lakes are surrounded by a patchwork of green areas offering opportunities for water and land recreation.
- The Riverside is the inner city coastline of the Mosoni Danube and Rába River, including the Aranypart and Dunakapu squares. Aranypart, an area of 4 Ha, is mainly used by the university students during the week, hosting visitors from all over the city in weekends, seeking opportunities for physical activity, including rowing, camping and other sports

facilities. Dunakapu square, an area of 2,5 Ha located next to the historical city center, attracts tourists but also anglers, walkers and those seeking relaxed recreation.

3. The comparison of the field and online surveys

The face-to-face survey included 542 respondents from the four cities. The online survey included 2310 respondents from the four cities, with the majority (1843) coming from Eindhoven. Some basic differences should be noted between the two surveys, which help to explain their findings:

The field survey respondents were randomly selected and interviewed while visiting an open space and their responses reflected directly their experience of the specific open space they were visiting. On the contrary, online respondents were self-selected through the internet, and were asked to choose the open space they visited most often: this led to sub-samples of same-open-space-users that are very small, and cannot be easily compared.

Moreover, the demographic profile of online respondents, being self-selected, cannot be considered as representative of open space users, and presents marked differences from the profile of face-to-face respondents. Thus, the findings of the field surveys can be considered more representative than those of the online surveys of open space users and their behaviour. However, it should be noted that the online survey findings regarding user behaviour and perceived benefits are very close to those of face-to-face surveys, allowing certain conclusions to be drawn with a fair degree of confidence. Furthermore, the data of both surveys were subjected to further analysis based on correlations (Pearson's r), aiming to explore whether user profile influences behaviour in open space usage.

4. The findings of the field surveys

Profile of open space users

The profile of the open space users who participated in the face-to-face surveys in the four cities can be summarized as follows:

Gender: the proportion of men to women visitors was found to be very close to the general demographic data in the four countries, especially in Darmstadt and Athens (51-52% men, 48-49% women) while in Eindhoven the difference between the two percentages was more marked (59-41%) and in Gyor it was reversed (women's presence exceeded men's by 55-45%).

Age: the majority of the open space users contacted in all four cities belong to two large age groups, namely young people under the age of 35 (ranging from 37% in Athens to 55% in Darmstadt and Eindhoven); and older people, over the age of 56 (ranging from 24% in Darmstadt to 37% in Gyor). The middle group, aged between 36 and 55 forms a minority in 3 cities namely Gyor, Eindhoven and Darmstadt (ranging from 18% to 22%) while Athens is the exception, with a substantial group (36%) in this category.

Education: open space visitors with university and postgraduate education represent the majority in Athens and Darmstadt (45-39%) and those with upper and post-secondary education the majority in Gyor and Eindhoven (51-48%). People with primary and lower

secondary educated visitors represent overall the smallest group of open space visitors contacted in the surveys.

Employment; employed people (full or part time) represent the largest group among open space visitors in all cities, ranging from 53% in Darmstadt to 39% in Gyor. Other substantial groups are old age pensioners (Athens and Gyor) and students (Darmstadt and Eindhoven).

Type of work: manual workers represent the largest group of open space visitors in Gyor and Eindhoven (66-55%), in contrast with Darmstadt and Athens where office workers represent the largest group (47-54%).

Household: around 25% of open space visitors are families with children, except in Athens where families represent 38%.

Type of residence, access to private garden: there is no common pattern among the four cities; rather, the findings reflect the differences in the structure of the housing stock of each city, and more so, the housing types prevalent in the catchment areas of the open spaces covered by the survey.

Patterns of using urban open spaces

Local vs non-local open spaces visited: the majority of open space users interviewed visit local and non-local spaces, including spaces outside the city, ranging from 84% in Darmstadt to 57% in Gyor. A significant minority visits only local open spaces, located in their neighbourhood, which is most marked in Gyor (39%) and Athens (35%).

A direct consequence of local open space preference is that for the majority of visitors, the open spaces they visit are located up to 200 meters away (up to 5 minutes of walk) from their residence, ranging from over 50% in Athens and Gyor to around 40% in Eindhoven and Darmstadt.

Related to the above is that the majority of open space users walk to the open spaces they visit, ranging from 53% in Darmstadt to 41% in Eindhoven; only in Athens about one in three visitors take the bus.

Frequent visitors: visiting open spaces twice or more frequently in the week represents the preferred option for the majority of open space visitors, ranging from 63% in Eindhoven to 34% in Gyor. If we add those who visit once a week (ranging from 11% in Eindhoven to 22% in Darmstadt) we can conclude that the majority of open space visitors are frequent users, undertaking weekly visits.

Moreover spending in the open space more than one hour per visit represents the preferred option for the majority of open space visitors, ranging from 62% in Athens to 46% in Darmstadt.

What do people do during visits?: resting represents the most popular activity in all four cities, with a peak demonstrated in Athens (68%) and Gyor (63%), while in the Darmstadt and Eindhoven resting, socializing and walking or jogging enjoy similar popularity (around 40%). In Athens, observing nature also stands out as a popular activity for nearly half the visitors.

Combining activities for the four cities provides an overall rank order of activity preferences from resting to cycling as follows:

Rest	54%
Meet other people and socialise	34%
Walk or jog	34%
Observe nature	27%
Dog walking	17%
Taking the children to the playground\	16%
Play a sport	8%
Cycle	7%

Benefits experienced and improvements desired

Visitor's satisfaction from the open space was measured on a scale from 1 (satisfies none of my needs) to 5 (satisfies many of my needs), all cities score relatively high from 4,4 in Eindhoven to 3,5 in Gyor

Subsequently the respondents were asked what other activities they would like to pursue in the open space. Combining visitor preferences for other activities for the four cities provides an overall average rank order of other activity preferences, as follows:

Walking or jogging	31%
Pursuing a sport	28%
Exercising in an open air gym	23%
Cycling	18%

What are the perceived benefits from using open spaces? on a scale from 1 (very low benefits) to 5 (very high benefits), all four cities scored well-appreciated benefits: high scores are reported by open space users for resting and relaxing, enjoying nature and improving one's health (scores from 4,2 to 3,9); while medium scores are reported for meeting other people and socializing, keeping fit and improving one's family health (from 3,5 to 3,0).

Improvements needed in the open space were also suggested: combining the data on proposed improvement for each city, the number of reports per person provides a rank order of the number of improvements suggested, ranging from Athens (4,9) to Gyor (4,4) to Darmstadt (3,9) to Eindhoven (3,6).

Overall three groups of improvements can be identified in order of importance for open space visitors:

High importance: free drinking water, cleanliness, benches/other furniture

Medium importance: Wi-Fi access, footpaths upkeep, better design, improve the vegetation, safety, facilities for physical activity and sport

Low importance: bicycle parking, disabled access, noise control, information about sport and recreation options, activity zoning.

Life style

Certain life style characteristics were also explored, to highlight the possible advantages of open spaces on citizens' health.

Free time: the majority of open space users claimed that they enjoyed free time during the day ranging from 2 to 6 hours (over 50% in all cities) while substantial minorities claimed free time over 6 hours daily, consisting mostly of students and old age pensioners (ranging from 25% in Darmstadt to 42% in Eindhoven)

Sitting time: the majority of open space users reported devoting time for sitting during the day over 6 hours (ranging from 45% in Eindhoven to 73% in Darmstadt) while a significant group reported sitting time between 2 and 6 hours daily (49% in Eindhoven to 24% in Darmstadt, with Athens and Gyor falling in between at around 40%).

Stress: a clear majority of open space users reported no stress or little/some stress (from 90% in Eindhoven to 73% in Gyor, 72% in Athens and 68% in Darmstadt).

Physical activity: combining the data on physical activities undertaken by respondents, the number of activities undertaken per person provides a rank order for the four cities ranging from Athens and Eindhoven (2,9 activities) to Darmstadt (2,8 activities) to Gyor (2,4 activities). Regarding specific popular activities, a combination of data from all cities reveals the popularity of walking (average 70%) and cycling (average 45%) while sports (such as tennis, skating or volleyball) are undertaken up by minorities of 4-5% on average.

Digital technology: open space users lead in the use of mobile internet in Darmstadt (83%) and Eindhoven (81%), followed by Athens (71%) and Gyor (65%). Although the majority use social media while visiting the open spaces, a substantial proportion do not use apps at all in an open space (59% in Athens, 56% in Eindhoven, 36% in Gyor). Fitness apps are used by a small minority (between 6% and 10% in all cities).

4. The online surveys

There were certain marked differences in the socioeconomic profiles of the respondents between the two surveys, which was expected, given the different recruitment methods used to compile the sample of each survey. However, in most aspects investigated, including user behaviour and perceived benefits, the differences were minor.

Profile of open space users

In the online survey, the deviations from the face-to-face surveys were notable regarding gender (more women than men); education (the majority are university educated); and type of work (office workers form the majority). Minor differences between the two surveys were recorded regarding age, employment status, household composition, type of residence and access to a private garden.

Patterns of using urban open spaces

Regarding the frequency of visits to an open space and proximity of open spaces visited to the visitor's residence, the online survey confirmed the findings of the face-to-face survey, despite the difference in the composition of the two samples: the majority of respondents visit their local park weekly, and they also usually reach it by walking. A higher proportion of people visit both local and non-local open spaces compared to the face-to-face surveys.

However, marked differences were noted in the time spent in an open space by online respondents (less time) and in the activities pursued: walking and jogging are shown to be

more popular overall in the 4 cities, compared to resting and relaxing preferred by the respondents in the face-to-face surveys.

Benefits and improvements

There are minor differences overall between the two surveys regarding the perception of benefits from the use of open space. Thus, we have noted agreement between the face-to-face and online respondents regarding visitor's satisfaction and other activity preferences (i.e. activities they would like to take up in the open spaces visited if they had the opportunity) - with taking up a sport being slightly more popular compared to the face-to-face respondents.

Perceived benefits from the use of open spaces do not differ between the two samples: the same groups of benefits enjoyed appreciation in the online survey as in the face-to-face surveys, with health benefits being at the top group.

Regarding the desired improvements, the same rank order is observed regarding the number of improvements mentioned. Moreover, the three groups of improvements identified in the face-to-face survey in order of importance for visitors (high, medium, low) are almost identical in the online survey

Life style

There are few marked differences between the face-to-face and online surveys regarding life style characteristics. In particular, in the online survey, only a small, single-digit minority reported free time over 6 hours daily, with the exception of Eindhoven (43%), while substantial minorities reported ample free time in the face-to-face survey (over 25%). Also, the majority of respondents reported sitting time of more 6 hours per day, while in the face-to-face survey the majority reported between 2 and 6 hours. Regarding level of stress experienced by respondents there are not any marked differences between the two surveys. Moreover, the majority of respondents in both surveys use mobile internet and social media (ranging from 65% to 83% in the face-to-face surveys and from 80% to 98% in the online surveys) in all cities; while in the online surveys a larger sub-group use fitness apps (around 20% in Athens, Gyor and Darmstadt, 11% in Eindhoven) thus demonstrating an untapped potential for health-related activities in the urban open spaces.

5. What influences the open space behaviour of users?

This question has been investigated by using correlation analysis, exploring the strength of inter-relationships between different variables included in the questionnaire, and especially the profile variables (e.g. age, education etc.) and the behavioural variables (e.g. frequency of visits, evaluation of open space, benefits experienced etc.)

Face-to-face and online survey data have been analysed separately and their results compared. The conclusions, regarding significant correlations (at the 99% and 95% level of probability) identified by the analysis, per city, have taken into account both survey results.

Clearly, as could be expected, the patterns of correlations differ markedly across the four cities studied, as well as between the two surveys within cities. To identify common patterns of data relationships depicting similarities across the four cities, the single criterion of

“significant correlations in the same direction (+ or -) obtained in either or both surveys for two or more cities was used.

Altogether 36 similarity patterns were identified out of 92 correlations tested, as follows:

- In all 4 cities: 3 cases
- In 3 cities: 11 cases
- In 2 cities: 22 cases

A summary of the main results is presented below.

Age appears as having the strongest direct influence on the choice and frequency of the open space used: older people tend to visit open spaces nearer their residence, whilst younger people tend to visit open spaces further away from their residence (Athens, Eindhoven); while older people tend to visit open spaces more frequently than younger people (Athens, Gyor).

In addition, age has an influence on the perception of benefits gained when using open spaces: older people tend to experience stronger benefits than younger people regarding the improvement of their health (Athens, Gyor, Eindhoven), the enjoyment of nature (Gyor, Darmstadt, Eindhoven), keeping fit (Athens, Eindhoven), meeting other people and socializing (Darmstadt, Eindhoven). Younger people tend to experience more benefits than older people regarding taking-up a sport they like (Athens, Darmstadt, Eindhoven).

Education has also some influence on behaviour patterns: regarding the choice and frequency of open space use, users who are more educated tend to visit open spaces further away from their residence, while less educated people appear to visit open spaces nearer their residence (Gyor, Darmstadt). Regarding the perception of benefits, users who are more educated tend to experience more benefits than less educated people in relation to health improvement (Gyor, Eindhoven).

Certain life style aspects also appear to have an influence on how people use open spaces. Thus, people spending more time sitting during the day tend to visit open spaces less frequently and they also tend to experience less benefits regarding taking up a sport (Gyor, Eindhoven).

A further analysis between certain behavioural variables was also performed, leading to some interesting results:

- Distance of the user's residence from the open space influences the frequency of visits: people living nearer an open space tend to visit this open space more frequently than those living further away (all cities). This is particularly interesting, because as reported in the literature review performed in the context of the PREHealth project, there is limited availability of previous research in Europe connecting distance from residence with frequency of visiting open spaces and related benefits.
- Frequent users tend to rate less highly the open space visited than infrequent users (probably because they are faced with the less satisfying elements of the open space on a regular basis), while frequent users tend to experience more benefits regarding the improvement of their health (Gyor, Eindhoven), the improvement of their family's health (Darmstadt, Eindhoven), resting / relaxing and keeping fit (Gyor, Eindhoven), taking up a sport they like (all cities), meeting other people and socializing (Athens, Eindhoven).

- People who rate highly an open space tend to experience more benefits regarding certain activities they take up in it, such as keeping fit and taking up a sport they like (Darmstadt, Eindhoven).

6. Conclusions

The profile of open space users differs from city to city, although such differences are not substantially high in relation to key demographic characteristics such as gender, education and employment status. The typical visitor appears to be a frequent user, undertaking weekly visits to a local open space, although these visitors do also visit open spaces further afield in the city or away from it.

Activities undertaken by visitors in the open space differ from city to city, which may reflect the particular profile of the open space visitors in each city. However, such activities usually combine some passive elements (e.g. resting) with more active elements (e.g. walking or jogging). It is interesting to note that a significant part of the sample (about 1 in 3) reported that they would like to take up more physical activity or sport while visiting the open space, if they had the opportunity.

Also it is particularly significant that improving own health stands out as one of the most important benefits from open space visits.

Regarding patterns of user behaviour, i.e. how the visitors' profile is related to behaviour in the open spaces visited, the results of the data analysis have not highlighted many common patterns in the 4 cities studied: patterns shared by at least two cities are not many and concern selected characteristics of visitors. They provide however some interesting insights related mostly to frequency of visits to open spaces, distance travelled from home, benefits perceived and evaluation of open spaces.

Shared patterns among two or more of the cities studied show that:

- Frequent open space users tend to be in general the local people, who live near the open space. Among them, older people are the most frequent visitors experiencing a variety of benefits. Younger people and more educated people are prepared to travel longer distances to visit an open space; they enjoy a large number of benefits, which for the younger focus mostly on sport engagement.
- Local people visiting their neighbourhood park frequently appear to be more critical than others of the quality and facilities offered in it, probably because they come frequently in contact with the perceived problems.
- Frequent users appear to be the most appreciative of all regarding benefits gained, appreciating highly the health benefits for them and their families, keeping fit, resting–relaxing and taking up sports.

Life style also has an impact on the use made of open spaces, with some people markedly unwilling to move from their residence and visit an open space, having no interest in physical activity. People experiencing less stress and more free time (these two variable have been highly correlated) appreciate highly the health-related benefits and the same is evident amongst people who are more educated, compared to those less educated.

On the basis of the analysis of both face-to-face and online surveys, it appears that health-related benefits derived from use of open spaces are highly appreciated by citizens. Thus, a policy effort, common for all 4 cities appears to be necessary, to improve neighbourhood open space facilities so that local people are encouraged to visit more frequently, targeting in particular the young and less educated citizens as well as those who are physically inactive, and stressed/ having less free time. The improvements also mentioned by both survey respondents in the four cities offer a starting point for the local authorities to start evaluating the measures that are necessary to improve and make open spaces more attractive to citizens, encouraging their wider use.