Assessment of Quality of Living Environment Based On Interdisciplinary Research Methods - Selected Examples

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Abstract. Like most European cities of similar size, Cracow is growing dynamically. Newly created objects are not only of public importance but also housing, whose standards due to the architectural form, technologies and finishing materials are increasingly high. However, spatial solutions do not necessarily allow to assess new estates as high-quality housing areas. The article concerns the analysis of contemporary housing estates with regard to sociological issues, which is a vital supplement to basic urban research. It allows obtaining opinions on how residents perceive their place of residence, what elements they appreciate the most and which require corrective measures. The interview creates an opportunity to determine the needs of the residents of the housing estates and to identify factors affecting their sense of comfort, safety and satisfaction with their place of residence. The key objective of the study is to check the sociological and urban research methods for assessing the quality of the housing environment on the example of the Chelmoński housing estate in Cracow. Moreover, the author also wanted to obtain the residents' opinion on the area in which they have lived for several years – also taking into account changes in architectural and urban solutions. For this reason, the tests were performed twice. The first interviews were carried out in 2015, while the second, three years later. Such methodology created the possibility of making comparisons regarding different opinions of the residents as well as transformations introduced in a residential environment. The main research tool included a survey containing questions requiring either a detailed description or short answers-yes/no, I have no opinion. The choice of the test method resulted from its wide range of topics because the housing environment and its quality research are a broad issue covering the subject matter of many fields of science, such as architecture, urban planning, sociology, and psychology. The results of the conducted research indicated that the most important factors associated with the immediate surroundings are contact with nature, close access to local services, including shops and medical facilities, educational facilities and recreational areas. Due to the analysis, the research results may be useful for the units managing the housing estates, for the local government authorities, planners and urban planners deciding on introducing changes and imposing guidelines in the spatial structure of the cities. They can also lead to reflection and change in the behaviour of investors, developers and architects who have an impact on emerging housing estates. The research methods used in work are universal and can be applied to housing areas regardless of their location.
1. Introduction
Urbanization and constant development of the cities cause struggling with social, communication, infrastructure, environmental and health problems, [1]. Therefore, the topic of the quality of the housing environment has become one of the most important issues raised in the research and scientific projects. The structure of the land ownership in cities means that most housing projects are financed by private developers' funds, and thus the quality and form of housing estates can vary. There are legal documents in Poland, such as local development plans or building conditions, which impose investment plans. However, they are not strict and detailed enough to ensure that each of the newly designed housing estates will have adequate infrastructure and public spaces.

The research presented in the article is aimed at providing information and confirming the assumption that one of the most important elements of the immediate human environment, vital in the assessment of the living environment are green areas and open public spaces. [2] The article is also intended to increase the public awareness of people responsible for creating a housing environment, i.e. developers, investors, local governments, planners and others dealing with this issue, in order to be able to design, create and manage housing estates in the future. The results of the research are flexible and universal so that they can be used not only in Krakow or other Polish cities but also in countries with similar climatic, spatial and political conditions.

2. The aim of the research
When designing private investments, nowadays mostly residential, the designer and the investor, encounter many documents regarding design guidelines. In most cases, however, they relate to the form of the buildings and architectural aspects, and in no way analyse the area regarding the needs of its future residents. Social participation [3] covers only some urban or public projects as in the case of private investment there is no public consultation.

For the needs of the research, an individual questionnaire was developed, in order to examine the method of sociological research used in analysing the quality of the housing environment. It was assumed that the opinions and comments of the residents best reflect the needs of potential clients of subsequent housing complexes, and it is their opinion that one should include in the design and construction of housing estates.

Therefore, another goal of the research was to obtain opinions of Chełmoński Estate residents, gained over several years, to see which aspects of their place of residence are the most important and how these needs change depending on the development direction of the housing estate. The survey in the form of a questionnaire, being an interdisciplinary method of research, allowed these opinions to be demonstrated most effectively.

3. Assumptions and test method
The research was carried out at the Chełmoński housing estate in Kraków. The estate represents an example of a modern housing environment in large cities, where residential areas are constantly expanding. The estate is located in the north-western part of the city, about 5 km from the city centre, near the exit roads from Krakow, as well as service clusters and commercial facilities. It is worth noting that Chełmoński estate is the name adopted for the needs of the research – the analysed buildings do not have a formally given name, and the residents can identify their place of residence only with the help of the address. The estate is an example of constantly developing space. The first objects, terraced buildings were built about 20 years ago. Then about ten years later, a complex of multi-family buildings, semi-detached houses and single-family houses with a small density and height was built in the immediate vicinity. In the following years, more complexes of multi-family buildings were created, adjacent to the previous ones, and this is the case to this day. Over the past few years, the infrastructure has also developed in the form of service facilities, public transport or private educational institutions. Due to its heterogeneous nature, the Chełmoński housing estate allows identifying many different problems related to housing estates. The whole team consists of several
separate enclaves, differing in character, size, the density of buildings and urban planning assumptions.

![Map of Cracow with the location of the Chelmoński housing estate, [4]](image)

**Figure 1.** Map of Cracow with the location of the Chelmoński housing estate, [4]

A questionnaire survey was selected as the research method. Due to the changing nature of the housing estate, and its spatial and infrastructural development, the research was carried out twice - for the first time in 2015 and three years later. The surveys slightly differ from each other; the one carried out this year expanded the previous one. The questionnaire was divided into three categories - the first one concerned general information, such as the age of the respondents, the time they lived in the housing estate, and the general level of satisfaction. The second is related to the assessment of the availability, quantity and quality of the individual elements of the housing estate. The last part concerned the safety and general opinion on the housing environment.

As a part of the currently developing social participation, the questionnaire is a useful element in researching the preferences of the respondents. Social participation is the best form of expressing one's own opinion, needs and expectations concerning a given problem. It is the basis for the implementation of one of the principles of the democracy and works well in preventing frequent conflicts. Well-conducted participation can bring many benefits and reduce the number of complications. By developing specialist questions, one can receive very precise information necessary in the research process. This method does not give as accurate information as the environmental interview, but it allows to achieve a satisfactory level of knowledge of the data relevant or the study. It is also an important element of involving society in the decision-making process that would have a real impact on the surrounding space. [5]

4. Results of the research

The research included a random group of residents, of different ages, various types of work and coming from different Polish cities. A common feature of all the respondents is higher education and a permanent residence in the selected housing estate. They surveyed group did not include respondents who rent the apartments. One of the first questions concerned the factors that encouraged the purchase of the house/flat in the examined housing estate. The results show that the vast majority appreciated the proportions of the architecture in relation to the surrounding space. Density and height of the construction were attractive to over 80% of the respondents. The location and green areas were also highly assessed.
The analysis of the answers showed that the estate is evaluated positively, despite some undeniable flaws. Comparison of the results from 2015 and 2018 indicates that satisfaction with the place of residence is growing. In 2015, 55% of the residents recognised that the overall level of satisfaction with their nearest surroundings is estimated as average. In 2018, there were only 25% of such people, and 50% of the respondents rated it as very high.

The data received in the participation process, combined with the constant observation of the changes taking place in the neighbourhood of the Chelmoński housing estate, clearly show that the development of infrastructure influences the increase of satisfaction among the respondents. New investments expand the scope of services, commercial stores and public facilities, which directly affects the quality of life. The general satisfaction of the respondents is also influenced by the constantly growing attachment of the residents to the inhabited area and the lack of rapid changes within the Chelmoński housing estate itself. Getting to know the neighbours, tightening relations within the community and getting to know each other better means that the respondents appreciate the stability of their place of residence more and more, compensating them the spatial conditions of the housing estate. In addition, the high level of security becomes another strong argument for recognising the estate as a good for living.

The urban norms from 1974 defined the maximum distances between multifamily residential buildings and the most important service, commercial, educational and public utility facilities. In addition, they determined the size of these facilities on the basis of the number of potential residents, for example 5% for primary school, kindergarten or clinic. At present, there are no legal provisions regulating the need to provide such facilities for private development investments, which is due to the lack of adequate infrastructure in contemporary housing estates. In most cases, if such a facility already exists, it does not guarantee access for all and difficult communication favours people moving by cars.

**Figure 2.** A graph showing the factors that decided about the choice of the Chelmoński housing estate as a place of residence

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The graph shows the factors that determine the choice of place of residence. The factors are listed on the x-axis, and the percentage of people who considered each factor is shown on the y-axis. The data for 2018 is indicated by the green bar chart.
Figure 3. A graph showing the level of satisfaction of the residents with their place of residence

For comparison, the norm from 1974 defined the time of walking on foot to primary school at 5-10 minutes and the average walking time by residents of the Chelmoński housing estate is about 20 minutes. It should be noted that some respondents took into account the access to a public facility and some to the private institution. It takes about 18 minutes to get to the kindergarten.

The norms also set the rules of accessibility for public transport, in the form of determining the maximum distance to the nearest bus / tram stops as 500 m. According to the respondents, the time of walking from the estate to the nearest stop is approx. 12 minutes. which, assuming the average speed of human movement, gives approx. 1000 m. Undoubtedly, all respondents share the opinion that despite their high level of satisfaction with the environment, the most important and at the same time the most-missing element of the estate are green areas. Surprisingly, the researched housing complex is adjacent to a vast, open green space! Why, then, the inhabitants do not notice it? Do not appreciate?

The answer was also included in the questionnaires: "lack of the managed green areas". The meadows or clusters of trees located nearby, cannot replace developed, thought-out areas with high and low vegetation. Contact with nature is one of the most important factors shaping the settlements, affecting environmental, social and health aspects. But contact with nature is not only provided by the park or square seen through the window, but also a space with seats, walking paths, or sports fields where neighbourly contacts are established.

Figure 4. A graph showing the assessment of the quality of green areas and public spaces on a scale of 1-10
Equally negative, the residents spoke about public spaces on the estate. Most of them confirmed that there are no such places, and if they start appearing somewhere in the area, they are not used in any way. Respondents also acknowledged that public spaces, green areas, benches, squares, and playgrounds for children are for them, in addition to the safety and density of buildings, the most important factors shaping the housing environment. Each of the respondents in an open question regarding how it assesses the estate and what it lacks, decided that it is common public spaces and green areas for example in the form of a park or square that is the biggest minus of the housing estate.

5. Summary
Research on the quality of the modern residential environment orbits around three areas. The first one focuses on the way in which the housing environment affects the well-being of residents, assuming that welfare is the most important component of their lives. The second one analyzes the perception and acceptance of quality features of the housing environment by its users. The third area concerns the economic aspect, links between the quality of the housing environment and the prices of apartments on the market. [6]

Over the past few years, large and other Polish cities have been experiencing a "housing boom". It would seem that the most important factors affecting the choice of residents are: location, housing prices and architectural quality. The above studies clearly show that not only a pragmatic approach to the housing environment counts for its potential residents. The housing estate is not only an architecturally homogeneous complex of residential buildings with necessary services, green areas and a system of access streets and car parks [7], but also the entire neighborhood community that needs common public spaces, contact with nature and access to recreational areas. It is worth considering whether contemporary housing estates meet these standards? Does the quality of the housing environment provide residents with environmental health comfort?

The World Health Organization defines the definition of health, which is a state of complete physical, mental and social well-being, not just a lack of disease or infirmity. But there is also so-called environmental health that includes those aspects of human health that are determined by biological, chemical, physical, psychological and environmental factors; it also includes theoretical assumptions and practice in the field of assessment, elimination and prevention in the environment of those factors that may adversely affect the health of current and future generations. [8]

The example of the Chelmoński housing estate shows that even the best quality of architecture, a sense of security, density of buildings or other positive aspects of the housing complex will not ensure the satisfaction of residents for a longer time. Public awareness is not developed so that residents decide to buy a flat only in well-designed housing estates. The economic and location factor has a huge impact on human decisions, during the process of searching for a place of residence and it will probably not change for the next few years. However, this does not change the fact that everyone, after some time, notices how important for him are green areas, public spaces, playgrounds or bicycle paths. The studies carried out clearly show that the residents paid attention to other aspects when buying a flat, and something else is now a problem for them. Therefore, it is people responsible for the creation of residential areas - developers, architects, city planners, municipal authorities - aware of human needs, not only present, but above all and future generations, they should ensure the highest possible quality of housing estates in terms of environmental, health, social and urban.

As already mentioned at the beginning of the article, the results of the research are so flexible and universal that they can be used not only in Krakow or Polish cities, but also in countries with similar climatic, spatial and political conditions. They point out that there are certain factors and aspects that are unambiguous and consistent for society regardless of age, education or origin. They also show that it is worth carrying out social participation not only in the case of public investments, but also private, ask residents about what they need, which makes them feel comfort and safety. It is a man who should be the center of urban space, and all who create this space should strive for it.
References

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