

Metro system became an integral part of almost every big city. Except for the obvious communication functions, underground network plays many important roles in the daily life of the citizens. Metro facilities form important landmarks, which focus the social life of the residents. At the same time, a significant portion of urban public space is created within the metro facilities. In the underground one can find cafes, shops, and even entire shopping centers. Currently, these spaces often perform as art galleries, where the paintings, photographs, posters or other arts are presented. Subsequently, metro stations become a manifestation of modern art. Its great structure, futuristic materials and large paintings create a unique atmosphere and are often perceived as a piece of art. Underground space plays an important role in the city life, however not everywhere its architecture is corresponding to the expectations and needs of the users. Except for the described realizations and several other projects, that take special care of the quality of the space, the underground facilities are generally experienced negatively. The problem lies in the physical characteristics of these places. In particular, the design of the structures located below the ground level is largely driven by the engineering factors, which mostly consist of structural, technical and purely functional values as well as economic aspects. The underground facilities are environmentally isolated and they are not connected to and not stimulated from the outside. Staying in such interiors, which are very much different from a common human environment, is clearly associated with many psychological barriers that have a significant impact on the users. Despite the number of behavioral aspects affecting humans' well-being in underground space, there is still a significant gap in the research focused on the relationship between the built environment and users' needs. The issues concerning the psychological and social aspects of underground space design are also often overlooked in the design process.

The main objective of this research project is to investigate the determinants of users' well-being in underground metro stations. The study links users' perceptions of the built environment condition with its spatial characteristics. The specific goals of the research include the recognition of the relationship between perceived comfort and safety and spatial characteristics, identification of optimal architectural solutions of the underground metro station design and classification of the examined stations according users' ratings.

The proposed project deals with the research questions that combine two distinct fields of scientific activity. In particular, this research concerns the topics that are relevant for psychology and the aspects that relate to the architecture and urban planning. The research combines theoretical and empirical studies, as it consist of both, the development of a new theoretical framework and the quantitative analysis of empirical data. The research will add to the current state of knowledge regarding the assessment of the underground space and the optimal design of metro facilities. The results will be especially important for Warsaw's metro area; their validity can be however easily expanded and transferred to other underground spaces. Consequently, the results of this research project can be important for the ongoing public debate regarding the comfort and safety of such facilities as isolated walkways beneath the main streets, train stations and other architectural structures located underground, which constitute a significant part of the public space in the city.