Visualising „genius loci" of built heritage

Kepczynska-Walczak, Anetta [1]   Walczak, Bartosz Marek [1]

Abstract   A holistic view on the city was shaped under the influence of such fundamental works as the "*Image of the city*" by Kevin Lynch, or "*Genius loci*" by Christan Norberg-Schulz. Especially the latter publication defined the identity of places as a resultant of a number of factors, including intangible values, which allowed better understanding of the complexity and richness of the city phenomenon. Similar assumptions laid foundation for the recommendation on the protection of the historic urban landscape (HUL) adopted during the UNESCO General Conference in 2011.

The above-mentioned issues are crucial for visualising built heritage, since not only shapes and dimensions are responsible for the proper understanding of the place. The intangible values are also of great importance. This is the main topic of the paper, which aims at presenting various methods and techniques in reconstructing and representing heritage buildings and areas. This is illustrated by case studies, based on the professional and didactic experience of authors. In particular, traditional hand-drawing techniques and computer-based visualisation methods are compared.

Despite the adopted technique the most important seems not only to achieve certain level of accuracy but also to reflect *genius loci* of represented site. The both issues have to be well-balanced to achieve sustainable and satisfactory result.

Fig. 1 A visualisation of the interior of the Scheibler Mausoleum in Lodz (source: Computer Aided Design Unit, Institute of Architecture and Urban Planning, Lodz University of Technology)

[1]. Institute of Architecture and Urban Planning, Lodz University of Technology, Lodz, Poland

Introduction

Authors represent two different research divisions of the Institute of Architecture and Urban Planning at the Lodz University of Technology, namely: the Computer Aided Design Unit and the History of Architecture and Heritage Conservation Unit. The first researcher is interested in the use of information technologies in visualisation and reconstruction of built heritage, while the second one focuses on preservation of cultural values and contextual architectural design in urban areas.

The outcomes of the authors' recent research, professional and didactic experience allowed to indicate that there are two important issues related to both - the visualisation and the heritage conservation design. First, to make the local society and the investor convinced and familiar with proposed architectural solutions. Secondly, to draw the public attention to the issues related to the protection of cultural values, which in consequence results in continuity of heritage landscape and sustainable development.

Such an approach means that it is neither the geometry or the accuracy of shapes and materials, which is the most important. On the contrary, it is an overall visual effect that appeals (or not) to the audience. It is observed, the technical drawings and in-depth analyses are not enough to approach the general public, and that is why photorealistic presentations have become so popular in communicating with the laymen. What is more, the final result of any architectural intervention depends on a number of issues which influence the perception of the urban landscape - its image refers also to the invisible values (Calvino, 1978).

The values discussed above may be enriched by the social significance of a monument. This is, however, usually derived from the importance of the historic personalities and events which had an immediate relationship with the monument. An objective evaluation of the significance of historic personalities and events is not a task for heritage institutes but the social significance may be taken into consideration in deciding about the priorities of protection or restoration of a specific monument. Furthermore, the consideration may also be given to the significance assigned to the monument by public opinion within the area.

Genius loci

A society's approach to its heritage raises the issue of emotional links with the environment and the feeling of *genius loci*, or sense of place. The term derives from the Roman religion, according to which it represented the protective spirit of a place. The historical concept of *genius loci* survived until modern times but its sense evolved gradually. This transformation consists in going away from the natural world towards the artificial (i.e. transformed or created by a man) world. In the modern times this concept was first adopted in the 18th-century English landscape design. The principle indicating that any design should always be adapted to the context in which it is located emerged from the poetry of Alexander Pope, who considered *genius loci* as an important, intrinsic part of a landscape.

In the context of modern architectural theory, genius loci has profound implications for place-making, falling within the philosophical branch of phenomenology. The foundations of such an approach were laid by Christian Norberg-Schulz, who indicated that each space is a resultant of the concrete realism defining and effecting the place, as well as the certain phenomena that each space has, established by countless aspects of the environment of which the space is located (Norberg-Schulz, 1979).

This is concerned with the physical and cultural characteristics of each space that evolve through time and are evoked when this space is called into mind. Therefore, this is a quality that contributes towards the identity of a place and enables distinguishing between one place and the other. What is more, strengthening this sense of place can then be seen as a means to establishing sense of identity and belonging.

Because of its metaphysical, abstract character and internal complexity, this phenomenon escapes scientific analysis, becoming very difficult to find and to define. However, the

importance of the sense of place cannot be underestimated because this eventually leads to a better quality of life as one is able to relate to one's environment with a feeling of security and satisfaction. The loss of the urban heritage can sever the ties which people often have with their past and threaten the cultural values and traditions of the local built environment. Thus, even though cultural heritage resources can be classified according to building type or function, each individual site may still be qualified for its specificity and uniqueness, its *genius loci*.

Such an approach refers also to the individual, subjective understanding and perception of any place (cf. Lynch, 1960). What is more, similar assumptions laid foundation for the recommendation on the protection of the historic urban landscape (HUL) adopted during the UNESCO General Conference in 2011. The document stresses that urban areas are one of the most abundant and diverse manifestations of our common cultural heritage, shaped by generations and is a key witness to the efforts and aspirations of mankind throughout history (UNESCO, 2011).

On the other hand, the controversial role of IT in the field of architectural conservation was stressed by some authors (e.g. Ashton, 1995). The computer-aided drawings were often being considered by some traditionalists too mechanical and sanitised, and therefore inappropriate for such application. However, recent experiments have proved that it is possible to include and adjust parameters essential for the perception, such as fog, transparency, and facade-textures (Stellingwerff, 2003). Even the viewpoint is of importance for the perception of environment (Radaelli et al., 2011).

The above-mentioned issues are crucial for visualising built heritage, since not only shapes and dimensions are responsible for the proper understanding of the place. The intangible values are also of great importance. This is the main topic of the paper, which aims at presenting various methods and techniques in reconstructing, representing and communicating heritage buildings and areas.

Visual communication of sustainable solutions

The first case study is based on an urban renewal project proposed for a historic Italian town of Caprarola by the Prince of Wales's Institute of Architecture. It was focused on the five small piazzas along the principal street. The aim was to revitalise these places and make them more suitable for human existence, following the concepts of traditional urbanism - particular attention was paid to the need for retaining local individuality, maintaining a balance with nature and society that has been developed over many generations (The Caprarola Project, 1997).

Traditional design approach was followed by similar representation methods. The project started with the observation of the town and making sketches. It evokes the Gestalt theory - psychological point of view that says it is necessary to consider the whole of something, since the whole has a meaning apart from its individual elements. A meeting with the local authorities enabled better understanding of the problems to be solved within the task.

The local society took notice and many people were attracted by an exhibition of paintings, sketches, drawings and models the project concluded with. This was a crucial moment, since looking at representations provoked the observers to decide whether the proposal was "good" or "bad" (Fig. 2). In other words, the perception and understanding were the key part of social participation in urban and architectural design process (cf. Nada Baltes-Brkljac, 2011). It is not obvious, however, what methods should be deployed to communicate design solutions to public. Paradoxically, it appeared that traditional representations helped to achieve that, which proved words of Francis D. K. Ching that observing drawings makes people thinking (Ching, 2000).

In this respect the project was successful in terms of design quality, visual communication and strengthening civic pride. What is more, the exhibition explored the connection between sustainable solutions and the artistic skills which helped to present them. In fact, the results of the task force were considered as one of the best and most complete projects promoting traditional urbanism, and became a basis for urban improvement conducted by local authorities.

Fig. 2 Piazza Nuova in Caprarola - "before" and "after" the intervention. Traditional hand drawings were adopted for the purpose of the project, matching the aim to keep the particular atmosphere of the town (source: Authors own work)

The lost "spirit of place" recreated

Ksiezy Mlyn is the main part of the Karol Scheibler's industrial complex in Lodz - one of the most important sites of this type in Europe. It developed in the years 1855-1921. The whole area comprises approximately 500 hectares of land on the outskirts of the very centre of the city. The complex consists of a large production buildings, owners' residences, workers' houses, shops, schools, hospitals, and even a farm. The site is of an outstanding historic value and authenticity. It also has a special significance for the identity of the local community (Walczak, 2001).

This latter issue laid the foundation for the student project, the purpose of which was to develop a comprehensive presentation of Ksiezy Mlyn, which included: a 3D model of the whole complex; detailed 3D models of the most valuable heritage buildings (the managing director residence, a hospital, a factory and the school for the workers' children). The above-mentioned models were the basis for the development of mock-ups for self-assembly. There was an interactive map created with descriptions of particular buildings and corresponding photographic documentation, illustrating their past and present state. Particularly interesting results were achieved through a series of views, recreating daily life in Ksiezy Mlyn, in the style of old postcards from the turn of the 19th and 20th centuries. To achieve that, the detailed 3D models of historic buildings, were processed in graphic programs. The aim of the latter was not to represent the authentic appearance, but rather to recall the lost atmosphere of the place, which filtered through the sensibility of the authors, actually revealed the meaning of this site to young people. In this respect it is necessary to stress that the Scheibler complex had been irreversibly transformed either through the regeneration process or the post-industrial decline and abandonment. In other words, the outcome might be described as a sentimental journey through time. It was the lost "spirit of place" which was recreated, not the heritage buildings themselves (Fig. 3).

Fig. 3 Ksiezy Mlyn in Lodz - daily life scenes from the past in the manner of old postcards. The encapsulated emotions towards the heritage depict the genius loci (source: Computer Aided Design Unit, Institute of Architecture and Urban Planning, Lodz University of Technology)

The built heritage depicted

A number of historic buildings - gems of local heritage were modelled and visualised to create their accurate representations. The project included models of the Scheibler Mausoleum at the Lutheran cemetery in Lodz (Fig. 1), the mutual credit society institution (Fig. 4), and the Richter villa - an excellent example of the 19th-century industrialist residence (Fig. 5). In all cases the same method was adopted. Models were made on the basis of measured drawings and architectural surveys, therefore details were of highly defined precision. It is necessary to stress that the achieved realism reflects not only a representation of the geometry, but also a study of lighting, materials and textures. What is more the it was possible to confront the final outcomes with the real objects, which were well-preserved buildings or in the course of conservation work aimed at restoring the original condition.

In the case of the Scheibler Mausoleum, particular attention was given to the appropriate light and the "worn-out" appearance, while the visualisations of the seat of mutual credit society and the Richter villa reflect the lush and splendour of the 19th-century interior design.

Fig. 4 Visualisations of the mutual credit society institution interiors (source: Computer Aided Design Unit, Institute of Architecture and Urban Planning, Lodz University of Technology)

Fig. 5 Visualisations of the Richter villa interiors (source: Computer Aided Design Unit, Institute of Architecture and Urban Planning, Lodz University of Technology)

Conclusions

Nowadays, with the advanced information technologies available, there is a tendency for photorealistic or even hyper-realistic representations, which are generally considered as easier to understand by the laymen, including decision-makers, investors, and common people involved in local issues, voting for or against. However, the most accurate image may not recall the unique atmosphere of the place. Particularly, in the case of a virtual reconstruction of no-longer existing heritage, even the most photorealistic representation is an illustration of some assumptions and author's imagination rather than of a real building.

In other words, it is possible to admire the quality and precision of modelling without learning about the spirit of the place. On the contrary, the genius loci might be recalled with the use of less literal representations, or hand drawings, which stimulate viewers imagination and sensitivity.

The above-mentioned observations are of crucial importance in the heritage conservation and the architectural design process in a historical context. In this respect, it is very important to capture the atmosphere of the place and preserve its intangible cultural values. To achieve that, it is necessary to maintain a balance of objectivity of forms and subjectivity of experiences related to the place, which certainly is a complex and difficult task, and requires further research.

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