

dull, living in harmony or disharmony with oneself, prudent or imprudent, convinced or unconvinced about value of personal goals.

In the research presented by Chris Heywood (2005) perceptions and expectations of observers were assessed on the example of a library. The point was that perceptions and expectations of users have to be assessed from the subjective, objective, but also psychological aspect. He stated that measuring and assessing user expectations is an important step towards successful and efficient management. In the development of buildings and the environment investors, urbanists and architects should pay heed to objective value indicators, but subjective and psychological value indicators as well.

4. Conclusion

This was the first research conducted in Slovenia that encompassed the issue of property in connection with the perceived social climate and indicators of efficiency. The issue of property is inseparably linked to issues in the physical and social environment, ecology, economy, sociology, law, transport, civil engineering, urbanism and architecture, as well as social-physical aspects that are tied to various characteristics of property.

Any environment surrounding »humanity« has certain features, characteristics that need special attention, simply because they are very important for humans, their life, survival, living, leisure and work. All of these »directed« attentions of the viewer can be evaluated, both in the sense of satisfying their personal needs, as well as economic indicators, which will be the topic of further research.

The completed research points out the interdisciplinary nature of property, whereby solutions for property issues have to be tackled also from the social-physical aspect. The latter is a mesh of wishes, consciousness, desires intertwining with production-technical issues of day to day life.

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Barbara GOLIČNIK

Environment-behaviour studies: A synergetic bridge between designers and users of open space

1. Introduction: People and places

The paper focuses on questions such as: How much urban planners and designers really think about potential future users of places, whether considering strategic decisions about spatial changes or being concerned about their implementations, actual planning and design? Where in the planning process is the thought about a spectrum of variety of future users, even more, about those questions as to how they use places, what kind of co-habitation may they perform, how much space and time do they need and use by any such engagement, what kind of places do they seek for play or rest on their daily routine through the city etc.? How much and how well do then planners, architects, landscape architects and urban designers, actually collaborate with their most numerous and most frequent clients, users of urban open public spaces? How much do they actually know about that what spatial elements do stimulate or inhibit certain use or more of them, and what possible co-habitation and events might be expected in different places?

Carmona *et al.* (2003) see urban design as a means of manipulating the probabilities of certain actions or behaviours which should be an activity that provides people with choices, rather than denying them choice. Thus, it reflects the provision of opportunity and managing its use and involves urban designers as professionals who can master increasing space potential to create a meaningful, significant and desirable place. From this point of view, Carr *et al.* (1992) emphasise a need for a theoretical frame of reference and a way of working that helps designers and managers to see the dynamic relations between people and public space clearly, so as to manage change effectively. To suggest the way of looking at this relationship, Carr *et al.* (1992) stress further, that not abstract human needs or place qualities but the human dimensions of public space are intended to provide such framework, and emphasise that user and human dimensions of places can become the focus and subject of spatial analysis.

Goličnik (2005) remarks the importance of the expression of physical structure of places with usage spatiality and stress, that in this context it is important to know potential behavioural patterns in urban landscape. Talking about the spatiality and articulation of places in the language of patterns of usage is seen as a key challenge in design practice. On this basis Goličnik (2005) emphasises the role and contents of empirical knowledge about usage-spatial relationships. These relationships are addressed from two angles: firstly, in terms of actual use of squares and parks in city centres, and secondly, on the basis of urban landscape designers' views, beliefs and perceptions about public open spaces and their uses.

The evidence, analysis and evaluation of actual occupancies of urban open public spaces are based on the method of observation and behavioural mapping. Designers' views and beliefs about public space design and its potential use resulted from the workshops with urban landscape designers. Data collected by the workshops is reliable because of asking experts of urban landscape design about place design or its potential use in places that were unfamiliar to them. Although there was a common introduction to each task in the workshop, workshop participants dealt with each task individually.

Six workshops, of which each took for about one hour, represent a sample of 35 participants in all: 10 landscape architects from two landscape architecture offices, and 25 students, mature, undergraduate and postgraduate students from the Landscape Architecture department as well as postgraduate students from Urban Design course in the Architecture department, all based at the Edinburgh College of Art. Data collected in Ljubljana by using observation and behavioural mapping technique became relevant for the workshops taking place in Edinburgh. The cases of Trg Republike, Tivoli Park and Dvorni trg were selected from the whole sample of observations in Ljubljana, which were recorded in May 2003. The data collected by the mapping is reliable because of repeated observations on different days, times and weather conditions.

2. Use of place

Results of designers' workshops showed that the majority of those questioned (80%) thought that they could predict the future use of places pretty well.

A comparison of behavioural patterns recorded on the basis of observations in the Trg Republike and in a part of Tivoli Park in Ljubljana, and designers' suggestions about any likely usage of these two places are different in many views. The lack and inappropriate designers' perceptions about use of places is illustrated also by the facts that the majority (69%) believed that they predicted uses better in a park than in a square. Detailed analysis of the actual mapping of these two places revealed that, interestingly, they were more accurate about the selection and location of uses in the case of the square.

The analysis of behavioural patterns recorded during the whole observation period in the Trg Republike showed that the node between both the longitudinal platforms and the car-parking area, the most articulated about at the same time the narrowest part of the square, is in use the most and is the area with the most diverse activities in the whole square. The results showed that in the morning the square was usually mostly occupied by people walking through, cyclists, from time to time by groups of school children sitting under the flagpoles structures or playing around between low walls and vegetation boxes articulating the staircase areas of the node between platforms. Skateboarders, bmx-acrobats and those propelling scooters had been hardly noticed in this particular part of the square in the morning or early afternoon.

Considering the node between both platforms in Trg Republike, proven from observations to be the busiest in the whole square, the biggest majority of workshop participants

(86%, 30 participants) saw it as a setting for passing by. About one third of that majority, 9 participants, did not recognise any other activities but transitory ones. About 50% of them saw this node of both platforms also as a potential environment for sitting or waiting. Only five of them, in addition to passive uses and engagement in passing by, recognised this articulated area between platforms as an attractive place for skateboarders or roller-skaters. Five of the participants did not recognise any particular type of activity in this part of the square. Although the lists of suggested likely activities for the Trg Republike (workshops) and observed uses (behavioural maps) seem to be quite similar, a detailed analysis of location of uses and the ways of their actual occupancies of places shows some differences and divergence. Such findings are illustrated later in this paper in the case of sitting and skateboarding in squares.

2.1 Staircases, skateboarding and sitting

Goličnik (2005) remarks quite a remarkable presence of skateboarders in the Trg Republike in Ljubljana as well as in Bristo Square in Edinburgh in addition to more conventional daily usages such as passing by, sitting, waiting for and stopping, and cycling. None of the squares was planned as skateboarders' platform but both the examples showed that steps, which merge to the flat platform, are essential elements that attract skateboarders. These merged platforms are of key importance for actual use. Skateboarders use a combination of steps and platforms in two significant ways. They are either jumping over a few steps or are approaching the along site of the lowest stair, jumping on, sliding across and finally jump off.

According to this empirical evidence about skateboarders' effective environments, the workshops' results show that only a few participants from the whole sample recognised the essential spatial elements that may attract skateboarders.

The fact that designers often have skateboarders in mind illustrates also the design proposal for the Alexander Platz in Berlin. Considering the discussion so far, the representation in figure 5 raises questions such as, how can a skateboarder get this high, and from where? The way the skateboarder is placed is not fully considered. On the one hand, one can excuse such a demonstration of a place's use as a collage, a collection and presentation of ideas with no realistic connotation. However, on the other hand, the visualisation is far too precise in perspective and details concerning other users, so that this image could be taken for a realistic visualisation of the events of the square. Based on observations of real-life use in squares, this skateboarding image would be impossible to achieve in practice because there is no appropriate change in level of the right size and orientation nearby.

A scrutiny of sitting generally reveals a better response from workshop participants. The analysis of their actual drawings shows that in many cases the response was not sufficiently precise, especially when concerns relate to selectivity in usage's placement. It is especially concerned when taking into account the facts from literature review (Gehl, 1987, Whyte, 1980), and observations (Goličnik, 2005), that a crucial role when choosing places for sitting are played by support from the details of physical environment, spatial boundaries, unobstructed views and niches where one's back is covered. Some spatial entities, which the workshop

participants suggested were most likely to be used for sitting, were revealed by the observation-based evidence to be marginally in use or even unused. The analysis in more detail shows that a sizable number of the workshop participants selected practically all possible settings as probable for sitting, for either individuals or groups. Consequently, settings which were proven successful from observation, such as areas or steps articulated by planting boxes and low walls, and flagpoles structures, were included almost automatically.

3. Place design

The paper continues the discussion of the workshops results based on outlining design proposals with regard to given behavioural patterns (Dvorni Trg, Ljubljana). In this respect (Goličnik, 2005) addresses designers' responses on different single behavioural patterns as well as on their various combinations. Aside from some explicit messages from the behavioural patterns, the key information required for such a basic design layout of a place, was the height difference between the west and the east edge of the square.

At a first glance, the general designers' response to some single patterns, such as a transitory flow or sitting is quite satisfactory. The majority (about 85%) interpreted a main 'pedestrian corridor', and quite a sizable number (about 75%) responded to sitting patterns. However, further analysis showed that about 50% of the participants did not give any indication as to how the height difference between both ends of the square might be addressed or they neglected the skateboarding patterns in their design proposals. To a certain degree, these two issues might complement each other, as the knowledge about, and response to skateboarders' movement might help to figure out how the level changes could be arranged. Further analysis of design proposals showed that there were solutions which, many times, were driven by a spatial context itself, a formal structural message from the area or the ideas beyond that; and showed very little response, if any, to a behavioural pattern as such in the first place. Accordingly, the results revealed three categories reflecting the basic design layouts, '*quite responsive*' (13 cases), '*mostly indifferent*' (14 cases), and '*non-classified*'. These latter usually refer to proposals which actually do not address design as such, but which stay in a level of zoning and bubble diagram expression.

The category of '*quite responsive*' represents the proposals which reflect very well on explicit passive patterns such as sitting, as well as the main pedestrian flow, and they address the areas with no or limited uses, too. The cases which are ranged as '*mostly indifferent*' represent the responses where the initial indicators to a reading of the behavioural patterns are quite good, but then a sort of 'make up' process spoils them. It is about the production of usually geometrical and repetitive patterns of elements, about paying attention to spatial composition and its rhythmic order, and how this emerging composition fits into a narrower or broader spatial context, rather than focusing more on a response to the behavioural patterns themselves.

Although a sizable group of workshop participants responded very well, there was still about the same number of designers who seemed to be much less sensitive to these usage-spatial concerns. However, it should be born in mind

that the workshop participants were subjects to major time constraints and other pressures such as: an intensive introduction about places, limited time for any drawing tasks and no individual discussions, therefore there is no intention to make undue criticism. Nevertheless, this range of illustrations shows that designers' perceptions about uses and places are not always in harmony and that, for still to many of them, there is insufficient awareness of this link between places and people's use of them.

4. Conclusion: Spatial planning and design – the realm of environment-behaviour studies

The results from the workshops, where designers mapped out likely uses in detailed maps of selected places and revealed a physical structures of a particular place by knowing its behavioural patterns, reflect on actual designers' knowledge about the usage-spatial relationships in places, and highlight potential applicability, role and value of empirically gained knowledge on the basis of observation and behavioural mapping. It showed that designers' beliefs and awareness about uses in places, in some aspects, differ from actual use. Accordingly, the paper stresses the sense of empirical knowledge and its implication in the design process.

Knowledge about the intensity, dimensions, density, frequency and duration of different uses in place, from plying to stopping by coincidence, and by this understanding the ways of cohabitation of different usages, offers key criteria for evaluation of a success of a place. In urban planning and design it reflects a bottom-up approach. The entire approach based on the observation and behavioural mapping, using GIS, represents an effective method for evaluation of existing or planned places. It offers a tool to designers and those involved in decision-making for estimating more or less likely actual usage of a place.

Observation and behavioural mapping, research method and analytical technique of environment-behaviour studies directly deal with the relationships between users and places. Thus it is recognised as an effective and efficient means to gain empirical knowledge about these relations as well as useful tool for the assessment and post occupancy evaluation of places.

5. A final resolution

Behavioural maps graphically express the structural relationships between physical qualities of places and their users. They are seen as a mediator, which may provide a possibility for improvement of designers' perception about potential and actual uses and occupancies in public places. From this point of view behavioural maps are the basis for a better collaboration between users and designers, as they can provide knowledge about possible or expected behavioural patterns in places and as such they can lead into an effective, efficient and responsive design.

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Illustrations:

- Figure 1:** The selected sites included in a case study in Ljubljana (Goličnik, 2005: 63).
- Figure 2:** The overall patterns of daily occupancies of Trg Republike in the mornings (left) and afternoons (right) (Goličnik, 2005: 94)
- Figure 3:** The assembly maps of spatial occupancy, showing a combination of all the observations on the days when skateboarders were using each place (Goličnik, 2005: 87).
- Figure 4:** Skateboarding in Trg Republike: the assembly maps showing likely patterns of occupancy (workshops) and actual pattern (observations) (Goličnik, 2005: 133).
- Figure 5:** A visualisation of a winning design proposal for Alexander Square in Berlin (Garten und Landschaft, 2004, 8: 45).
- Figure 6:** Sitting in Trg Republike: the assembly maps showing likely patterns of occupancy (workshops) and actual pattern (observations) (Goličnik, 2005: 134).
- Figure 7:** The input data provided for a task concerning place design in workshops: a daily pattern of use (left) and the overall daily pattern of use (right) (Goličnik, 2005: 146).
- Figure 8:** An example of a quite responsive solution (left), and an example of an indifferent design proposal (right) (Goličnik, 2005: 152, 154).

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Mojca ŠAŠEK DIVJAK

Synergetic conceptualisation of the new compact centre Ilovica in southern Ljubljana

1. Introduction

In Ljubljana the demand for building land is very high, especially for housing. We can establish that in the last years the scope of complex housing development has been diminishing, but because of the growing demand prices of land and homes have correspondingly have been growing. Besides, in the wider area of Ljubljana dispersed housing is rather extensive. These are unorganised low-density areas (mostly detached single-family homes), often with deficient utilities and low environmental standards. The prevalent circumstances demand clearing, suitable densening in well-accessible areas and the creation of complementary struc-

tures with mixed contents, such as: businesses and commercial programmes, services, crafts and manufacturing programmes, but above all, denser housing patterns with better use of building land. Thus we could alleviate the issues caused by dispersed housing and provide these areas with missing contents, which would also benefit their economic revitalisation.

Besides architectural-urbanistic planning and solving of technical-technological issues, one of the key conditions for implementing such a project is the adequate use of land policy instruments (re-plotting etc.) with a well-prepared investment programme, which is based on the assessment of economic feasibility (preparation of the building land and construction the utilities network and the buildings themselves).

At The urban Planning Institute we were aware of these requirements also when we were commissioned by the Municipality of Ljubljana to undertake a project about issues of dispersed and denser settlements (Šašek Divjak et al., 2001, 2002 etc.). In one of these projects (Šašek Divjak et al. 2003, 2004) we did a detailed study of the Ilovica area (planning zones VS1/5 in VK1/1), which was also a test case study project for the contractor. We tried to complete a comprehensive research of all the emergent issues. Thus working in a multi-disciplinary team of various disciplines and professionals was essential (architect, urbanist, building mechanics engineer, hydrologist, surveyor, civil engineer and economist). Only such cooperation, which is a consequence of mutual action, can lead to good results with synergetic effects.

2. Dealing with the Ilovica site (VS1/5 and VK1/1)

Between the roads Ižanska cesta, Jurčkova cesta, Peruzzijska ulica and the southern ring road

Because of its vicinity to the city centre and green hinterland of Golovec Hill and the Ljubljansko Barje (Ljubljana Marsh), the area has a beneficial position. With the completion of the southern ring road its accessibility significantly improved. Its setting enables good connections to the business and shopping centre Rudnik, as well as the nearby commercial, health care and cultural centre Rakovnik.

Towards the East, the Rudnik sport«s park is planned, which articulates the development area«s edge. According to the Spatial development concept of Ljubljana (2001) this is also the green park prospect connecting the two entities of Golovec and Barje. Nearby, towards the West, lies the interesting waterfront area of the Ljubljanica River, while towards the North lies the hilly Golovec. Both are easily accessible from the proposed new neighbourhood.

Appeals against the plans prepared in the 80s consisted of objections about the area«s scope and possible number of new residents in the area (according to the proposal from 1987, more than 20.000, and slightly less – 15.000, in 1988). Despite the area«s size, this number of new residents would be too high and a serious ecological burden. Therefore it was necessary to reconsider the relationship between built and un-built surfaces, number of inhabitants and building economics. The morphological concept of Ljubljana (MOL, 2001) suggested low and medium density building amidst greenery.